

Final Report

Understanding Performance and Impact of Producer Companies: *Cases studies across States and Promoters in India*

Sukhpal Singh



Centre for Management in Agriculture (CMA)
Indian Institute of Management Ahmedabad

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Foreword

The Centre for Management in Agriculture (CMA), ICMA has been actively engaged in research on the management of the agriculture, food, agribusiness and rural sectors of the Indian economy since its inception in 1971. The Centre regularly undertakes research studies for the Ministry of Agriculture as well as other agencies, on policies and institutions related to technology, resources, inputs, production, procurement, processing, marketing, and development, and regulation in these sectors. It gives me great pleasure to present to the readers another important work of CMA carried out by Prof. Subhpal Singh.

Linking of small producers with markets is an issue of great academic and policy interest in the developing world for improving livelihoods of farmers and the poor. Difficulties in integrating small producers with modern markets include high transaction costs in dealing with smallholders having small volumes to sell, and lack of organization of small producers. A very small proportion of Indian farmers are a part of any organized action for buying from or selling in the market. The traditional co-operative route to small producer organization has frequently not worked in India, for various reasons. Further, agribusiness markets are changing constantly.

In 2002, India amended the Companies Act to provide legal space for a new form of producer organization called the Producer Company (PC), which is identified as a business entity of small producers registered under the Companies Act, and is relatively free from political or administrative control and regulations unlike co-operatives which suffered from these as well as free rider and free-rider problems due to their design. Since then, there has been substantial practical and policy interest in PCs, and stakeholders in agricultural and rural sectors have promoted thousands of PCs across different commodity/crop enterprise sectors in various states of India. PCs are being seen as an important institutional breakthrough in improving the market linkage and promotion of the interests of small producers in the global marketplace. Prof. Subhpal Singh carried out the first field based academic study during the early years of last decade published in 2014 (Allied Publishers) under the title of *Producer Companies in India: Organization and Performance* co-authored with late Dr. Jitendra Singh.

Since that study, which was carried out during the early years of evolution and growth of the PCs in India, Professor Singh strongly felt the need for more extensive and updated examination of this set of entities given that the Government of India has decided to support the promotion of 10,000 new FPOs (mainly PCs) over the next five years and the fact that there are more than 7000 such PCs in India now. This study by Prof. Subhpal Singh on PCs is particularly important since there is still scant evidence on this domain in India. The study examines the performance and impact of 55 PCs in farm allied production based businesses across five states of India i.e. UP, MP, Rajasthan, Tamil Nadu and West Bengal. The PCs

studied, including some all women member PCs, are promoted by different stakeholders such as the state agencies, NGOs, private sector, and the CSR agencies under different national level promoting agencies like SPAC and NAFED.

The study has examined the performance (physical and financial) of PCs and their impact on farmer members in a comparative manner across states and promoters within each state and even within PCs of a given promoter to identify factors in differential performance and impact. It has used 'with and without' (members and non-members) and 'before and after' (before they became members and after the membership and or atleast over last three years from the study year) methodology to measure and assess this impact. Through this, it has identified major factors important for success, and the policies and business management aspects for improving the performance and sustainability of such cooperative institutions. It finds that the performance differs across states, and promoters and even individual PCs of the same promoter in each state. In many cases, they are still dealing in only farm inputs and services and have not been able to help member producers realize better prices for their produce due to various reasons or have only benefited a part of the membership by buying on behalf of government procurement agencies like NAFED or SPAC. The reasons for poor performance vary across PCs and promoters but there are also PCs which have made innovations at the local level to achieve better performance and impact. The study documents such best and innovative practices and recommends a number of policy and management measures to make PCs more robust in their performance in creating better livelihoods as well as more effective and sustainable agribusiness value chains in India. I am sure the study will be found useful by policy makers, researchers, development agencies and farmer agencies interested in understanding and setting up PCs for improving and managing the linkages of smallholders with modern markets in India and abroad.

Chairperson
 Centre for Management in Agriculture
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Field based research involving multiple stakeholders needs co-operation from so many people and institutions. Given the nature of this study, it was no different and it is the result of positive role played by many people, more so those in the producer organisation sector. It would not have been possible to put it together without their co-operation. Though it may not possible to name them all here, a modest attempt is made below.

I express my sincere thanks to the MD of NDS Mr. Omkar Singh and his colleague and my former student at IIMA and now senior executive at NDS Ms. Sunita Choudhary at Agri HO of Saanaj milk PC and Smt. Sunita Singh at Etawah, CEO of Parvati milk PC at Jaipur Mr. R. K. Singh, who facilitated the field work with the members and non-members in the operational areas of these two milk PCs besides offering their hospitality. During our visit to Rajasthan, I am also thankful to Smt. B. S. Choudhary of ISAF and Mr. Sudarshan CEO of ISAF for supporting our field work in Rajasthan. From ICG, Smt. B. S. Sighal and Smt. Parkashan, CEO of Molassi PC in Rajasthan were very helpful. In Jaipur, we were provided accommodation by COSSIAS Jaipur and I am thankful to its then Director, Dr. P. Chandras Babbar.

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List of Abbreviations

| | |
|--------|--|
| ABPU | Agr. Business Promotion Unit |
| ACF | Amul's Cement Foundation |
| ADO | Agricultural Development office |
| AGM | Annual General Meeting |
| AIF | Agricultural Infrastructure Fund |
| AKRSPI | Aga Khan Rural Support Programme India |
| AEZ | Agri Export Zone |
| APF | Apim Prang Foundation |
| AGDP | Agricultural Gross Domestic Product |
| AI | Artificial insemination |
| AIC | Agriculture Insurance Company |
| APG | Agricultural Produce Group |
| APMC | Agricultural Produce Market Committee |
| ASA | Action for Social Advancement |
| ATMA | Agricultural Technology Management Agency |
| BAIF | Bharata Agro-Industries Foundation |
| BBY | Bhavantar Bhugtan Yojana (deficiency price payment scheme) |
| BC | Backward class |
| BCI | Better Cotton Initiative |
| BOKV | Bidhan Chandra Krishi Vishwavidyalaya |
| BOTS | Basic consulting and technical services |
| BIRD | Bentley Institute of Rural Development |
| BKS | Bharatiya Kisan Sangh |
| BMO | Bulk Milk Orders |
| BoD | Board of Directors |

| | |
|--------|---|
| BPL | Below Poverty Line |
| BRILF | Bharat Rural Livelihood Foundation |
| BSKL | Basic Kheti Samruddhi Limited |
| CA | Chartered Accountant |
| CBBO | Cluster based business organization |
| CCD | Centre for Collective Development |
| C-DAC | Centre for Development of Advanced Computing |
| CDO | Community Development Officer |
| CEO | Chief Executive Officer |
| CHC | Custom Firing Centre |
| CIG | Common Interest Group |
| CIKS | Centre for Indian Knowledge Systems |
| CMAP | Centre for Medicinal and Aromatic Plants |
| CoL | Commonwealth of Learning |
| CSR | Corporate Social Responsibility |
| DACAFW | Department of Agriculture, Co-operatives and Farmer Welfare |
| DADF | Department of Animal Husbandry, Dairying and Fisheries |
| DCCB | District Central Co-operative Bank |
| DCS | Dairy Co-op Society |
| DIN | Director Identification Number |
| DDC | De-Gridded Caste |
| DRIP | District Poverty Initiative Project |
| ECA | Essential Commodities Act |
| E-NAM | Electronic National Agriculture Market |
| FBG | Farmer Business Group |
| FC | Fairtrade Club |
| FIG | Farmer Interest Group |
| FPO | Farmer Producer Companies |
| FPO | Farmer Producer Organization |

| | |
|----------------|--|
| FSC | Farmer Specialized Cooperatives |
| FSSAI | Food Safety Standards Authority of India |
| FWWB | Friends of Woman's World Banking |
| GCA | Gross Cropped Area |
| GCOMF | Gujarat Co-operative Milk Marketing Federation |
| GDP | Gross Domestic Product |
| GDPC | Grain Development Producer Company |
| GFI | Global Fairness Initiative |
| GPRS | General Packet Radio service |
| GSDP | Gross State Domestic Product |
| GST | Goods and Services Tax |
| ICS | Internal Control Systems |
| IFFCO | Indian Farmers Fertiliser Cooperative |
| IFFDC | Indian Farm Forestry Development Co-operative |
| IGS | Indian Grain Services |
| IIP | Indian Institute of Packaging |
| IOPCL | Indian Organic Producer Company Limited |
| ISAP | Indian Society for Agri-business Professionals |
| ITC | Indian Tobacco Company |
| JLG | Joint Liability Group |
| KCC | Kisan Credit Card |
| KTL | Kalanjuri Thozhilagam Limited |
| KVK | Kisan Vigyan Kendra |
| LIC | Life Insurance Corporation |
| LRF | Local Resource Person |
| LSP | Livelihood Support professional |
| MARKFED | State Agricultural Co-operative Marketing Federation |
| MBOFFCL | M.F. Consortium of Farmer Producer Companies Limited |
| MBT | Mutual Benefit Trust |

| | |
|---------|---|
| MCA | Ministry of Corporate Affairs |
| MCC | Milk-Chilling Centre |
| MCX | Multi Commodity Exchange |
| MDM | Mid-Day Meal |
| MFI | Micro-Finance Institution |
| NKSP | Nataa Keshi Sanksharan Pariyojana |
| MoAFW | Ministry of Agriculture and Farmers' Welfare |
| MPOPIP | Madhya Pradesh District Poverty Initiative Project |
| MGNREGS | Mahatma Gandhi National Rural Employment Guarantee Scheme |
| MGNREGA | Mahatma Gandhi National Rural Employment Guarantee Act |
| MIDH | Mission on Integrated Development of Horticulture |
| MIS | Management Information System |
| M.P. | Madhya Pradesh |
| MPC | Milk Producer Company |
| MFIG | Member-Relation Group |
| MRP | Maximum Retail Price |
| MRL | Madhya Pradesh Resource Limit |
| MSDA | Mission on Sustainable Development of Agriculture |
| MSP | Minimum Support Price |
| NAFED | National Agricultural Cooperative Marketing Federation of India Ltd |
| NABARD | National Bank for Agriculture and Rural Development |
| NABCONS | NABARD Consultancy Services |
| NADP | National Agricultural Development Project |
| NBFC | Non-Banking Financial Company |
| NCDC | National Cooperative Development Corporation |
| NCDEX | National Commodity and Derivatives Exchange |
| NCR | National Capital Region |
| NCDB | National Dairy Development Board |
| NAMI | National E-market Limited |

| | |
|--------|--|
| NFSM | National Food Security Mission |
| NGC | New Generation Co-operative |
| NGO | Non Government Organization |
| NIAM | National Institute of Agricultural Marketing |
| NIPHM | National Institute of Plant Health management |
| NKPCL | Nayur Kisan PCL |
| NJPCL | Nayajyoti PCL |
| NPM | Non-Pesticidal Management (of crops) |
| NRLM | National Rural Livelihoods Mission |
| NSC | National Seeds Corporation |
| OBC | Other Backward Classes |
| OPG | Organic Producer Group |
| PACS | Primary Agricultural Credit Society |
| PAN | Permanent Account Number |
| PC | Producer Company |
| PO | Producer Organisation |
| PODF | Producers Organization Development Fund |
| POPI | Producer Organisation Promoting Institution |
| PPC | Primary Processing Centre |
| PRADAN | Professional Assistance for Development Action |
| PUC | Paid Up Capital |
| RBI | Reserve Bank of India |
| RCDF | Rajasthan Co-operative Dairy Federation |
| RF | Reliance Foundation |
| RI | Resource Institution |
| RKVY | Rashtriya Kishi Vikas Yojana |
| RoC | Registrar of Companies |
| RSETI | Rural Self-Employment Training Institute |
| SAU | State Agricultural University |

| | |
|--------|--|
| SAIC | State Agro Industries Corporation |
| SAPCO | Sahaja Aarakam Producer Co-operative |
| SC | Scheduled Caste |
| SCM | Supply Chain Management |
| SEBI | Securities and Exchange Board of India |
| SEWA | Self-Employed Women's Association |
| SGDP | State Gross Domestic Product |
| SHG | Self Help Group |
| SHPL | Safe Harvest Private Ltd. |
| SFAC | Small Farmers Agri-Business Consortium |
| SLOC | State Level Consultative Committee |
| SMS | Short Messaging Service |
| SRLM | State Rural Livelihoods Mission |
| SRTT | Sr. Ratan Tata Trust |
| SSC | State Seeds Corporation |
| ST | Scheduled Tribe |
| TFA | Tank Farmers' Association |
| T.N. | Tamil Nadu |
| TNAU | Tamil Nadu Agricultural University |
| TNSFAC | Tamil Nadu Small farmers Agribusiness Consortium |
| TTGB | Tata Tea Global Beverages |
| TV | Television |
| UMB | Unilever Molasses Block |
| U.P. | Uttar Pradesh |
| UPBSN | U.P. Bhumi Suthar Nigam |
| VCG | Village Cotton Group |
| W.B. | West Bengal |
| WUA | Water Users' Association |
| WFOP | Women Farmers with Global Potential |

Executive Summary

Introduction

Primary Producers' organisations are being argued to be the only institutions which can protect small farmers from globalisation by helping farmers buy or sell better due to scale benefits, lower transaction cost, technical help in production, and creating social capital. Producer Organisations (POs) can also help appropriate a part of the value created in the chain by private sector, for their members. But POs still struggle to become successful, and even a successful PO runs the risk of facing the various challenges from factors like socio-economic-environmental context, group characteristics, institutional level of PO, relationship with higher level organisation and performance framework for the organisation which may prevent it to remain effective and competitive in the local system in the long run. But the factors affecting the POs are dynamic, and the POs need to continuously innovate to counter those challenges.

POs in India can be registered either under the Cooperative Societies Act, Amendment or Mutually Aided Cooperative Societies Act, Multi-State Cooperative Society Act, Producer Company (PC) or Public Trusts. Until recently, in India and many other developing countries, producers were mostly organised under the co-operative structure. However, cooperative structure in India doesn't give the needed freedom to operate in complex environment for large scale cooperatives and due to political interference, corruption, elite capture, and similar issues, the cooperatives soon lost their vibrancy and became known for their poor efficiency and loss-making ways. Also, they face higher competition due to privatisation and liberalisation policies. The major problems of traditional cooperatives have been capital constraint due to the withdrawal of financial support by the government, high competition from other players in the market, and access to credit (capital) and technology besides free riding by members. In fact, internal and external free riding problems originate in the very nature of the co-operative as an institution as it distributes profits based on patronage, and not investment. The horizon problem occurs as members can't trade shares at market price, and thus, they can't capitalise their gains when they leave the co-operative. Non-tradability of equity shares at market prices also creates portfolio problem as members can't diversify their portfolio to reflect their risk preferences. Additionally, influence problem distances investors from control as there is only one member one vote.

In order to escape from this difficulty of co-operative enterprise, New Generation Cooperatives (NGCs) had emerged in many parts of the world during the 1990s. This arrangement by cooperatives helps them become economically efficient, financially viable, and retain member loyalty. In practice, though the NGCs have been able to raise 20-50% of their total capital through delivery rights issues, the problems include: (i) off market purchases by the growers

to meet contract terms, (ii) leasing of delivery rights by members, and (iii) dependence on non-producer member equity and non-member business.

An amendment was made to the Companies Act, 1956 in 2003 in India, to include Producer Companies (PCs). India is the second Asian country after Sri Lanka (where they mostly failed) to try this form of PO (Singh, 2016). A similar entity called Farmer Professional Cooperatives in China were granted less legal status as independent and democratically administered organisations in 2007 registered under the State Administration of Industry and Commerce Act (SAICA). PCs try to establish principles of profit-oriented contemporary business organisations within farming communities, to connect them with corporate buyers from the rapidly transforming Indian retail landscape. It gives more freedom to cooperatives as companies to operate as business entities in a competitive market. For details of PC features and structure and their departure from or similarity with cooperatives, see Singh and Singh (2014).

The Union Government and certain promoting agencies have been promoting PCs by creating financial and non-financial aids for them since 2011. In 2014-15, 100% income tax exemption for PCs upto annual turnover of Rs. 100 crore was made available for five years.

The SFAC strategy paper (2013) on promoting 10,000 new FPOs lists various challenges in promotion of FPOs and proposes to support 250 new FPOs in the first year and 1000 in second year followed by 2500 in the third and 4500 in the fourth year with 1750 in the 5th year with 25% funds going for FPO formation and incubation with Rs. 25 lakh per FPO for five years and another 30% for FPO management i.e. Rs. 15 lakh per FPO over three years. Beside, 35% would go for equity grant of Rs. 15 lakh each. It also brings in the concept of cluster based business organisations (CBBOs) for FPO promotion instead of depending on NGOs. This is important departure from the past as in the past majority of FPOs were promoted by local and national NGOs. Therefore, it is important to examine the promotion strategies of the NGO and professional promoters which this study focuses on in terms of performance of PCs promoted by different type of promoting agencies like NGOs, and professional agencies like ICAF and ICS.

Only some states of India seem to have a conducive policy environment for PCs which include Madhya Pradesh, Karnataka, Maharashtra, West Bengal and Rajasthan. The states of Karnataka, Orissa and Telangana have state specific FPO policies. Tamil Nadu government allocated Rs.100 crore for the current year to support 300 FPOs. The Doubling of Farmer Income (DFI) committee recommends a minimum of 7000 FPOs by 2015-25. In seven states of Maharashtra, Madhya Pradesh, Uttar Pradesh, Rajasthan, Gujarat, Karnataka, Telangana, 30% of the FPOs were registered as PCs as of 2014. 67% of the PCs were in the states of Maharashtra, Uttar Pradesh, Tamil Nadu, Madhya Pradesh, Rajasthan and Karnataka. In fact, West Bengal and Maharashtra are among those states which have added 50% or more of their PCs during the last three years only. The seven-state study also showed that 82% of the member farmers were marginal or small, 18% were medium and 12% were tribal farmers. Unlike in Sri Lanka, member farmers in India were sensitized to the need of larger legal entities and then brought on board. Scale and scope of market linkages were important factors in performance. And so, multi-

product based PCs and the ones in high value business were more successful than others. There are many types of promoting agencies in India and each type has its own model of organising and promoting the PCs. It is important to examine the models of major players especially those supported by IFAC, NABARD and state government agencies and some large independent NGOs like A3SPL.

However, there are not many serious academic studies on PCs in India, with a few exceptions like Trellin, 2012 and Singh and Singh, 2014, considering the fact that PC Act has existed since 2003. There has not been adequate academic and professional examination of the issues facing the PC domain which are practice and policy relevant. Some of these research issues are: How far PCs are an improvement over the existing co-operative or other modes of producer organization? How relevant and appropriate are the PCs in the context of globalised markets? Is there a design aspect of the PC which matters and should be provided as an intervention? Is there any specificity about the crop or enterprise which matters e.g. commodities or high value crops? Who is the relevant promoter for a PC- state or civil society or private sector? What conditions are necessary for business and economic viability of PCs? Are PCs with higher levels of skills and capabilities more successful in working with markets as scale and scope become important to do viable business? Which model of promotion is more robust and viable? What kind of policy treatment do the PCs need to grow as vibrant producer entities and to make an impact on the livelihoods of small producers? How do innovations in PC take place and what makes them scale up, inclusive or sustainable?

This study examines the performance and impact of PCs across various institutions and states by-

- i) Assessing physical and financial performance of PCs over the years
- ii) Understanding the factors that influence the performance of PCs and document the best and innovative practices followed by successful PCs and reasons behind those practices
- iii) Comparing and contrasting different models of PC organisation and promotion for identifying more robust models for scale up
- iv) Comparing the performance of specialised PCs like all women or special district PC with the rest of the PCs and analysing the factors in differential performance
- v) Examining economic impact on member farmers, and
- vi) Inferring on policy and practice mechanism for improving performance of PCs.

In fact, in 2013, 50% of the members of FPOs were in four states of Karnataka, MP, Tamilnadu and WB. The highest number of FPOs was in Karnataka (18) which was 14% of all promoting agencies in India. The five study states had 39% of IFAC supported FPOs and 35% of NABARD supported FPOs and, altogether, they accounted for 38% of all FPOs in India supported by these two agencies. These states had 25% of NABARD FPOs and 37% of IFAC FPOs and altogether they had 29% of all promoting agencies in India.

The case study PCs were evaluated in terms of their physical and financial performance by analysing and comparing their net profit, ratio of equity capital to authorized equity capital,

payment of dividends, external facilitator support and corporate linkages from annual reports and business plans of past few years, and interviews of CEOs, managers, board members and key persons of promoting agency for the respective PC.

In each case study PC, 10 member farmers and 10 non-member farmers were interviewed. This was to compare impact of PC in terms of both, before and after the intervention of PC, and with and without the intervention of PC. The total sample for farmers was 303 member farmers and 302 non-member farmers, totaling to 605 across 35 PCs and 2 non-PC FPOs across U.P. (5 PCs), M.P. (9), Rajasthan (5), WB (7), and Tamilnadu (9) which included four all women PCs, two goatary PCs (all women) and two non-PC FPOs. They were interviewed to assess the involvement of members in PC and if PCs had substantially impacted the economic activity of members and their income based on parameters like proportion of produce sold through PCA, inputs bought from PCs, difference in yield and price of their produce after the intervention of PC, and increase in income due to crop diversification, diversification.

PCs in U.P.

The state is a laggard in co-operative performance and even in the setting up of the PCs, until recently. In U.P., of the PCs promoted by NGO professional development agencies, the authorized capital was modest (from Rs. 5-15 lakh) and most of them except one (Navroti) had mobilised that. Their turnover was significant (Rs. 50-65 lakh) except in case of one (Narvesh Khan) which could not go beyond Rs. 18 lakh. Most of them except one (GDFC) had small profits and most of them (except Navroti) had reserves as well. These PCs showed average performance on various parameters of input and output business. But, they suffered from lack of scale as all of them had only 1000 members each despite the fact that they had been in existence for more than five years each.

In case of one PC, the equity shares remained confined to a large extent with the promoter and a few members only until recently. 48% of the shares were held by just eight members in 2016-17 which is not a desirable thing for a PC, though it may be needed initially but continuing with it for years is not a feature of good governance practice.

On the other hand, Sahaj of NDCs of NDCS was a class apart in many ways as it had scale in terms of membership, equity base and level of business turnover. It had profits of the order of Rs. 18 crore and had mobilised most of its authorised capital which was of the order of Rs. 30 crore. 90% members supplied milk exclusively to Sahaj. Another reason for Sahaj's better performance was the governance and business models which were very tight and fool-proof. It called its low-cost-high turnover model and strictly enforced member discipline besides the professional input it had from the NDCS team which is known for their expertise in promoting milk producer co-operatives.

There was significant increase (39%) in the number of buffaloes owned by farmer member and also increase in milk yield by 25-60% and therefore, marketed surplus increased by 62-110% in case of buffalo and cow milk respectively. The sale price also had gone up by 16% and 12% over the last few years.

The average owned land for non-member PC members was only 2.25 acres and operated land 2.91 acres. 96% of the farmers were marginal or small by owned land and 88% by operated land. The small and marginal categories had 84% of the owned land and only 71% of the operated land while there were no medium farmers by ownership or operation. Even semi medium and medium categories which had more than 33% of the owned land, constituted only 2%.

Interestingly, 38% members knew the name of the PC and some others knowing it by some other name (5%). Only 8% did not know the name of the PC. 37% members knew that the PC was owned by the families members with others reporting SOG (14%), PC employees (13%) and promoting agency (4%) as the owners. Even 77% non-member farmers knew about the PC but only 13% of them thought it was owned by farmers. 50% of them had learnt about it from the PC and its employees and promoters. 45% also wanted to become a members of the PC but had not become mainly because they were not aware whether they could become member and no one had approached them. Similarly, those who expressed no desire to become members said so because they had no information or they were not interested for various reasons.

36% member farmers purchased seeds from the PC and 27% from both PC and dealers. For chemical fertilizers and chemical pesticides 70% of the members purchased it from the PC and 15% from dealers and 7% from both. On the other hand, bio-fertilizers and bio-pesticides was used by few farmers though here too, 27% of them bought from the PC. The seed purchase by non-member farmers was mostly from dealers (38%) or both dealers and PC (31%) with only 12% buying exclusively from the PC. For chemical fertilizer and pesticides, the dealers were the major source for 54% of farmers each. The PC accounted for 23% and 20% of the farmers for both of these chemical inputs. Bio fertilizer and bio pesticides being used by the small proportion of the farmers had PC as the important source with 50% or more farmers reporting it as the source of purchase.

Before the intervention of the PC, only some farmers had sold wheat through the PC and one farmer each sold banana and potato. After the PC intervention, the number of potato farmers selling through the PC had increased to two. In terms of proportion of output sold, the PC accounted for 10% of wheat and potato and 9% of banana before this intervention, and it had gone up only in case of potato at 13%.

The input services were reported by even non-members to have improved after the intervention of PC to some extent and the area under crops like paddy, wheat, mustard, millets and potato and even maize and garlic had increased in the last few years. The sale price realized had significantly increased in paddy, potato, millets and garlic after the PC intervention. However, the payments were delayed even further in wheat and paddy and maize after the intervention.

More than 50% PC members had problems with services of the PCs which included inadequate input supply and lack of timely availability, low procurement, low price realization and not procuring at all. 80% received no information about govt schemes or subsidies while others mentioned knowing new schemes, subsidies on farm inputs like seeds and fertilizers and the like. Only 4% had received any subsidy benefit as a member. 71% had no knowledge about activities of the PCs.

Only 36% members attended meetings regularly with another 54% only sometimes and 57% reported monthly meetings being held and 20% only quarterly. Interestingly, 96% wanted to continue as members due to benefits like good input supply, benefits of membership, timely supply of inputs, and good quantity of supplies, besides knowledge about farming and markets. 74% also wanted to encourage others to join the PC due to its various benefits while others who were not keen mentioned that already most farmers were members of the PCs, or others were not interested and they did not have time for such activity. 66% had suggestions for improvement which included procurement of input, farm machinery rental, better price realisation and warehousing and weighing facilities.

BKSL PC farmers were somewhat larger owners of land but they did not lease in as much as the BCTS PC members and, therefore, the latter were larger operators of land. 37% of the BKSL PC members purchased seeds from PC against 69% of the BCTS PC members. PC and dealers (19%) and agricultural department and dealers (13%) were other major sources for BKSL PC member farmers while PC and dealers (35%) and PC and local farmers (10%) for BCTS PC member farmer. Just one member farmer each reported selling banana, potato and mint through one of the PCs each in case of each promoter during the last three years.

The PCs were male dominated in their members in all cases and both the promoters worked with mostly marginal and small land owners and operators with average being around 2 or 3 acres of land owned or operated. This is the most concerning aspect of the PCs is that they really represent the marginalised sections of the farming community. Also, the awareness of members regarding PC and its ownership was significant in case of both the promoters who were from the same group of promoters i.e. BASIX. All of them were in loss or made negligible profits.

PCs in Rajasthan

Rajasthan had 226 FPCs in early 2017 with 1.1 lakh farmer members mostly under NABARD (63%), SFAC (18%) and BKVY (17%) support and a few by private sector CSR(2%) (GoR, 2017). Most of the case study PCs other than Painsa milk PC and Molani could not mobilise enough equity capital from their members. It was not even 70% even after a few years of the existence of the PCs. Two of them were stuck at just 20% and 32% each of the authorized capital which itself was small i.e. Rs. 3 lakh each in case of the PCs promoted by ISAP. Further, all of the non-milk PCs made losses throughout their existence. Consequently, they had no or negative reserves and surpluses and minimal assets. The main reason for this was their low turnover which was a few lakh rupees each except one (Bakharati).

Compared with this, the milk PC had turnover which ran into more than Rs. 100 crore per year and it had generated profits of the order of more than Rs. 10 lakh per year and surplus of Rs. 25-51 crore per year. The low turnover in case of the ISAP PCs was for the reason that they had not undertaken much output business so far and were mainly supplying farm inputs to members and non-members. Even ICS promoted PCs had undertaken only some procurement for SEAC at MSP which helped them stay afloat for some time as they received some contribution and service charges for it. This helped one of them to receive matching equity grant and another a capacity building grant from SEAC though they had no business plans of any significance.

Average land owned by a member milk producer was 1.5 acres with all of them being marginal or landless farmers. In terms of operated land which varied average 1.2 acres, the distribution of farmers remained the same. The average owned land among non-members was 2 acres with 55% marginal and 45% semi-medium. Due to some leasing in and leasing out, average operated land was of the order of 2.3 acres with 67% operators being marginal scale, 25% small and 8% semi-medium. The latter 8% farmers accounted for 21% of the operated area. Interestingly there was no farmer in the category of medium or large farmer in terms of ownership and operation of land. Most of the members (92%) had buffaloes and 67% and 30% each respectively had cows and goats with average holding of two buffaloes and one cow or goat each. In fact, buffaloes accounted for 70% of livestock and cows and goats 1% and 29% each respectively. Non-member farmers had large livestock holdings of four buffaloes or cows each and three goats. But buffaloes accounted for only 50% of total livestock and cows and goats 45% and 5% each respectively, all farmers had buffaloes and most had cows but only 15% had goats.

Cattle feed was bought from PC by 90% member farmers as it was door delivered and had better quality, lower price and there was no other reliable source. On the other hand, only 17% non-members reported buying from PC DCS and others (63%) buying from dealers and 20% not using it at all. Some others (17%) bought it from other FPOs and 8% from both dealers and DCS. So far as purchase of various crop seeds was concerned, non-members were mostly dependent on dealers and in some cases PACS. Only in case of barley and gram, they reported buying seeds from milk PC in 20% cases for reasons of better quality. Most of the other inputs were also largely bought from dealers with only 24% reporting exclusive purchase of chemical fertilisers from PACS. Only in the case of cattle feed 23% farmers reported buying from the PC because of better quality and timely availability with other important sources besides dealer being other co-operatives like PACS and farmer groups.

All the milk PC member farmers reported receiving dividends on their share capital and 80% didn't have any complaint against the functioning of the PC. They reported better satisfaction level on availability, quantity, cost, quality and accessibility of cattle feed, after the intervention of the PC, ranging from good to very good or excellent on most parameters.

40% farmers also reported PC making them aware of various government schemes and 30% about receiving special subsidy due to the PC. 60% attended the meetings every month and all of them wanted to continue as members of the PC because of its responsiveness, transparency and profitable interface besides quick payment and good service delivery. All of them also wanted others to join the PC because they were getting good benefits including good prices for their produce.

There was 60% increase in buffalo milk sale because of the PC intervention though the price came down more recently compared with the alternative channels of sale. Whereas only 60% sold to the PC a few years ago, 100% started selling to it after a few years of its coming in. In terms of channels, earlier they dealt with traditional co-operatives and the PC and have since moved over to PC completely.

25% non-member farmers reported membership of another FPO which was the local milk cooperative society (DCS or RCDF) and they had been the members of the same for last many years. None of them reported receiving any information about agriculture or animal husbandry from the PC and depended mostly on private companies, agri department office and the combination of non-personal and personal extension sources. In fact, 55% of them were active of the milk PC and 42% reported that it was owned by farmers. A significant proportion of them (25% of the total) had learnt about it from PC employees or promoters. Only 55% showed interest in becoming a member of the milk PC due to reasons like location, presence of other channels and availability of other benefits from those sources and the fact that some of them could not meet the quality standards of the PC.

The milk PC members were really integral to landless land operators and livestock rearsers. The PC made good impact on their livelihoods with various interventions like input supply and milk procurement besides supply of fodder seed and other services.

In case of non-milk PCs, the average land ownership was 5.2 acres with 5% being landless and 24% each being small or medium land owners and 29% semi medium farmers. Only 2% were in the large farmer category. Due to the leasing in and leasing out by 15-20% farmers, the operated land was of the order of 10.3 acres. Marginal and small farmers who were 54% of the total, operated 14% land whereas 7% large farmers operated 24% of the total land.

Members mostly bought chemical fertiliser from PACS (22%), PC (20%) and dealers (7%). In fact, more of non-members bought more from PC (29%) followed by dealers (57%) and PACS (16%). In chemical pesticides, 51% members bought from PC and 20% from dealers and very few from PACS and combination of PC and Dealers. As against this, non-members mostly bought from dealers (48%) and from PC (22%). 12% members used biofertiliser and bought it from PC and only 2% non-members did so but in biopesticide it was 12% members and 14% non-members using it and buying from PC and 10% non-members buying it from Dealers. 93% of the farmers were not the members of any other FPO and majority of them accessed information from friends and neighbours. Only 7% reported visiting it from the PC and 19% from a combination of PC, Dealers and other Shopkeepers. 51% of members had received share certificates but none of them had ever received dividend on their share capital. 34% members also happened to be members of other FPOs mostly cooperatives and in some cases, self-help groups.

Only 17% were aware that the PC was owned by farmer members with other reporting promoting NGO, PC employees, government as the owners with 29% not being aware at all. In 42% cases each, PC promoters or PC employees had persuaded them to become members of the PC. All of them still wanted to continue as members of the PC due to supply of the inputs especially seeds, benefit of transacting with the PC, and price benefits. 95% of them also wanted to encourage others to become members because it was profitable to be member of the PC.

Most of the member farmers (57%) did not have any doubts for the PC services but 6% were unhappy about procurement, price realisation and payment aspects of the transaction. Only 10%

mustard, sesame, soyabean, and used one member farmer each in case of ISAP PCs reported selling to PC and in wheat it was 20 farmers who sold to PC. These 10% farmers reported selling to PC and the number increased only in wheat by 60% after three years mainly due to MSP procurement for ISAP. Among non-members, one farmer sold mango to the PC. In case of ICS PCs, there were no farmer members or non-members selling any produce to the PCs.

The ICS PC members were relatively larger land owners with some of them being marginal and only 20% being small owners compared with 57% of ISAP PC members being small or marginal and 47% by operated land as against only 15% of ICS PC members. The average cultivated area of ICS PC members was higher across all seasons and average cropping intensity was lower than ISAP PC members. Average owned land was only 2.54 acres for ISAP farmers while it was 11.02 acres for ICS farmers. However, operated land was less divergent between the two with ISAP farmers having 2.41 acres and ICS members 11.5 acres. 43% of ISAP farmers were members of other FPOs compared with only 20% in case of ICS and that was mainly co-operatives and SHGs whereas it was only co-operatives in case of ICS. Most of ISAP members knew that farmers owned the PC (42%) compared with ICS farmers (37%). In case of one PC of ISAP, it was claimed by employees and promoters that 70% members knew that PC belonged to farmer members but the field survey showed that only 30% were aware.

About 10% members in both promoters' PCs did not like the working of the PCs as they could not procure or offered lower price or delayed payments. Only 20-24% acknowledged PC helping them with information or subsidy or availing of any government schemes. 15% of ISAP PCs reported special subsidy for PC members as against nil in case of ICS PCs. ISAP PC meeting frequency (more of monthly meetings) and participation of members in them (74%) was in general higher than in case of ICS PCs (40% and 45% respectively). All members of all PCs of both promoters wanted to continue as members due to need supply, profits, and price benefits. All of them in ISAP PCs were keen to encourage others and in ICS with the exception of one member (out of 22) for the same reasons as those for continuing as members.

In Rajasthan, except the milk PC which was very vibrant displaying high level of physical and financial performance and impact on marginal produce livelihoods, the other four PCs promoted by professional agencies did not show any promise and some were non-starters even after a few years of working. They could neither mobilise enough resources nor undertake any output activity to make any impact on farmers members. Other than being reliant on government for buying for it from its members and non-members, they could not undertake any other significant activity on the output side and did not have any business plans. They were more like projects undertaken for a fixed period and then abandoned. This is a typical case of external promoters undertaking such activity of FPO promotion without any local base unlike a local NGO which has local presence and reputation and goodwill which makes all the difference. On the other hand, a lot can be learnt from milk PC in terms of governance and business model which leads to sustainable member relations and business activity besides scale up and viability. But, it also involved public funding in initial mobilisation and handholding which makes a major difference.

PCs in MP

A comparative analysis of the various PCs in MP by various promoters shows that AGA PCs had small size of membership though they had registered with good amount of authorized capital of Rs. 15 lakh each but one of them could not even mobilise 10% of it even after 10 years of working. But that turnover was significant enough (Rs. 45-61 lakh) given the small size of membership. However, they also wanted to have passed on the profits to the members as revealed by the small profits and reserves they had. On the other hand, AKPSF promoted PCs which were of more recent origin had really small authorized capital (Rs. 5-10 lakh) and small mobilised equity (only 20-34% of authorized). But, they were able to achieve good level of revenues turnover (Rs. 24 and 50 lakh each) and remained in profit almost throughout. The performance of goal PC was even more impressive as it was all women member PC and was in an unorganised and unorganised sector of meat and animal trade.

PRADAN promoted PC had good start and mobilised a significant amount of equity from members (60% of authorized i.e. of Rs. 25 lakh in 2017-18). In fact it had reached 75% of its earlier authorized capital of Rs. 10 lakh. It had high level of revenue (> Rs. one crore in 2017-18) and profits throughout and created some small reserve as well (> Rs. one lakh).

However, the Kithor PC of IGS had a poor start and working and it was even delisted by the Registrar of Companies (ROC) as it did not file returns. It was delisted for some time and could not even mobilise 10% of its authorized equity of Rs. 10 lakh, had conducted no business in 2015-19 and had only Rs. four lakh revenue at previous year. Truth promoted PC (Safal) was even in worse condition as it also could not go beyond mobilising 10% of its authorized capital of Rs. 10 lakh and had no revenue in 2015-19. It showed huge revenue in 2017-18 mainly due to the opportunity given by IFAC to procure some procure on its behalf which also did not buy from its members, but from a mandi to supply to IFAC.

A major departure in performance among PCs was that of the RPPPC, promoted by SPS which was all women member PC and had equity of a large order i.e. authorized equity of Rs. 40 lakh in 15-16 which was raised to Rs. one crore in 2017-18 and it had mobilised 100% of that 16-17 and 80% of the enhanced limit. It had very large turnover (Rs. 2-3 crore) and decent profits (Rs. 1-2 lakh) and surplus of above Rs. 20 lakh. It had also created assets worth Rs. 12 lakh. The setting up of a warehouse and other facilities by it later showed that it was on the path to sustainability.

Of the 71 member farmers interviewed across the states from eight PCs while 42% per male and 58% female members (for the reason that four of the PCs were predominantly women member based or exclusively women PCs). Among the non-members, there were 59% female and 41% male farmer respondents. Average size of owned land of members was 3.3 acres and operated land was of the order of six acres with the very small amount of leasing as most of the farmers were marginal or small farmers or even landless. 62% of the farmers were marginal or small and another 25% semi medium with only 10% and 3% being medium and large farmers respectively. Small or marginal farmers cultivated only 22% of the total cultivated area. The medium and large farmers which were very few percentage of households (10% and 5% respectively) had 28% and 19% of the cultivated land respectively totalling 44%.

The non-member farmers on an average owned 4.5 acres of land and operated 5.4 acres each with almost 1.3rd of the land being unutilized. The operated land ranged between 0.5 acres and 33 acres because of leasing in of land. The distribution of land was such that 60% of the total farmers were marginal or small but they operated only 20% of the total operated land. The medium and large farmers which were just five and four percent of the total had 15% and 21% of the total operated land.

Interestingly, a significant proportion of the members (44%) did not know the number of shares held or owned by them. In only 5% cases, the share certificates were issued by the PCs. A very large proportion of members were also members of self help groups (SHGs) (49%) simply for the reason that many of the PCs especially all women PCs had their base in the SHGs. Only 11% farmers reported membership of cooperative society and 3% of another PC.

45% of the members knew that they own the PC whereas 27% had no idea about the ownership of the PC. Others ended up reporting promoting agency, PC employees, board of director or government as the owners of the PCs. The biggest influence on their becoming member of the PC were the PC promoter (75%) followed by friends and PC employees (15% and 9% respectively). In 94% cases, they had not received any dividend on their shares so far. Surprisingly, very vast majority (73%) did not have any complaint about the services provided by the PC. Most of the members reported an improvement in the quality of inputs compared to the pre-membership days with 45% reporting very good or excellent and 70% post PC membership reporting it so. Most of the member farmers still bought their various inputs from dealers especially in seeds and chemical pesticides but PC accounted for 45%, 44% and 34% of farmers in their source of seeds, chemical fertilizers and chemical pesticides respectively. The farmer mostly bought from the PC for the reasons of better quality, easy accessibility and lower price. On the other hand, dealers were preferred for similar reasons by other farmers. Most of the non-member farmers depended on dealers mainly for seeds, fertilizers and chemical pesticides. Some of them did purchase seeds from the PC and a very small percentage also chemical and biofertilizer and cattle feed. The major reasons for buying seeds from dealers included, easy access and lower cost or a combination of both factors. On the other hand, PC or other cooperatives were used due to lower cost and easy access besides lack of any alternative. The chemical pesticides were bought from dealers for easy availability.

However, on the output side, there was not much improvement as most PCs did not deal with output in a significant way with 90% of the members not reporting any output transaction before or after the PC. The price of output was better only for 3% members as against all earlier. Similarly, the market availability for output of the members was also found to be better by only 7% members.

45% of the non-members were aware of the PC and 15% of them were member of a cooperative, BACS or a SHG. Only 10% of them were interested in becoming members of the PC. However, 41% of them did not know who owned the PC with only 1% seeing it as farmer's company and 15% as of the promoting agency or the NGO.

The average operated land holding of members was 1.71 acres and owned land 2.55 acres. The average operated land of non-members of all women PCs was 3.5 acres and average owned land 3.7 acres. Only 39% of the all-women PC members had received share certificates and 67% also were members of SHGs with some being members of other PCs. Interestingly, a majority of the members 89% knew that PC belonged to farmers, the others seeing it as employee owned, promoting agency owned, government owned. 90% of them had no doubts about the services being offered by the PC and 37% even reported the PC helping them in availing of government schemes and subsidies. 71% reported attending meeting frequency to be monthly and 17% annual and 10% quarterly. 68% participated in all the meetings and 30% sometimes and another 20% had never participated in any meeting.

All of them wanted to continue as members and also wanted others to join the PC. The only crop in which the area had expanded after the PC intervention was cotton as most of them were focused on cotton. The price realisation in cotton had also gone up by 21% after the PC intervention as was the case in fruits and goat meat. There was also reduced cost of transportation in the case of goats, maize and pulses besides meat. However, the payment time had gone up substantially in cotton and pulses. The farmer members also appreciated the improvement in input quality which moved from poor and good to very good and excellent after the intervention of PC. There was no effect of the presence of PC on the non-member farmers in terms of the sale of their produce at the crops grown.

The average operated land in case of members of non-women PCs was 3.42 acres and owned land 7.27 acres with significant leasing in of land. However, marginal and small farmers who were 60% of the total cultivated only 42% of the area and large farmers being only 9% of the total cultivated 42% of the operated area. Most farmers (75-85%) had cows and bullocks and 32% buffaloes and 53% had goats. But, goats accounted for 32% of all livestock heads and cows and bullocks another 25% each. Average holding was 2 cows, buffaloes or bullocks and 4 goats per household.

There was increase in area sown under wheat due to the PC presence and higher yields in cotton besides higher price realisation in groundnut, pulses and soybean to some extent. There was also significant decline reported in transport cost. In terms of quality of input services, there was a movement from good and very good to very good and excellent in terms of cost, quality, availability and adequacy besides accessibility which moved from good, very good to very good and excellent. On the output services, similarly there was improvement from good to very good in price and market availability in terms of change of channels for sales of farm produce, there was an increase of more than 200 members selling through the PC within three years and direct sales had come down after the PC intervention. The bank payment channel had expanded considerably after PC intervention. However, there was hardly no change in the sales channel of the non-member farmers after the coming into existence of the PC.

In case of ASA PC members, the average size of land holding of member farmers was 3.4 in terms of operated area and 9.0 in terms of owned land. However, marginal farmers which were 46% of the total, operated only 24% land and semi medium farmers being 23% had 40% of the operated area. In terms of livestock, 30% of the farmer owned goats, 45% cows, 23% buffaloes

and 77%. Buffalo with goats accounting 50% of the total livestock heads followed by cows 22% and buffaloes and cows at 15% and 15% each.

The average size of non-member owned land was 1.45 acres and that of operated land 2.61 acres. 44% each of the farmers were marginal and semi-medium farmers with remaining being small farmers. However, in terms of land operated semi-medium farmers had 72% of the area and marginal farmers only 16%. The largest ownership was of buffaloes (74%) followed by cows and goats (61% each) and only 55% who had any livestock had buffaloes. In fact, 67% of the livestock was goats, 25% buffaloes and 15% cows with buffaloes accounting for 10% of the total livestock. The tube wells were mostly run with an electricity (94%) and diesel engine (25%) with 48% of the electric connections owned or shared.

There were significant price gains reported in cotton, paddy and groundnut due to PC intervention and higher time to receive payment in case of cotton and pulses. Although transaction cost in cotton, pulses and wheat had come down. On the other hand, output price realisation also moved from good to very good as well as in the availability of market. The number of members selling through the PC had tripled over the three years and bank payment became more common.

There was no change in the sales channel used by non-member farmers before and after the intervention of the PC where most of them sold in wholesale with only one reporting sales through the PC. There was also no change in area yield, output or cost of marketing and sales price realisation before and after the introduction of PC.

45% of the members had received share certificates and 23% of the members were members of the SHGs. All of the members had joined these PC during the last 10 years. 25% reported receiving agricultural information from the PC with another 27% each from friends and friends and PC each.

Only 18% members knew that PC was owned by members with 50% having no idea about the ownership of the PC. Part of the members mentioned promising agency, BOD or PC employees as the owners.

In case of AITSP PC members, average operated land for member farmers was 2.71 acres and owned land 5.41 acres. 62% of the members were marginal or small but they operated only 35% of the area compared with semi-medium and medium farmers (32% each) accounted for 24 and 30% of the operated area. The livestock ownership varied from 100% in goat and cow to 22% in buffaloes and 35% in case of cow and buffaloes. The share of goats was the highest in the total number of livestock which was almost 64% followed by cow and buffalo at 23% and 25% respectively. In general, there were five cows or buffaloes per household and six goats per household.

The average operated land by non-member farmers was 3 acres of which 2.58 acres was owned. 47% of the farmers were marginal land owners and 29% small farmers with another 11% each being semi-medium and medium farmers each. There were no large farmers among them. In

terms of area, marginal and small had 45% and medium farmers 30%, leaving 24% for the semi-medium category. There was some amount of leasing-in of land and very minimal leasing out reported. The livestock owned by farmers included 65% goat, 10% cows and 16% bullocks by numbers with 40% of the farmers owning goat, 34% bullocks and 21% cows. Buffaloes were owned by only 13% of the farmers with average ownership of one buffalo, two cows or bullocks and seven goats per household. 65% members had obtained share certificates and 75% were members of SHGs and 25% of other FPOs mainly PCs.

51% of the non-members did not have any problem with the services of the PC but 37% also had no knowledge of it with 35% being aware of the initiative of the PC. None of them reported any negative experience with the PC as none of them had transacted with the PC.

The members did not report any major changes in the cropping pattern/yield or output due to the intervention of the PC other than the fact that the cotton and sorghum prices were appreciably significantly during the last three years. The transaction cost had also come down in both cotton and goat marketing. All of the members wanted to continue with the PC and 19% of them also wanted to encourage other non-members to join the PC.

Only two non-member farmers reported selling through the PC compared to the pre-PC situation of one farmer selling to it. On the other hand, there was 15% increase in selling through the APNIC Mandi and this was the shift from direct wholesale selling to traders.

Except one member of PRADAN PC who reported labour as main occupation, all members of all three PCs reported primary occupation as farming. The cropping intensity of IG5 and Vrutti PC member farmers was high (2.06 and 1.99) and low for PRADAN PC member (1.43). 70% of non-member had not even heard of the existence of the PC and 35% did not know who owned it with another 15% each thinking that it is government owned or promoting agency owned.

In case of Betul/Kishan PC, none of the farmers bought any inputs from the PC and depended on dealers and PACS for the same and bought fertilisers from the PACS. There was no change in any crop area or yield or output or even sales price realisation as the PC had not intervened in the output market. This PC was almost defunct as it had neither mobilised enough equity nor undertaken any business thus far despite existing for four years. None of the farmers bought any inputs from the PC and depended on dealers and PACS for the same and bought fertilisers from the PACS. There was no change in any crop area or yield or output or even sales price realisation as the PC had not intervened at all.

PRADAN promoted PC had good interface with women members for input supply who all bought from the PC. On the output side, it aggregates crops like soyabean, maize, wheat and gram and had its own brand - Dharti Natural. In terms of livelihood diversification, it introduced soyabean as a cash crop and a new variety of wheat in the last few years. In 2015-16 it bought gram on behalf of SAGC at MSP for 1% commission. It also facilitates sale of its members produce to wholesale traders in various markets in MP and Gujarat.

In case of members of Nfrow PC, the average owned land was 13 acres and operated land 16.5 acres. This was a PC which had mostly large and semi-medium and medium under arable and this was the largest average farm size of any PC membership. 75% of the farmers had cows and 50% bullocks with cows accounting for 75% of the total livestock and bullocks another 25%. There were four cows and two bullocks per household. Most of the farmers bought seeds from dealers and majority of them buying chemical fertilisers from PC and the rest from SACs.

In general, most of the member farmers still bought their various inputs from dealers which were high in seeds and chemical pesticides. The farmer mostly bought from the PC for the reason of better quality, easy accessibility and lower price. On the other hand, dealers were preferred for similar reasons by other farmers.

The best case was that of Ram Kabin Pragan - an all women PC - which had very large capital base and large revenue running in a few hundred million rupees annually beside being in profit all the time and creating some assets including a warehouse with imported technology and a processing facility. On the output side it aggregated various crops like wheat, gram and maize from 200 members. It also makes use of warehouse receipt-based loans for storing its produce in its own warehouses. It was mainly into NPM produce and market linkage and sold 90% wheat and gram procurement to Ica Harvest Pvt. Ltd which had equity in this PC. The farmers members have been into NPM practices for the last 10 years. It had also done job work for private players like Big Bazaar. The PC procured and grain in the area and also reverse selling of pulses to the member farmers by processing it into dal. It was the one of the very few PCs which had participated in futures markets and made profits in maize but lost money in soya in 2016-17.

PCs in WB

In WB, most of the studied PCs had mobilised high %age of authorized capital except Bhaitikhatia though authorized capital itself was small or modest in most cases (Rs. 10 lakh) except one PC (Hooghly) which had Rs. 25 lakh authorized capital. Further, their revenue remained low (< Rs. 30 lakh) except one case (Chhatra) which was mainly due to the fact it had a franchise of Sudeh Sangha and therefore, its turnover could go up to Rs. three crore per annum. Therefore, all PCs made negligible profit or net losses except Chhatra PC which made a small profit after taking franchise of sudeh sangha. Except Hooghly PC, most of them had a small size of membership which was problematic given the small size of land holding in the state. This kind of small membership couldn't generate large equity capital and large volumes for viability.

54% of the PC members had farming as primary occupation followed by petty business and related job with 3% each with only 3% having animal husbandry as the primary occupation and another 3% casual labour being their main source of livelihood. On the other hand, 50% did not have any secondary occupation and 18% reported it as farming, 3% handicrafts and 3% skilled labour. Only 3% had animal husbandry and 6% casual labour. 77% of the members reported farming as primary occupation with 11% reporting business as the primary occupation and 10% casual labour.

56% of the members had received their certificates and 66% of them did not have membership of any other group or organisation except a few being members of the PACS. 48% of the members relied exclusively on PC for agricultural information with 20% depending on other farmers and friends. PC also figured along with friends and relatives and mobile group besides ADO and dealer in another 13% cases.

The members were mostly marginal (72%) and small (20%) in their land ownership with average size of owned land being 1.09 acres and operated just 1.50 acres. The operated land was also distributed similarly with 81% farmers operating marginal or small farms accounting for 73% of the cultivated area and 9% semi-medium farmers operating 27% of the land. But members were larger landholders than their non-member counterparts who had average owned land of 1.29 acres and operated farm of 1.61 acres. The average cropping intensity of non-member was 2.09 which was slightly lower than in the case of members (2.2).

The member farmers bought seeds from dealer in 56% cases, from PC in 19% cases and dealer and PC both in 10% cases. Only 6% farmers bought seeds from PACS and others reported various combinations of dealer and PACs, dealer and local farmer or PACs and local farmers. Similarly, 43% of them bought chemical fertilisers from dealers and 28% from PC, and only 2% from dealer and PACs and 9% from both dealer and PC. Similarly, 42% bought chemical pesticides from dealer with 13% reported it from the PC. In fact, 42% bought no chemical pesticides. Bio-fertilisers were bought only by 28% farmers and mostly from dealers, other farmers used the PC. There were even lesser number of farms buying bio-pesticides (2%) again mostly from dealers and PC. Most of the non-member farmers (60%) bought seeds from the dealers and local farmers (16%) with PACS and PC accounting for only 3% and 2% of the total and in some cases being another source along with dealers and local farmers. 38% of them bought chemical fertiliser from dealers with PACs accounting for 5% and the PC 9% of the total.

59% members could not mention the name of the PC with the others either not knowing or not being able to mention it correctly. 43% of the members did not know the owner of the PC and another 38% thought PC employees as the owners and 6% SoD besides 1% as promoting agency and 6% government as being the owner of the PC. In 22% cases, it was PC employee who influenced them to become members. 54% of the members were not aware of the various activities being carried out by PCs.

94% of the non-member farmers were not member of any other producer entity while only 3% had membership of PACS. 41% of the non-members had no knowledge about the PC and 74% did not know who owned it with only 6% thinking it was owned by farmers and 7% thought of promoters or employees as the owners besides 4% thinking it was owned by promoting agency.

85% wanted to continue as member of the PC due to good services and facilities including inputs availability and such other reasons with only 5% not being satisfied with the services and therefore, not sure they would continue as members. Farmers mostly suggested procurement of their farm produce (6%), timely availability of inputs (9%), irrigation (6%), and agriculture machinery and irrigation another 3% for better functioning of the PC.

The farmers reported significant improvements in moving from good to very good in terms of quality, cost and availability of inputs after the membership of the PC. In terms of cropping pattern shift, there were significant increases in area under vegetables and fruits and a decline in area under paddy and cereals. Farmers also reported yield increases in vegetables and fruit including chillies and potato besides grain. The output sold had increased significantly in vegetables especially pumpkin and even paddy due to yield increase especially Kharif paddy.

There was higher use of PC channel in vegetables both in terms of number of farmers as well as volume of output sold. But still most of the farmers sold in wholesale ranging from 50% in wheat to as high as 100% in case of vegetables and fruits. This APMC channel was used only in case of paddy and wheat. 16 (25%) members had sold vegetables to PC and two farmers each paddy and fruits (3% each). This had increased from just three farmers selling in three years before (6%) to 25 (34%) now. Only one non-member had sold paddy and two potato in the past to the PC. 77% of PC members had no dislike of any of services offered by the PC.

BKSL PC member farmers were relatively large in both owned and operated land than their IGS-PC counterparts. The members of BKSL PCs had higher cropping intensity than that of IGS-PC members. The most trusted source of seed was found to be dealers and PCs- in both types of PCs (IGS and BKSL). Other major sources were dealers and PCs (13%) and dealers and PACS (12%) for IGS and dealers (23%), PC (29%) and dealers and PC (19%) in case of BKSL.

36% of IGS member farmers either did not know or mentioned incorrect name of the PCs they were members of. This count was higher for BKSL PC members where 68% of the members were not able to provide the information. Farmers were not able to specify the PC owners also. In case of IGS, more than half of the farmers were not able to identify the owner of the PC. BKSL members have comparatively higher identification of PC owner.

30% of IGS PC members started selling their products through PCs in fruits, paddy, tomato, and mainly vegetables. In case of IGS PCs, three farmers sold fruits to the PC and two paddy and 15 vegetables compared with three years before. The vegetable output was important as Surali Bangla was buying it from the PC or the PC was running the Surali Bangla store and buying from its members and non-members directly. This was almost 50% of all members in vegetables and 10% in fruits and about 7% in paddy. On the other hand, in case of BKSL PC there was no output intervention.

PCs in Tamilnadu

The state has a consortium of FPCs registered as a PC 52a since some states of India, with 35 FPCs as members with 100 stores worth Rs. 10,000 each since 2012 with paid up capital of Rs. 1.2 lakh and authorized capital of Rs. 10 lakh. This consortium PC members run shops and retail outlets called farmer supermarket network (Uthathan Uthava Aragam) by its member PCs in different places in the state for collectively selling value added products in partnership with the state department of agricultural marketing and agrivestment. But, none of the study PCs were members of this consortium. The Padukottai district website mentions one of the study PCs (Ilupur agriPC) as one of the three successfully functioning PCs in the district.

One of the three ESAP promoted PCs had not undertaken any business activity even after 2 years of existence and, therefore, was into losses technically. Kodai Hills of ESAP was one PC which made small profits every year as its revenue was from high value crops like pepper and coffee. But, still it could not mobilise more than 61% of its authorised equity from its members. The Third best PC which was unique in many ways i.e. all women PC, integrated and only one PC promoted by the NGO achieved one of the largest equity mobilisation by reaching 100% of its authorised capital and revenue of the order of Rs. 24 lakh per year with small profits. This was mainly because it was into high value low cost business of rearing goats and selling meat and live animals locally.

Komarpatti PC by Dhan was a big failure throughout with only coconut trading giving it which needed respite. It could not mobilise even 50% of its authorised equity. Despite being a landowning farmer PC. Both the PCs promoted by KTL of Dhan Foundation had mobilised most of their authorised capital (Rs. 10 lakh and Rs. 25 lakh) and very high levels of revenue in each case which was more than Rs. one crore. But, even their profits were negligible which is more due to the fact that PCs like the co-operatives passed on the surplus generated as price and other benefits to members to avoid paying income tax on their profits. It was only since last year that their profits were exempted from income tax for next five years and it remained to be seen whether profits would go up and reserves and surplus would be used more for capacity creation by the PCs.

The SEEDS NGO promoted PCs were the most vibrant and successful as they not only mobilised most of the authorised equity capital (77-97%) which itself was of the order of Rs.20 and Rs. 40 lakh but also had revenue in excess of Rs. 4 crore in case of SEEDS PC. But, even then its profits were very modest (Rs. 1 lakh). However, the second PC had small revenue and no profits from its operations.

Of the 106 members interviewed in Tamil Nadu across 3 PCs, 46% were women farmers, 76% of them had farming as the primary occupation and 40% animal husbandry. 67% of the 71 non-member farmers were women and 74% of them had farming as their primary occupation followed by farm labour by 14% and animal husbandry by 20%.

The average owned land of members was 5.12 acres and operated land 5 acres per household.

The average owned land of non-members was 1.7 acres and operated land 4.13 acres. The average cropping intensity of the members was 1.15.

The members were more aware of PC name than the non-members (57% versus 24%). Further, only 15% farmers thought or knew the PC belonged to farmers with others mentioning PC employees (24%) or promoting agency (21%) as the contact. There was hardly any awareness of PC ownership among non-members. 74% of the non-member farmers had no knowledge of the PC and 88% did not know who owned the PC.

Among the members, dealers emerged as the major source of seed purchase with 25% buying from there. Only 17% farmers bought it from the PC with another 11% from both PC as well.

as dealers, 5% even reported buying it from other farmers and 5% using home saved seed. The reliance on dealers was even higher in case of chemical inputs at more than 50% with only 22-30% farmers buying it from the PC. In fact, even PACOs did not figure as a major source or even fertilizer purchase. Seeds were mostly bought by non-members from dealers and local farmers with only 5% farmers reporting buying it from the PC. Similarly, chemical pesticides were largely bought by member farmers from dealers (76%) and local farmers with only 7% of those reporting buying it from the PC. Since most of the PCs did not deal with machinery rentals an equal percentage of farmers sourced it from dealers or local farmers.

83% wanted to continue being members as it was beneficial in various ways like information, loans and subsidies, procurement and timely and lower cost input supply by PC. Those who (17%) did not want to continue said so as they did not find it useful or had not availed any service from the PC. 77% also were keen to encourage others to join the PC as members as it brought benefits.

The only major expectation in crop area was groundnut due to the intervention of PC and yields had improved in coffee and many other pulses, cereals, gram, maize price benefits were realised in pulses, groundnut, coffee and maize.

In terms of channels of sale, 29% of the farmers sold 39% of their produce through the PCs, mainly in the crops of black gram, coffee, cotton, green gram and maize. After the intervention of a few years of the PC, many more crops were being handled by the PCs and both number of the farmers and quantity sold through the PC increased substantially.

Some as effect of PCs on the member business was concerned, there were a few products like cow milk, black gram, coffee, fat gram, green gram, groundnut, maize, paddy and red gram where the number of farmers selling through the PC increased significantly as well as output sold over three years. This was in sharp contrast to the non-member impact where only in one crop green gram, there were some sales by the non-members through the PCs.

In terms of area shift due to the intervention of PCs there was significant increase reported in groundnut, black gram, and to some extent coffee. In terms of marketing channels before and after the interventions of PC, the number of farmers selling through the PC increase significantly in black gram, fat gram, green gram, groundnut, maize and millets besides paddy. In fact, paddy, pulses, ragi, red gram, and sorghum besides rubber etc were being sold first time through the PCs. In terms of volume sold, besides these crops, coffee also have substantially increased as did red gram. This was mainly a shift from wholesale channel to the PC channel in most cases. Only two and three farmers each of the PC reported selling black gram and green gram to the PCs where it was none and only one each three years before respectively.

34% of the Seeds PC members were male which was lower than Dhan KTL PC members (47%) and ESAP PC members (49%). This meant that the share of female members was the highest for Seeds promoted PC (42%), not very different from Dhan KTL (40%) PC membership but much higher than in case of ESAP promoted PC (5%). Farming was the primary occupation of most of the PC members. 70% of Dhan KTL PC members had agriculture as the primary occupation followed by Seeds PC members (59%) and ESAP PC members (74%).

Average land ownership was the highest in the case of Seeds PC members (1.74 acres) followed by Dhan KTL PC members (1.6 acres) and ESAP PC members (1.3 acres). Similarly, the average operational landholding was also highest for Seeds PC members (1.3 acres) followed by Dhan KTL PC members (1.6 acres) and ESAP PC members (1.3 acres). ESAP PCs were really those composed of marginal and landless farmer groups compared with those of other two promoters. Goats were owned by member farmers of all PCs: 79% of Seeds PC members owned goats followed by Dhan KTL (37%) and ESAP PC members (21%). The average number of goats were highest for Dhan KTL promoted PC (5) followed by Seeds promoted PC (3) and ESAP promoted PC (4).

The cropping intensity was highest for ESAP PC members (1.45) followed by Dhan KTL PC members (1.09) and Seeds PC members (1.05). 46% of the Seeds PC members purchased seeds from dealers followed by ESAP PC members (36%) and Dhan KTL PC members (33%). PC was identified as another major source for the purchase of seeds. Dhan KTL PC members (31%) had the highest number of member farmers who were purchasing seeds from PC followed by Seeds PC members (21%). Dealers were identified as major source for chemical fertilizers for member farmers. The highest dependence was reported by Seeds PC members (64%), followed by ESAP PC members (47%) and Dhan KTL PC members (21%). PC was another major source of chemical fertilizers: 29% of Seeds PC members were purchasing chemical fertilizers from PC, 33% and 12% of Dhan KTL PC members and ESAP PC members had purchased chemical fertilizers from PC. The highest dependence on dealers for seeds was reported by Seeds PC members (64%), followed by ESAP PC members (47%), and Dhan KTL PC members (31%).

Whereas in case of SEED PCs, 27 members could specify the name of the PC they were members of it was only 33% and 46% in case of ESAP and Dhan KTL. Further, only 11-17% farmers across three promoters PCs knew that PC belonged to them or farmers with others mentioning PC employees (1-29%), promoting agency (5-29%) and SoD (5-9%). Sadly, the lowest awareness of PC name was in case of Dhan KTL which was well known NGO in the state. But, in general, the awareness of ownership was very low across all PCs of all promoters.

In case of goat PC, the number of goats per household for members was large at 22 goats with 82% owning goats and goats being 87% of livestock owned by the households. This was in sharp contrast to the MP goat PC where average ownership size was 10 goats though 90% households owned them and they were 51% of livestock owned by such households. In fact, the MP PC members also reported buying some inputs like biofertilizers through the PC.

The awareness about PC was lower among These PC members with 58% not knowing the name of the PC as they were perhaps more familiar with SHGs of women they were first members of and only 23% thought PC was owned by farmers, another 25% thinking PC employees owned it and yet another 17% thought it was owned by promoting agency. This was in sharp contrast to the MP members knowing the name of PC in MP and 61% knowing it is owned by farmer members. This despite the fact that the MP PC was younger by many years compared with the These goat PC.

On the output side, whereas in case of Tamil PC in Tamil Nadu, the number of farmers selling goats to PC increased from nil to 5 over last three years and 30% farmers were selling through the PC now (sold 112 goats in all) with some of them reporting selling maize and millet crops also through the PC. In case of MP goat PC (Panchana), it was 30% farmers who were selling through the PC (total of 14 goats) and one of them also sold soyabean to the PC.

Overall Summary

The PC performance and impact varies widely depending on the PC, the promoter, and the location. The PC members were generally larger landholders unlike their non-member counterparts both in owned and operated land. In fact, the gap widened in operated land compared with owned land. However, this is not to say that PCs exclude small farmers as still most of the members were owners and operators of around five acres of land. However, non-members were more close to marginal ownership and operation.

The average land ownership was low in WB and UP as expected both among members and non-members and very high in Rajasthan and very different from those of non-members (2-3 times larger for members). The members everywhere had higher average land holding both owned and operated across all states with large difference only in Rajasthan and Tamil Nadu, both of which also had the highest average size of holding across all states. It was goat owning households which were landlord or marginal landowners or operators which moderated the average size in Tamil Nadu and UP to some extent.

Though more of members knew the name of the PC (52%) compared with non-members (44%), it was still not very high and 27% did not know it at all and another 11% reported it wrong. At the state level, overall awareness of PC name among members hovered around 60% with the exception of U.P. where it was high at 89%. This was much higher than the knowledge of non-members where only 24% in Tamil Nadu to as high as 71% of non-members in UP knew it but it was between 40-60% across the three states of Rajasthan, MP and West Bengal and only 24% in Tamil Nadu. Further, whereas 27% farmers knew PC was owned by farmers compared with only 6% of non-members thinking so, the same worrying part was the large proportion of members saying it was owned by PC employees (15%) and SoD (9%) besides the fact that 50% did not have any awareness of this aspect. 60% of non-members were in this category which is not very surprising.

At the state level, with the exception of U.P., about 30% members in all states except W.B. did not know who owned the PC whereas in W.B., 45% did not know it. The better members in U.P., MP and Rajasthan knew that farmer owned it with %age going from 36% in Rajasthan to as high as 63% in MP and 56% in U.P. In W.B., 36% thought it was owned by PC employees and that was stated by 24% farmers in Tamil Nadu as well. Promoting agency came next in Tamil Nadu (22%) and Rajasthan (15%) and MP (11%). On the other hand, 70-80% non-members had no knowledge of PC ownership. In general, mostly farmer members joined PC due to encouragement and persuasion by PC promoters and PC employees (57%) with some others due to their friends advice.

On the input side, 33% members were buying seeds from the PC compared with only 5% non-members doing so. Also, a few other members (3%) combined buying from PC with other sources like dealers, FACS and other farmers or government outlets. Only 4% non-members reported such a purchase behaviour. Across states, the seed purchase from PCs varied from a low of 18% in Tamilnadu and WB, to a high of 42-56% across MP, Rajasthan and UP, in a combination of dealers and PCs in about 11-25% cases. Non-members mostly relied on dealers in all states especially MP, W.B., and Rajasthan (77-93%) with some non-members buying from PCs as well. The reliance on PCs for chemical inputs like fertilizers and pesticides was very high with 31% and 37% buying exclusively from PCs and another 4% and 7% respectively combining it with other sources like dealers and FACS and government outlet. Reliance of members for chemical fertilizers on PCs was high in MP and UP (58% and 71% respectively) and very low in Rajasthan, Tamilnadu and WB (18, 20 and 25% respectively). FACS were important source in MP and Rajasthan for about 23% farmers.

The number of farmers selling through the PCs increased from 3 to 15 in black gram and from 5 to 13 in cotton and even in black gram come to 2 to 5 besides red gram from 1 to 4. There was also substantial increase in numbers in green gram and ground nut from 1 to 3 and 3 to 7 respectively. In fact, the biggest increase in numbers was in maize which increase from 5 to 13 farmers and in millets from 1 to 4 farmers over 3 years. Paddy also had a big jump in farmers selling through the PC from 1 to 7 as was the case in soyabean where it increased from 4 to 11 and in wheat from 7 to 15. Among the members, there were also cases of contract farming in avocado, coconut, dronaxilik, and in the case of non-members, there was contract farming in chilli and vegetables besides potato contract farming through the PC by two farmers. On the value placed by members on various services offered by PCs, about 22% members disliked them ranging from poor access to some services, lack of timely and adequate availability and no or poor procurement of farm products. The problem of poor procurement was particularly reported in U.P. (10%).

Moreover, most of the members across states (87% ranging from 79-100%) wanted to continue as members. The lowest was in MP, (79%) and the highest in Rajasthan (100%). Further, 60% also were willing to encourage others to become member of the PC ranging from 71% in WB and U.P. to as high as 98% in Rajasthan.

A majority of members (83%) across states (47-95%) suggested interventions in procurement, (11%), better, timely, and lower cost input supply and procurement (7%) and rentals of farm machinery and equipment (3%). Tamilnadu members were keen to get loans and input subsidies (11%) and see procurement happening (11%) while those in WB, wanted more of better input supply (8%) and their timely availability (7%) and farm improvements support (5%) besides procurement (3%). The UP PC members were particularly keen on better procurement (14%) and farm machinery rentals (14%) and storage and warehousing facility (8%) besides lower cost and timely input supply and procurement at the same time (3%). The MP PC members also emphasized better inputs and extension advice, (14%), procurement (9%) and lower cost and timely input supply along with better procurement (7%). Similarly, Rajasthan farmers were keen on procurement (16%) better price realization (8%), value addition (8%), new crops (4%), crop insurance (4%) and lower cost inputs and procurement (4%). This clearly shows

output interventions were lacking in most cases and that is what mattered the most for farmers as even if they produced at lower cost or higher output from same piece of land, if they were not able to sell it well, the farmer benefit was missing.

The members suggested various ways to improve governance of the PCs which included more members, more professional structure, better governance at the SoD level and better trust among members about PC and more funding especially in the case of Rajasthan. On the management of the PC, in general, farmer members suggested expansion of membership, better communication among members and PC, and trained and professional staff for business management. The accountability to members came up as a big suggestion in Tamil Nadu along with membership expansion while in WB, it was more about better communication and in U.P. more employee support for PC and more frequent meetings. In MP, too, membership expansion was the main suggestion while some members also mentioned better business plans for making the PCs viable. While in Rajasthan, it was all about better professional management of the PCs.

It is also important to understand what makes some farmers join the PC while others don't. Literacy, ownership of livestock, and being a member of any other farmer organisations like ZACS, SHG, or another PC, had a significant association with the membership of a PC/PO.

Interestingly, there was not much variation across promoters and PCs as far as their organising levels and forms were concerned. In U.P. and WB, it was FGCs, VSCs and in one case farmer clubs which were the smallest level of a PC membership. Since both ICS and BKSL in WB and ICTS and BKSL in U.P. as promoters were a part of the same family of SARA, they both followed the same approach. In MP, too, it was all about SHGs and FGCs across PCs organized by different promoters which led to evolution of the PC structures. In Tamil Nadu, too, it was JLGs, FIGs/ APGs across various promoters and size PCs. This happened as government agencies like SFAC and NABARD also recommended and supported such evolution and local NGOs anyway followed such local level mobilisation strategies for their work besides the fact that PCs based on such structures seemed more stable and sustainable.

An assessment of the best practices of PCs across states revealed a mixed picture and not so many PCs being confident about calling their practices best. In WB, major best practices across PCs were contract farming, value addition, bidding for Subsi Barga, crop insurance, new crops, and market linkages. In Rajasthan and U.P. a few innovative best practices were, no credit MAs, new crops, and contract farming.

In Tamil Nadu, in case of PCs promoted by SEEDS NGO, type of the best practices followed by its PCs included direct procurement from farmers and payment at farm gate, no involvement of intermediaries in the transactions, and supply of quality inputs. In the case of Theethanur PC, the PC considered contract seed production by 20 farmers for NRC and bio-input business as the best practices. It believed that the best way to help farmers is to intervene in the open market for better realization of price. Kottampati PC also believed in eliminating intermediaries on the output side as one of its major best practices leading to better price realization for farmers. It also brought new hybrid variety of coconut to the member

farmers and had corporate linkage for sale of milk. Seeds PCs also provided crop and livestock insurance which was innovative as it reduced risk. They also sold to institutions and even arranged loans for members. Their goat PC trading in goat markets and also franchising meat shop were important innovative best practices.

In MP, ASA promoted Panagar Mahila PC stated that its seed production intervention was very successful. Its other innovations included scaling up and branding of products. The AARSPI promoted Nerali PC saw its own brand in the inputs and focus on output marketing as best practices. The other innovations included decentralized procurement and quality seed production. On the process innovations, organic farming practices in coffee and other crops in the same farms including facilitation of market with private market linkage for 700 of its 12000 farmers in MP, out of which 3000 were fully organic scores PCs was important innovation.

The Pithdihari goat PC treated own production and marketing of some of the inputs as best practice. Besides that, it also considered weight based purchase of goats and other animals as process innovation. Similarly, their goat PC using franchising for meat selling was also an innovation. On the other hand, Chitawa Women Crop PC's best practice innovations included seed contract farming, distant market trading, and introduction of mechanical grading. The Ram Sahin PPC making use of warehouse receipt based loans for storing its produce in its own warehouses and participating in futures markets were its innovations and best practices.

NUDB's model of promoting milk PCs is based on certain rules of governance to enhance patronise cohesiveness and governance and operating effectiveness which are one, they will do business with only members, new members can join only during specific windows in each year and only those with minimum supplies of milk can vote. They have to maintain a ratio of 3:1 flush to lean milk supply and they have to increase their shareholding after one year, two, there are classes of membership and face value of the share is revised periodically and old members can leave the company and raise their equity capital at present valuation besides 20% of the directors being co-opted experts. This is reflected also in the scale of the milk PCs which are state level. The elected board members were forbidden from holding any political office and have staggered terms where one third retire every year for a year.

State specific and common problems of PCs

The PCs in UP, other than the milk PC, were modest in their profile and performance with one still making small losses. Though most of them had moved out of loss making but that happened after 3-4 years of existence. Still they were small in membership with numbers hovering around 1000 each. In case of at least one of the first, revenue was also very small even after five years. But, they had good portfolio of contract farming and farmers to whom they in at least two cases and other one had tried contract farming unsuccessfully.

Most of the PCs in UP suffered shortage of working and some of them even shortage of qualified human resources to manage the PCs besides issues of internal governance which included poor member awareness and poor BoD capability to oversee and guide the affairs of

the PC. The poor working and fixed capital led to poor coverage of members for farm services and problems in engaging with produce markets.

In Rajasthan, besides the typical problem of shortage of working capital and professional human across PEs, the governance of the PCs was a major concern in terms of inactive BoD or some members dominating the PC. For example, in one PC, multiple members from same households (25) had membership in PC (500 members). This was further accentuated due to the fact that most promoters were not locally based and had promoted the PCs as projects for SFAC for limited period. Therefore, constant oversight and hand holding from local promoter was missing.

There were also other reported problems in Rajasthan for PCs like high interest loans (15-25%) and lack of storage space as there are only 540 godowns in the state and cold storage existed only in 8% markets, and many of which were not covered under warehouse receipts system.

The MP, PCs also reported working capital shortage and high interest rate for loans in most cases besides the poor member awareness of their stakes and role in making the PC work. This was reflected in poor awareness of the farmer ownership of PC and poor market orientation of members which are more about internal governance. The poor handling of PC business like unsold stocks, competition from private sector and PACS, lack of availability of export wells were other reported challenges. In one case, large farmer and their lack of involvement in PC affairs and political affiliation and interference by large farmers also led to decline of the PC.

The PCs in WB, faced lack of staff, and working capital, besides poor governance especially at BoD level and lack of awareness among members engaged as major issues. Most of these were internal challenges, though there were also external challenges like spurious seed potato supply in one case, local competition, and lack of government support for engaging in procurement at MSP in some cases.

Tamilnadu was no different in many of these aspects of PC governance and management and problems included, shortage of working capital and lack of professional staff, poor BoD governance (manipulative and lack of engagement), poor member awareness, poor govt. support for his inputs, lack of infrastructure like storage space, local competition and even locational disadvantage in one case.

Policy Recommendations

Given the relatively large size of land holdings of the PC members compared with those of non-members, there is need to seek membership of marginal and landless categories proactively to make the PC journey more inclusive and impactful. This does not deny the fact that mixed membership still retains its rationale to gain scale and scope. This is only to highlight that those already excluded from other networks like institutional credit and produce market or traditional co-operatives need to be roped in as they need the PCs much more than any other category of landholder or rural producer.

One of the most important findings of the study is that the output linkage still remain poor across most PCs and therefore, the impact on farmers is limited. This was also one of the important suggestions by the farmers when asked about how PC performance could be improved and PCs made more useful for them. There were many cases of PCs procuring for the government in pulses and oilseeds and in cereals in some cases but that was more to avail of the MSP and to earn some revenue for the PC and was limited in coverage and volumes. On the other hand, some PCs engaged in contract farming with private agencies like in potato or drumsticks or even seeds and that benefited farmers in terms of growing a new high value crop as well as realising assured and better prices especially because these crops did not have MSP protection. This becomes important in the recent context of the new contract farming act 2020 brought in by the Union Government which provides a clear amendment on contracting agencies to work with farmers and it is here that PCs can play an important role as facilitators between the farmer members and contracting agencies to make smallholders attractive to such agencies because PC intervention can lower the transaction cost for the PC and bring large number of producers into the contract farming net which is much needed. In fact, PCs should pro-actively engage in contract farming with their members for their own procurement as well as for supplying to processors and exporters and they have these capacities. This can help build more robust supply chains to earn buyer confidence and also earn farmer goodwill by bringing stable and assured prices to farmer members.

It was also observed that some promoters are too small to make any difference in terms of scale of farmer organization under the PC structure. For example in Uttar Pradesh, there were dozens of promoting agencies which had organized only one or two PCs each. Further, many of the promoters not belonging to the local area, unlike the traditional NGOs, did create large number of PCs but since they were not organically linked with local communities and organized these PCs more as projects, the viability and sustainability of such PCs was in question as seen in many cases in Rajasthan, Uttar Pradesh and Madhya Pradesh. The recent guidelines on promotion of FPOs with the help of cluster based business organization (CBBO) can lead to multiplication of such PCs which may not have any one to look after them after the project duration and funding ends though the provision of longer term fee support provided in the guidelines can help prevent such a phenomenon.

Though most of the PCs were composed of very small and marginal landholders and even landless in some cases, there were a few in Madhya Pradesh and in Rajasthan which had medium and large farmers as members and that was one of the reasons that one of them was a rich starter both the beginning and the other one also could not undertake any major business activity as there was no felt need for such organization.

The experience of West Bengal and Tamil Nadu also shows that public support in the form of infrastructure and marketing opportunity can also help PCs scale up and turn profitable sooner or later. This was the case with PCs in West Bengal which had franchise rights of Batai Bangla supermarkets as operational entities which led to many farmers selling vegetables and fruits to these outlets which had very high number of footfalls and turnover. Similarly in Tamil Nadu, the handing over of Tamil Nadu supply chain management (TNSCM) owned processing and warehouse infrastructure facilities gave a jump start to the PCs. In both cases, this was given on competitive bidding basis.

The new market Acts of the Union Government provide many new opportunities for FPOs like stocking exemption for food products from the ECA which they can use if they have warehousing facilities. Further, the Farmer Produce Trade and Commerce Act, 2020 provides for e-markets by FPOs. This was earlier allowed in the APMC Acts where private wholesale markets could be set up by such entities and there are few dozen such markets set up by PCs in Maharashtra already operating under the APMC Act. However, the farmer produce Trade and Commerce Act, 2020 and the contract farming Act, 2020 both include the FPO under the definition of a farmer. But, no FPO is involved in production as most of them are into pre- and post-production aggregation, trading and value addition. This needs to be changed to make FPOs buyers of farm produce in their own right and even contracting agencies which many of them see as they undertake seed contract farming with their members.

Innovations in warehousing close to growing areas like start-ups like Ergos and Agro Collateral Warehousing and even NCDC can help PCs help farmers realise better prices and get out of the compulsion of selling immediately after harvest due to the time-lagged transactions with local traders and moneylenders. The warehouse receipts Act provides for this facility of loans against farm produce, but physical infrastructure was missing earlier though it is still inadequate. The PCs should proactively hire or lease in such warehouses or make locals invest in them as managed by Ergos and PC then can manage them for their member and non-member benefit. Also, the new Trade and Commerce Act, 2020 bans FPOs/PCs from any permission and payment of market fee to the local APMCs and they can buy directly from farmers in the new trade area (non-APMC yard sub-yard) and even undertake facilitate contract farming activity to compete and collaborate with private entities.

To deal with working capital and investment capital problems of the PCs, working capital provision under priority sector needs to be activated to give loans without collateral for a limited period. The banks should be asked to give collateral free loans to PCs as they do to the SMEs. The interest charged to PCs should be priority sector interest rate as applicable to farmer and it should be collateral free upto Rs. 15 lakh. The RBI mandate of extending upto Rs. five crore loans to PCs under priority sector lending as direct agricultural credit and upto Rs. five crore under indirect agricultural finance needs to be extended. In fact, there could be even sub-targets for FPOs under the PSL norms for indirect finance.

Since PCs are like MSMEs, it is possible to mandate a part of all government purchases of food and fibre through PCs and even food supermarkets required to buy atleast 2% from PCs like there is a provision in FDI in retail policy for MSMEs.

The NABARD proposal to set up infrastructure fund guarantee subsidiary for FPOs is welcome and it should also cover crop PCs, not just those in animal husbandry and fisheries.

More training and capacity building for members and BoD required to create awareness and engagement and more equity. Professional training for staff is also required. In fact, there could be tie ups with rural management and agricultural management colleges to train professionals for such roles which is more than simple agricultural management. The co-operative training colleges at the state level should move to include PCs under their mandate and train their BoD and executives as now NCDC is also involved in promoting FPOs.

The state governments need to step in as they are located close to these entities and should frame definite policies and programs for organizing and supporting PCs or just implement central schemes. Some states like Punjab, Kerala and Odisha have moved in this direction with policy and this needs to be encouraged and supported, and Odisha policy which is very comprehensive needs to be emulated elsewhere.

The state governments need to proactively offer APDCI licenses to PCs for commission agency or trading of agricultural produce as well as arrange them in setting up farmer consumer market yards (FCHM) as provided in the model APDCI Act, 2017. The state governments can also provide initial seed capital in the form of grants to PCs for undertaking initial business activities and allocate funds for Custom Hiring Centres under NDLA and other schemes based on need and merit.

Further, the government can incentivise private sector to work with PCs when it undertakes procurement through contract farming or direct purchase which are now legal. Rather, state governments can incentivise it by not insisting on bank guarantee or the like or not linking contract price in any way to the MSP.

1.1 Background

Pillary Producers' organizations are being argued to be the only institutions which can protect small farmers from globalization by helping farmers buy or sell better due to scale benefits, lower transaction cost, technical help in production, and creating social capital. In Mozambique, where 50% farmers were small holders and only 7.3% were members of any farmer organization in 2005, the membership in a farmers' organization led to 50% increase in profits (Bachin, n.d.). In China too, there was a consistent of smallholder expansion and favourable impact on co-operative member smallholders (Jin et al. 2012; Ma and Abdillal, 2010). Various farmer organizations in China emerged as farmers needed specialised production technology and access to markets, and thus Farmer Specialized Cooperatives (FSCs) were set up and were provided direct subsidies. Cooperative unions, both product and geography based, were developed from FSCs to overcome the problems of scale, finance and competitiveness (Huang et al. 2015). Indeed, such organizations are needed for small farmers as they help realize better output prices (Roy and Thwait, 2018), improve technology adoption, and get better credit terms and thus can help eliminate interlocking of factor and product markets into which small farmers are stuck (Pathanalla and Lacey, 2004; Kumar et al., 2016; Kumar et al., 2015; Verma et al. 2019). Producers Organizations (POs) can also help appropriate a part of the value created in the chain by private sector, for their members (Gardie, 2015). In Uttarakhand, the Organic Producer Groups (OPGs) negotiated with buyers for a better price and so, even with decline in crop yields, farmers continued because of the premium price, while, in Kerala, Indian Organic Producer Company Limited (IOPCL) provided support to member producers in the form of subsidised seeds, micro-irrigation equipment and organic certification (Chandran, 2014). A field study of Self-Employed Women's Association (SEWA) and Global Fairness Initiative (GFI) launched Known Farmers with Global Potential (KFGP) project involving 2000 women farmers in four districts of Gujarat in terms of its impact on farm and off-farm income, credit uptake, and access to output markets through village producer associations (based on a treatment group (n=12) and a control group of farmers (n=12)) revealed a statistically significant increase in total income for members older than 35 months. But, increase in output for SEWA members had no effect on quantity of output marketed and farmer's knowledge of output prices. The analysis suggested 43% greater likelihood of knowledge of credit options among members and 10-24% more credit uptake and heterogeneity in income effects with regard to SEWA membership with poorer women reporting greater increase in income and output. Overall, the initiative had a substantial effect on the awareness of members and modest effect on income and output, at least in the short term (Dasal et al. 2014).

POs still struggle to become successful, and even a successful PO may be at risk of facing the various challenges from factor-life, socio-economic-environmental context, group characteristics, externalities, level of PO, relationship with higher level collective and performance frames etc. for the organisation which may prevent it from remaining effective and competitive in the local system in the long run. But, factors affecting the POs are dynamic, and the POs need to continuously innovate to counter those challenges (Jain and Natarajan, 2015).

POs in India can be registered as either under the Cooperative Societies Act, Autonomous or Mutually Aided Cooperative Societies Act, Multi-State Cooperative Society Act, Producer Company (PC) Act or Public Trusts Act. Until recently, in India and many other developing countries, POs were mostly organised under the co-operative structure. However, cooperative structure in India doesn't give the needed freedom to operate in complex environment for large scale cooperatives and due to political interference, corruption, elite capture, and similar issues, the cooperatives soon lost their vibrancy and become known for their poor efficiency and loss-making ways. Also, they face higher competition due to privatisation and liberalisation policies. The major problems of traditional cooperatives have been capital constraint due to the withdrawal of financial support by the government, high competition from other players in the market, and access to credit (capital) and technology, besides free riding by members (Singh, 2008). In fact, internal and external free riding problems originate in the very nature of the co-operative as an institution as it distributes profits based on patronage and not investment (Giannakas et al, 2016). The horizon problem occurs as members can't trade shares at market prices, and thus, they can't capitalise their gains when they leave the co-operative. Non-tradability of equity shares at market prices also creates portfolio problem as members can't diversify their portfolio to reflect their risk preferences. Additionally, influence problem distances investors from control as there is only one member one vote (Rosario, 2012).

In order to escape from this difficulty of co-operative enterprise, NGOs had emerged in many parts of the world during the 1990s. This arrangement by cooperatives helped them become economically efficient, financially viable, and control member loyalty. In practice, though the NGOs were able to raise 30-50% of their total capital through delivery rights issues, the problems include: (i) off-market purchases by govt. to meet critical needs; (ii) leasing of delivery rights by members and (iii) dependence on non-producer member equity and non-member business (Singh, 2006).

An amendment was made to the Companies Act, 1956 in 2008 in India, to include Producer Companies (PCs). India is the second Asian country after Sri Lanka (where they mostly failed to try this form of PO (Singh, 2016)). A similar entity called Farmer Professional Co-operatives in China were granted state legal status as independent and democratically administered organisations in 2007 registered under the State Administration of Industry and Commerce (SAIC) Act (Kotley, et al, 2012). PCs try to establish principles of profit-oriented contemporary business organizations within farming communities, to copeed them with corporate buyers from the rapidly transforming Indian retail landscape. It gives more freedom to cooperatives as companies to operate as business entities in a competitive market (Trettin and Haxler, 2012). For details of PC features and structure and their departure from or similarity with cooperatives, see Singh and Singh, 2014.

The main parameters of distinction within the PCs are (1) who promotes these PCs (for profit or not-for profit agencies) and, (2) whether they are inward or outward oriented. Most of the PCs existing in India today are promoted by NGOs and only a few of them are only concerned with community internal issues. PCs with outward orientation (which are NGO promoted) concentrate on internal group organization with less capital intensive activities like trading and supplying inputs during initial stage and later evolves into developing market linkages. In a very few cases, corporate promoters (for profit- supermarkets, input suppliers or food processing companies) set up these PCs which they were not intending to do business with (inward orientation). These were in most cases in early or experimental stages or failed attempts from the corporate sector of organizing farmers into a PC for business purposes. Generally, the challenge for all types of PCs is the balance between inward and outward orientation. While the PCs promoted by NGOs often lack the business skills to develop effective market linkages, in the PCs promoted by corporates, the promoter might be too aggressive in building market linkages that it fails to understand social dynamics within the group or derive long-term welfare effects (Tabboo, 2014).

In India, first set of PCs were promoted and supported by a state government (Madhya Pradesh) under a World Bank Poverty Reduction project (DPIP) in 2005. In the case of PCs in MP, the state government which was also the promoting body provided a one-time grant of Rs. 25 lakh to each PC as fixed deposit revolving fund for obtaining bank loan against it, and also another annual grant of maximum Rs. 7 lakh per year for 5 years for administrative and other expenses. Further, interest subsidy upto a limit of Rs. two lakh was provided on any term loan taken by the PC and a grant of upto 75% of the cost up to a maximum of Rs. 2 lakh was given for any certification expenses (NABARD, 2011). The membership shareholding of PCs in India ranges from individual producers to informal self-help groups and individual producers, registered SHGs and individual members, and only institutional members. By September 2013, the number of PCs had gone upto 2040 (Singh, 2013). In 2015, there were 3200 registered PCs in India (Anonymous, 2016) and by 2019, they numbered more than 7000 (Nati et al., 2020).

The Union Government and certain promoting agencies have now started promoting PCs by creating financial and non-financial aids for them. In 2012, the Ministry of Agriculture had advised all the state governments to treat PCs at par with the co-operatives for various policy incentives. The Department of Animal Husbandry, Dairying and Fisheries (DAHD) had declared that in addition to cooperatives, PCs shall also be eligible for assistance under National Dairy Plan (Anonymous, 2015). The Reserve Bank of India had put PCs under priority sector lending upto Rs. 50 million per PC. The Union Budget for 2013-14, had major initiatives to support PCs including the equity grant support of Rs. 1000 lakh per PC, with a provision of Rs. 50 crore and a credit guarantee fund for PCs through Small Farmers Agribusiness Consortium (SFAC) with allocation of Rs. 100 crore (see Singh and Singh, 2014 for details). NABARD created Producer Organization Development Fund (PODF) with initial corpus of Rs. 50 crore during 2011-12, for supporting the existing PCs to create innovative financing models. It provided support to PCs for facilitating improved credit access, capacity building, market linkages and need based handholding services to meet their end-to-end requirements. NABARD created its own subsidiary (NABARD Finance Ltd.) for meeting the credit requirements of PCs by adopting a

flexible approach based on life cycle needs, while it continued to provide promotional support towards capacity building, market linkages and other incubation services to PCs through a new fund called Produce Fund. NABARD had been given a mandate to promote 200 PCs in two years with Rs. 200 crore funds in 2014-15. This led to the State government involvement in direct promotion of PCs e.g. in Karnataka. Development agencies like Friends of Women's World Banking (FWWB) and ICCO are helping PCs with loans and capacity building grants. In the Union budget 2015-16, Operation Greens with an allocation of Rs. 500 crore to address price fluctuation in three vegetables—Tomato, Onion and Potato (TOP) crops for the benefit of farmers and consumers was announced. It aims at promotion of agro-logistics, processing facilities and professional management through the PCs, also, 100% income tax exemption for PCs upto annual turnover of Rs. 1.00 crore was announced (Anonymous, 2016).

This chapter reviews the previous evidence, though limited, on performance and impacts of PCs and other FPOs in section two, states its major objectives in section three and methodology in section four besides a brief about the organization of the report in section five.

1.2 Review of previous studies

There are not many serious academic studies on PCs in India with a few exceptions like Trabbins, 2011, and Singh and Singh, 2014, considering the fact that the PC Act has existed since 2003. Of the 17 PCs promoted by District Forestry Initiative Project (DFIP), eight were financially successful, seven at breakeven point and two were into losses. Of the five studied, two were successful, two at breakeven point and one was into losses. The membership of these PCs ranged from 1058 to 3260 and median size of holdings of the members was 1.1 hectares. The member success index was low at 34% and knowledge level index was at 37%. 40% of the member farmers were not satisfied with the prices offered by PCs. Savings on input purchase through the PCs were very modest at Rs. 400 as reported by 37% members. The additional sale proceeds realization due to PC was 7.9% of their household income. Thus, compared with members who did not transact with the PC, the members were better off to the extent of Rs. 4193 in their total income. In terms of percentage, only 17% members had sold 100% of their produce through the PC, another 31% only less than 20% of their total produce and 56% did not transact with the PC for the sale of their produce. Only 3% were aware that PC was owned by them (Purushotham, 2012). Areas of specialization of agricultural PCs in India in 2014 showed that about 22% of PCs worked with fruit and vegetables, 14% with seed production, 12% with spices (primarily chili), and 11% with dairy (Trabbins, 2014).

The performance of PCs in MF did not do much across providers as across business undertakings and linkage established besides equity mobilization. The PRADAN PC was in profit most of the time, while those promoted by Itjan and Action for Social Advancement (ASA) and MF DFIP made losses, except one PC promoted by ASA which was in profit continuously for two years of its existence. Since most of the DFIP PCs were in similar business (production and sale of certified seeds), their performance was largely dependent on this business, but some of them were able to make profit due to scale, other businesses and better and professional business and market management. In Gujarat, NGO promoted PCs were not able to raise authorized capital and shareholding was restricted to a few groups and farmers.

They did not have many professional managers. They sold mostly inputs and facilitated producer selling. On the other hand, the farmer organisation (Shastriya Udyam Sangh (SUS)) and Onion Growers Co-operative Federation (OGCF) promoted PCs were doing better in terms of business volumes as well as profits. The PCs in Rajasthan were relatively very new and had modest farmer base (500-1200) with mostly individual shareholders (100-500) but had large number of farmer groups associated with them. They had fairly good professional support from the promoter Access Development Services (ADS- an NGO). In some of the PCs, non-member dependence was high (20-60%) though farmer base was really made up of marginal and small farmers that too, in tribal areas. Though most of them were into input supply, two of them also ventured into facilitation of seed contract farming and ginger production and marketing. All of them were into modest profits. The PCs in Maharashtra presented a mixed bag with some being extremely genuine and other completely false. Of the two NGO promoted PCs, capital base was small, number of shareholders was small and professional help was missing. Similar was the case of one farmer group promoted PC which had similar profile. In one case, non-member dependence was very high (70% of business). All of them made losses and suffered from capital shortage. The PCs in India in general, appeared to be product focused rather than producer farmer focused (Singh and Singh, 2014). Most PCs were not able to benefit producer members on any significant scale in terms of gross monthly turnover per member per month (Nayak, 2013).

Most of the MFDP/PCs were into seed production business, which involved a small number of members and a high cost business. Therefore, it did not create member centrality and large patronage needed for the PC to scale up. The viability of the PCs is dependent on different factors. In case of Maha Gaurav Aji cotton PC, it was more of scale, type of farmers, and crops handled. In case of Nimad and Khargone PCs, it was again the high value crop-cotton, which was sustainable because of support from ASA. Another explanation for most PCs being in loss could be that as PC income was taxable, the PCs tended to pass on the surplus generated to members as price benefit to avoid taxation (Singh and Singh, 2014). The Larkhush Crop Producer Company under the MFDP/PC in the Panna district of Madhya Pradesh which engaged its farmer members in seed production from 2007 had, in 2014, 2001 shareholders with the share capital of nearly Rs. 2 lakh, and authorized capital of Rs. 8 lakh. The net profit of the company increased from Rs. 18,000 to Rs. 5,55,000 and the turnover from Rs. 1,25,000 to Rs. 26,25,000 in seven years. The average income of member farmer increased from Rs. 32,000 to Rs. 1,75,000 per season. The company collaborated with several institutions as a contract procurer, with research institutes to provide better agricultural practices to members and with financial institutions for facilitating capital requirements of the farmers. The company has its own brand named Ajeerika and sells whole wheat flour and gram flour under it (Chaudhri, 2014).

The health of a farmer organization depends on financial and nonfinancial performance and thus, member, domain and patronage centrality become important. Economic viability depends on group attributes, leadership, institutional arrangement, business and financing decisions and the policy environment. On the other hand, governance and management are crucial determinants of nonfinancial performance which includes shareholding pattern, appointment of Board of Directors, capital mobilization and allocation, leadership style, risk, norms, and

decision making processes. The organisational viability and sustainability also depends on the nature of community, its agro-ecological and demographic profile and socio-economic and behavioural factors which includes the attitude of farming communities towards agriculture (Das, 2015).

One of the PCs in Rajasthan promoted by EAFN achieved a marginal net profit within three years. A Reliance Foundation (RF) promoted PC in Maharashtra had share capital of ₹ 25 lakh after five years of set up, and it was able to set up a pulper mill and a godown. Another RF promoted PC with share capital of ₹ 9.1 lakh and 25 members made losses in all four years since its inception, except for one year where it made 1.5% net profits. The farmers had been able to get inputs at 15% lower price and yield improvement of 20% to 30% due to Vermicomposting. The PC had a dal mill and small godown. In Tamil Nadu, one of the two PCs was in a tribal area and promoted organic agriculture and marketing of that produce, besides animal insurance. It was able to achieve net profits over the last seven years except once and had assets of the order of ₹ 11.98 lakh in 2015 and the RoI of the order of 35%. The other PC had 1000 farmers as members of 75 FPOs and it was in the business of procurement, processing and value addition of local paddy, millets, pulses and oilseeds. In 2015-16 it had a turnover of ₹ 36 lakh. It sold its 70% of produce to wholesalers in various cities and 30% in processed form in retail (Eswara, 2016).

In case of silk, Union Ministry of Rural Development, Central Silk Board and PRADAN collaborated by bringing finance, technology and implementation support respectively to enable over 10,000 families below the poverty line (BPL) to gain robust livelihoods in Tamil Nadu. MABUTA women PC was promoted by an Mutual Benefit Team (MBT) of women weavers. Scientific rearing practices were promoted to reduce diseases and mortality among silkworms, which improved productivity and resulted in the increase of average annual income to ₹ 16,000 per weaver. Eco Tasse Silk Pvt Ltd, a subsidiary was established to manufacture and sell value-added products. Members received 75% of consumer price, leading to empowerment of women as well as financially weaker sections of the society through promoting gender equity (Gupta, 2015).

All women PCs promoted under IEEVGA project of the government of Bihar in maize (1) and multi-commodities (2) vegetables and one even handling fruit, and two of which even registered at the NCDEX and NAFIL platforms were found to be doing well. In case of one maize PC, members realised 15-20% higher price due to direct marketing by PC and off-season sale at higher prices owing to linkages with warehouses, on time electronic payments and fair weighing practices and the PC made a profit of ₹ 6.3 million in its first two years of active operation and distributed patronage bonuses up to 70% from year one, benefiting nearly 6,000 farmers. The PC was able to leverage institutional credit to the tune of US\$ 750,000 from formal financial institutions like State Bank of India and Friends of Women's World Banking (FWWB). The major factors in the performance of the Jeevika PCs included: initial handholding with high quality technical assistance and on ground extension to compete with prevailing market forces; cohesive social base, following practices to gain trust from formal financial sector and tailoring market systems with simple and innovative technological solutions (Vishwakarma et al. 2014).

In Sri Lanka, it was observed that PCs were more likely to attract capital and make investments in value-adding assets when they alleviated the free riding problem by making benefits directly proportional to investment. Indicators such as equity appreciation, viable operations, payment of dividends, low external facilitator support, voluntary development of corporate linkages and growth in the number of shareholders were used to measure performance. Unlike in Sri Lanka, member farmers in India were sensitized to the need of larger legal entities and then brought on board. Scale and scope of market linkages were important factors in performance. And so, multi-product based PCs and the ones in high value business were more successful than others (Singh, 2016).

SAPCO-PC consisting of 21 cooperatives whose role was to meet the five conditions needed to set up a successful marketing system: cost-effective production, larger volumes, good quality produce, uniform production on individual holdings and across the small farms; and, finally, production through organic, certified methods, created new supply chains by promoting its own shops, online sales, franchises, mobile retail vans, food hubs and brand names. All these marketing initiatives depended critically on CSA (promoter) and SAPCO helping members certify their produce as organic under the FPO. Even though SAPCO generated an annual turnover of Rs 25 million, 90% of its members' produce was sold in local markets at conventional prices. Resistance by the majority of farmers to membership of SAPCO and organic farming was driven by the time it took for organic farming to deliver results, financial constraints on infrastructure for scaling up production and sales, and lack of speedy payments and cash transfers (Victory et al., 2017).

A set of case studies of two PCs promoted by CIRS in Tamil Nadu showed that one of the PCs had membership which was in the range of 600 members and the other one had 700 members and equity capital of Rs. 20-22 lakh. These PCs had 23-67% of their members who were landless and mixed membership of men and women. They were mostly engaged in seed supply, bio-inputs, credit and insurance including one PC setting up farm mechanization centres. One of the PCs even owned a combine harvester costing Rs. 20 lakh. One of the PCs was also able to get matching equity grant and credit guarantee from SFAC. It had also obtained loans from IWWD, NABARD and Ananya Finance (CIRS, 2017).

A study of PCs and their sustainability under agricultural value chains in Punjab and Gujarat showed a more successful case scenario of PCs in Gujarat as compared to those in Punjab, as lack of trust among farmer members as well as the promoting agencies was quite prominent in Punjab. Apart from that, PCs in Punjab failed to find potential buyers for the produce and matching grant was not utilized properly. Some of the PCs in Gujarat, on other hand, were involved in processing as well as branding of the produce which was a very important factor in their success (Singh et al., 2016).

Membership in PCs in Karnataka was quite biased towards men with 67% of members being male. Women participation in PCs with animal husbandry as secondary activity was quite prominent compared to others, which reflects the nature of women preferences, who place more emphasis on food self-sufficiency compared to cash crops (Govinda et al., 2016).

PCs emerged as an alternative to the traditional legal entity of co-operatives which were high on social but low on economic performance. The PCs, on the other hand, are high on profits motive but low on social objective due to their limited coverage of producers due to absence of scale and scope which is the manifestation of shortage of working and investment capital.

So far as problems and challenges facing PCs are concerned, one of the core problems is in the outlook of the members as they are not versed with the concept of PC. There is no loyalty towards the PC. They tend to have an opportunistic behaviour and there exists a problem of free riding. Other challenges include social capital formation, governance and management capabilities, scope and scale of PC business, market landscape and ownership issues of such agencies besides the institutional context and conversion of resources (Dahajia, 2013). The producer organization that achieves economies of scale and scope, enters the growth and glory stage, but the maturity stage has issues of member differences and free-riding activities which helps separate risk but also leads to problems of free riding on the organization by some members. The membership growth can also lead to member anonymity and the erosion of social capital which leads to cost of monitoring and member incentives and enforcing sanctions which erode profits (Das, 2013).

Neju et al (2019) profile the PCs in India, their geographic spread, the current status of their registration, their authorized and paid-up capital besides characterizing such companies in selected sectors as well as all-woman shareholder PCs. It used spreadsheets published by MCA on their website to compile a dataset of all PCs registered between Jan 1, 2003 and March 31, 2019 and selected only those companies with the words 'producer company' or 'producers company' in their name, as the Companies Act requires producer companies to have the words 'Producer Company Limited' in their name. A list of 724 PCs registered between Jan 1, 2003 and Mar 31, 2019 revealed that 50% of the PCs were registered in just last four years (2016 to 2019). This was largely due to many government schemes coming into effect from the middle of the decade and a sudden decline during 2018 seems to go with the conclusion of NABARD's PRODUCE FUND for the promotion of PCs. Further, during the five years from 2016 to 2019, 1/3rd of the companies were registered in the last quarter of the financial year. The PCs are spread across most states and union territories by now with Maharashtra accounting for 24% of the total and Uttar Pradesh, Tamil Nadu, Madhya Pradesh, Telangana, Rajasthan, Karnataka and Odisha accounting for more than 1% of the total each. In fact, Maharashtra along with Uttar Pradesh, Tamil Nadu and Madhya Pradesh accounted for half of the registered companies. However, Madhya Pradesh had the highest percentage of five year or older PCs and it was also a pioneer in setting up these entities immediately after the coming into the effect of the Producer Company Act. On the other hand, Uttar Pradesh had very few companies which were older than 10 years, though it is the second largest in terms of number of companies with 17% share in the total. By 2019, 4% of the PCs were struck off by the MCA. Most of them were 1 to 10 years old and accounted for 33% of total in that age group while 13% were more than 10 years old accounting for 46% in that age group. This mostly shows that 80% of those struck off were in these two older age groups.

The number of shareholders ranged from a minimum of mandatory 10 to as many as more than 74, one lakh. Most of the NABARD PCs (36%) had 50 or less shareholders and all of them

together (2019) had 7,65,000 shareholders. Only 1% of them had more than 1000 members. The average shareholders per PC was 369 in case of NABRD and 99 in case of SFAC promoted PCs. SFAC had 819 EPOs with 6,20,000 members. The average membership across altogether worked out to be 552 shareholders per company and the total membership was 43 lakh farmers. The average paid up capital per PC worked out to be Rs. 11.7lakh for all registered PCs and Rs. 12.2 lakh for those with active status. This meant that the average share holding was Rs. 3000 per PC. The paid up capital was very high in Tamil Nadu and very small in Telangana. Only 1% PCs each had paid up capital of Rs. 25-50 lakh and >Rs. 50 lakhs with 66% being in the category of those with <Rs. 10 lakhs each. Further, 39% of these 66% had paid up capital of just Rs. One lakh. Kerala and Maharashtra had large number of PCs with very high paid up capital and Maharashtra figured as the largest with those <Rs. 10 lakhs paid up capital which was almost 90% of the total in that category in Maharashtra. Among the top 20 PCs with the paid up capital, dairy was the biggest sector across the states followed by coconut and one each in fruits and vegetables, poultry, and tea. Interestingly, two of them were all-women PCs. Of the 4926 active PCs, majority had very low paid up capital even after 2-3 years of being in existence (Nataraj et al., 2019).

Nataraj et al. (2020) find that there existed a disparity in number of PCs spread across districts ranging from 0 to 185. Further, actually, there are 210 milk PCs with active status where more than half of them are concentrated in 4 states of Maharashtra (17%), Rajasthan (12%), Madhya Pradesh (13%) and Uttar Pradesh (12%). Most of MPCs are young as registered less than 8 years ago. About 10% of milk producer companies have Paid Up Capital (PUC) greater than Rs. 50 lakh. Dairies have larger Paid up capital (median PUC is Rs. 2.26L) because of large number of shareholders. While 32% of registered PCs are engaged in agriculture and allied activities, only 1% PCs (7) were working in non-farm activities like weaving and apparel-making (9), handicraft production (7), food processing (6), agribusiness, tourism, etc. About 66% of active non-farm PCs were less than five years in age. Only 4% had PUC greater than Rs. 50 lakh. Majority (88%) active non-farm companies had PUC less than Rs. 10 lakh.

It was observed that while only 3% of PCs were in dairy sector, there were 7% of women-only PCs (almost double) milk PCs. Further, 52% of the women-only PCs were engaged in farm-related activities and 4% in non-farm activities. Maharashtra (20%), Madhya Pradesh (13%) and Odisha (18%) were three states with more than half the women-only PCs. Only 4% of women-owned PCs had PUC of >Rs. 50 lakh, majority of them (88%) have PUC less than Rs. 20 lakh. Five of the top ten women-only PCs were in the dairy sector and also half of the top 10 women-only PCs in India had PUC of more than Rs. one crore each.

Several women board members were SHG leaders. Though they were trained in basic financial literacy and book-keeping but still their understanding of business decisions limited. Finding from 100 in-depth interviews of stakeholders in producer companies, such as producers, board members, bankers, promoting institutions and others reveal that the purpose served by producer companies and their way of functioning is different in mind of each stakeholder. Such normative imagination of PCs has varied implications. The study reveals that small farmers view themselves as only suppliers and producer companies as non-exploitative buyers. Producing farmers thought of the PC as a service provider of seeds, fertilizers, market linkage

services, etc. Some view PCs as government project and thus don't see the need to contribute financially. Many farmers lack clarity regarding their roles as owners and view their financial contribution as membership fee rather than share capital. We'd do farmers view Producer companies as business enterprises with main focus on revenue generation.

Some NGO promoters were forming producer companies by inducting already existing SHGs as shareholders in them. In such cases, business decisions were made by viewing producers as beneficiaries. Even farmers viewed themselves as beneficiaries i.e. rather than viewing it as their own business enterprise, they assumed that PCs were part of welfare initiatives taken by NGO. It was observed that in many cases farmers didn't see the need to get involved in decision making and thus were dependent on NGOs without demanding transparency or accountability from them. It was found that having a financial stake in PCs did not necessarily induce sense of ownership in them, rather it was influenced by the frequency of transactions and interactions with the producer companies. Such lack of sense of collective ownership could pose a threat to organizational sustainability of the PCs in the long run.

Because of high dependency of PC on promoters for governance, decision making, raising capital, etc. success of PC depended on business competence of promoters and board members. Many promoters established PCs without prior cost benefit and risk analysis. They experimented with different strategies like encouraging farmers to undertake untested activities, thus exposing small and marginal farmers to high risk. The two tier model is proposed as a solution whereby the market facing company can provide navigate management support to PCs. It is argued that a two tier model can help in procurement of multiple commodities which in turn ensures better utilization of resources. It enables more frequent transactions with members and thus by building familiarity, it leads to reduction of risk arising from moral hazard. Market facing companies provide financial stability to supplier PCs by acting as their assured buyers. They can help establish sales relationship and negotiate favorable prices. Also they can contribute to building strong internal governance and compliance in supplier PCs via training. This model offers exit path for NGOs in their role as starters and supporters of supplier PCs which will be overtaken by top tier PCs. But a limitation of the 'two-tier model' is that decisions may be made by the top tier company without consulting suppliers or without them being informed about the same. Therefore, supplier PCs should have a significant stake in market facing companies which will also ensure that their interests are aligned.

There was limited success of PCs which were trying to get benefits from government schemes. It was because of lack of awareness by both government and bank officials and their limited understanding of PCs. They lacked clarity regarding eligibility of PCs for schemes available to cooperatives. PCs required not only government ecosystem but also local business network for achieving efficiency, scale and profitability.

The study reveals that many PCs have weak internal governance. It is because of lack of sense of ownership and lack of understanding about the functioning of the company. Many board members did not know if they had a CEO or if the CEO was accountable to them since it appointed by promoter NGO. Also it is observed that PC shareholders don't have EBI protection or first-hand knowledge of business, thus raising regulatory concerns related

to them. There were also cases where some SHG members were PC shareholders. Though PCs can't borrow from SHG federation, there were many instances where large lending was done to 'sister' PCs by SHG federation due to overlap in membership. Thus, such overlap in membership could have ramifications in terms of risky financial transactions like the misuse of SHG savings.

The compliance requirements was an obstacle that many PCs struggled to meet due GST returns due to lack of expertise, lack of awareness or lack of funds. There was compliance related financial burden imposed on PC shareholders. Various rules and regulations like geo-tagging the location of offices of PCs were important to weed out small companies or deter fraud. But they also created burden on small producers like geo-tagging requires technological expertise. Even companies with well-educated CEOs found it difficult. Thus, the importance of doing away with burdensome statutory compliance requirements for PCs in initial stage, without diluting them in the long run was highlighted and it was emphasized that PCs need to be recognized as businesses of small producers and not just some beneficiaries. Finally, it is recommended that external investment in PCs should be allowed to address the issue of undercapitalization in them (Neh et al. 2020).

A study of PCs and other FPOs in the states of Punjab and Madhya Pradesh revealed that most of them were still in the incubation stage in Punjab. Included those promoted by NABARD under Produce Fund and those by SEAC. Only two were found to be in the emerging and growing stage in Punjab and both of these were more than 5 years old and in vegetable with membership of 1500-2000 each. On the other hand, all the 3 non-PC FPO types found to be in the matured or business expansion stage as 2 of them were more than 5 years old with membership ranging from 60 to 600 and the other one almost 100 years old with more than 3400 members. In Punjab, most of the FPOs were non-PC structures and those which were registered as PCs were of recent origin and had very small number of members (50-60). Only one PC promoted by ACF had more than 1000 members and was found to be in the emerging stage. On the other hand, in Madhya Pradesh all the 3 PCs were in matured stage with membership ranging from 700-2571 and were engaged in produce aggregation, processing, and marketing unlike the Punjab PCs which were mostly dealing with agri inputs. The study also surveyed 255 farmer members across 18 FPOs of which 45 were from 3 PCs in MP and rest in Punjab mostly from non-PC FPOs. The two vegetable PCs had membership mostly made up of marginal and small farmers unlike the ACE promoted PC which was mostly medium and large farmer based. The MP PCs were engaged in selling to government through MNC procurement or direct sale in the market with only one doing FPO to FPO sales of 1-4% of its produce. Majority of the marginal and small farmers in Madhya Pradesh had sold their produce through the PC and none of the SEAC companies in Punjab had their members selling through the PCs. In Madhya Pradesh, it was mostly pulses growers, the significant proportion of whom had sold through the PCs. In general, across the two states, farmers selling through the FPOs accounted for only 30% of the total and they sold fully or partly through the FPO. However, in mature FPOs, this was especially high (42%) in Madhya Pradesh and more of the produce by more farmers was sold through this channel in Fabi season rather than in Kharif season. In Madhya Pradesh, across the three PCs farmers mostly sold through the PCs, wheat, Achat and gram.

and hardly any crop other than urad and mung in Kharif season. In Punjab, none of the farmers in any FCOs or even other FPOs sold any produce through the FPOs except in case of vegetable co-operative where a significant numbers of farmers sold green peas through the FPO. There was an area expansion under sugarcane and paddy after the formation of FCOs in MP. There was price increase reported by selling through the FCOs in wheat, gram and Urad as they were procured mostly by the state agencies at MSP. There was also improvement in yield in wheat, gram and Urad after the formation of the FCOs. In general, there was an increase in the yield from 17% in Rajasthan to 35% in Madhya Pradesh by FCO members whereas these increases were very small or even negative in some seasons in case of some FPOs. Overall, only 18% of the total produce of the member farmers was sold through FCOs in MP and 15% in case of matured FPOs in Punjab. The net earnings was reported to be 34% higher in MP and 50% in Punjab. In MP 80% of the farmers reported adoption of new technology, diversification of crops, and access to better market linkage in more than 50% cases and even value addition, but better price realisation and reduction cost of production and freedom from commission agents was reported by 40% farmers. This was somewhat lower in Punjab being around 20% on most parameters. So far as access to new inputs and crops was concerned this was so in the case of 50% farmers in MP besides 70% reporting access to new crops and 50% new cropping practices. I3rd also reported improved access to farm machinery. This was even better in Punjab in case of matured FPOs going up to 90% in seeds, other inputs and farm machineries but only 50% in new crops and practices.

So far as marketing and processing aspects were concerned in Madhya Pradesh, 30-70% reported improvement in market connectivity, transport of produce, reduced exploitation by middlemen, better access to storage and warehousing and testing facilities. This was similar for mature FPOs in Punjab and no improvement was recorded in the case of SEAC promoted FPOs as well as produce fund FPOs in emerging and growing stage with the exception of market connectivity and reduced exploitation besides availability of inputs in the case of latter. The MP FCOs also reported improved access to training, extension and government scheme awareness besides better procurement and reduced dependence on money lenders by majority of farmers. This was even better in the case of mature FPOs in Punjab and SEAC promoted FPOs in the emerging state performed well only on training and extension services as did the produce fund FPOs at that state. The MP FCOs had also led to 50% farmers reporting better price, more regular payment and even bonus and more employment opportunities. Similar was the improvement in the case of matured FPOs in Punjab whereas all other FPOs fared poorly in this. In most cases in both the states farmers reported much improved awareness levels about various aspects of farming and working of collective agencies including the problem of middle buzzing. The MP farmers were satisfied with collection of produce and its payment and grading and payment by cheque. This was similar in the case of matured FPOs in Punjab except the payment for the produce by cheque. They were also satisfied on production practices, use of chemical pesticides, processing storage and diversification of crops besides dissemination of new technologies by the FCOs in MP as well as in Punjab. In the case of Madhya Pradesh, majority of the farmers bought their inputs from the FCOs for reasons of economies of scale. A majority of the members attended the general body meeting regularly and another 1-10d sometimes.

The MP PCs had sales turnover of the order of a million rupees or above and net income in tens of thousands and being only 1-5% of their turnover in 2016. Their equity ranged from 2.9 lakhs to 7.2 lakhs. 75-100% small and marginal farmers sold through the producer companies and 40-60% of the members did so in MP in crops like wheat and mustard seed. Andhra and Madhya the farmers sold as much as 50-80% through the FPOs and this was 10-30% of the total sales revenue of the farmers. The two SEAC promoted by AICTech agro under NVNOC were found to be defunct and did not undertake any business activities. These producer companies were being provided Rs. 7.0 lakh over 3 years mostly for the salary of the CEO, office expenses and the salaries of the POPI resident person besides training and exposure visits for the farmers and the training for the directors of the company. Almost 50% of the assistance was provided in the 1st year and the remaining in the next 2 years (Verma, 2017).

A study of the Madhya Pradesh Women Poultry farmer PC which had more than 2000 members found that the member growers had somewhat better farming experience, education and income besides membership in other groups than their non-member counterparts. The company works with 10,000 members and has its retail brand of Sukittawa chicken present 12 cities of the state. It had a turnover of 290 crores and profit of 60-70 crores starting from turnover of 15 lakhs in 2007. It has 15 producer co-operatives as its members. The company was found to be very effective and the political, social, human and economic capital of the members was found to be much higher than those of the non-members. In the case of Tamil Nadu, where the average size of the land holding is 0.5 hectares and 81% of the farmers are marginal or small operators, cultivating 62% of the total area (Chakrabarty et al., 2018).

A study of two PCs dealing with vegetables revealed that one of them had a shop in the farmers' markets where the company procured from the farmer members and sold them directly to the consumers at the price fixed by the state agency. The members received prices which were almost double compared with what non-members received and therefore had very high (2.5 times) net income compared with non-members. The company had an agri-input shop as well (Firdian and Ganesan, 2017). Another study of FPOs in export fruit in Telangana also found the gross returns of FPO members 13-35% compared with those of non-members besides 23.4% higher yields and 4% lower cost of production (Matsani et al., 2020). A study of all women Mahila Udyog PC in Uttaranchal with 1464 members setup in 2009 showed that the knowledge levels of women members were high or medium in case of 63% members and very high in case of 10% members (Mishra et al., 2019).

Another study of 10 PCs in Maharashtra found that 67% of the members joined the PCs due to the suggestions from ATMA and other extension personnel mostly for agri-input services and for better marketing of their produce. The companies provide support to the farmers in the selection of crops, availability of good quality inputs, farm mechanisation, training and demonstration and post-harvest facilities and access to the market which were the problems faced by the farmers. However, 30% PCs were involved in agri-input services and 11% in farm mechanisation and 15% in seed production. On the other hand, 21% engaged in procurement and 18% in further sales activity of agri-products, whereas more than 100 farmers each participated in various activities procurement for the most participated activity and forward marketing the least. It was found that all the PCs were able to deliver much higher procurement price

than the APMC price. There was a lack of feeling of ownership among the farmer members. Another case study of 5 FPOs across 5 states showed that they were at different stages of growth and also promoted by different agencies though mostly by NGOs (Sankar, 2019).

In another recent large scanning survey of FPOs across 49 districts to identify potential co-ops: of the 1883 FPOs surveyed, 750 were found to be active and they had 9.5 lakh farmer as members with average land holding of 1.81 hectares. The average number of members per FPO was 451 and the average turnover Rs. 33 lakh in 2017. Of the active FPOs, 47% had some business revenues. This sample was drawn from 423 FPOs and 108 other FPO types across 12 states which had at least 20 FPOs per district and 7 other states which had at least 5 FPOs per district or cluster (table 1.1).

A comparative study of FPOs in Bihar and Maharashtra based on primary data showed that in Bihar the membership of the studied FPOs varied from 300 to 3000. It is also found that the focus on increasing the number of members leads the chances of adverse selection which affects performance. The FPOs in the state had not scaled up lacked product differentiation and new markets due to policy induced adverse selection of members. In fact, the average monthly income of FPO members was lower than that of non-members (34%). On the other hand, Maharashtra, a survey of 600 members and 173 non-members showed that the FPOs have evolved more organically and mostly promoted by NGOs besides some private CSR outfits. However, there was not much FPO activity in the traditionally cooperative dominated areas in both the states upper castes and OSCs were more likely to become members of FPO. In terms of literacy, FPO members were less literate (48%) compared with non-members (59%). 70% of the farmers in Bihar and 81% in Maharashtra reported receiving new information about crops, seeds, and technologies and 35% and 46% respectively also reported receiving inputs at right time and at lower cost. However, on the output side only 13% farmer members in Bihar and 29% in Maharashtra reported receiving better prices or access to new markets. The access to better credit and government schemes was even lower reported by only 3% in Bihar and 19% in Maharashtra. Also very small percentage of them saw post-harvest operations becoming easier after joining the FPO. In Bihar, 32% farmers reported improvement in post-harvest operations after the entry of FPO. 1/3rd of the member farmers in Bihar also wanted to diversify into vegetables. The technology adoption in Bihar was also simple and low cost. In terms of distribution of members of FPO, education, farming as primary occupation and interaction with extension agencies seem to matter. In Bihar, the FPOs were able to reduce input cost but were not able to make a difference in bridging the gap between farm and market prices. The farmers still reported market price fluctuations more commonly as a major risk compared with production risk like frost or hail, low high input price or pest attack. There was no performance based incentive for members. The study highlights need for better mechanism for member selection and right size of the FPO in terms of membership besides greater product differentiation. The only value added activity being undertaken to create product differentiation by some of them was online sales.

Table 11: Major cluster and crop wise number and proportion of active FPOs

| Cluster | Major Crops | Total No. of FPOs (and members) | No. of Active FPOs (Members) |
|---------------|------------------------------------|---------------------------------|------------------------------|
| Andhra | Cotton, Tur, soybean and orange | 54 (181) | 36 (94) |
| Chennai | Mango, tomato, vegetables | 22 (22) | 7 (25) |
| Hydrabad | Orange, paddy, cotton, soybean | 24 (25) | 2 (23) |
| Telangana | Potato, Pigeon, cabbage, capsicum | 21 | 8 (22) |
| Agna | Potato, wheat, paddy | 202 | 2 (18) |
| Alwar | Wheat, pearl millet, maize | 16 (1) | 2 (1) |
| Delhi | Wheat | 4 | 4 (4) |
| Fardha | Kumra | 0 | 0 |
| Gujarat | Wheat, paddy, maize, sesame | 182 | 4 (2) |
| Haryana | Wheat, millet, cluster bean, maize | 20 (4) | 4 (7) |
| Kanpur (West) | Wheat, paddy, red gram | 25 (2) | 2 (2) |
| Kanpur (East) | Wheat, paddy, potato | 24 (2) | 2 (2) |
| Karnal | Wheat, paddy, vegetables | 0 | 4 (2) |
| Lucknow | Wheat, paddy, maize, mango | 42 (7) | 2 (4) |
| Ludhiana | Wheat, paddy | 87 (non-referred) | 0 |
| Mumbai | Wheat, paddy, gram | 142 | 1 (1) |
| Nagpur | Mango, gram, millet, cluster bean | 22 (2) | 2 (2) |
| Punjab | Potato, maize, cucumber | 0 | 0 |
| Amritsar | Onion, pomegranate, tur | 54 (4) | 2 (2) |
| Akola | Cotton, soybean, gram | 24 (2) | 2 (2) |
| Karnalabad | Cotton, maize, Tur, Mustard | 40 (2) | 2 (7) |
| Bharatpur | Paddy | 28 (1) | 2 (2) |
| Bhilai | Cotton, soybean, tur | 14 (4) | 1 (1) |
| Bhub | Cotton, soybean, maize | 25 (1) | 4 (4) |
| Bihar | Cotton, soybean, maize | 40 (7) | 2 (7) |
| Thane | Paddy, Ono, Cucumbers, Brinjal | 24 (2) | 4 (4) |
| Mumbai | Cotton, soybean, tur, gram | 74 (4) | 2 (2) |
| Nashik | Onion, grapes, pomegranate, tomato | 14 (1) | 2 (2) |
| Sangli | Onion, maize, soybean, tomato | 14 (3) | - |
| Salara | Strawberry, lemon, pomegranate | 24 (2) | 4 (4) |
| Solapur | Pomegranate, maize, tur | 42 (2) | 2 (7) |
| Wardha | Cotton, tur, soybean, orange | 24 (2) | 2 (4) |
| Washin | Cotton, tur, soybean, wheat | 22 (2) | 1 (2) |
| Waranasi | Cotton, soybean, tur, mango | 42 (7) | 4 (7) |
| Amritsar | Wheat, paddy, cotton | 42 | 4 (4) |

| Cluster | Major Crops | Total No. of FPOs (2010-2011) | No. of Active FPOs (April 2012 onwards) |
|----------------|---------------------------------------|-------------------------------|---|
| Bahol | Wheat, maize, vegetables, soybean | 28 | 20(71) |
| Dhule (Tajura) | Pineapple, orange, jackfruit | 2 | 2(100) |
| East Singhpur | Cauliflower, tomato, onion | 4(2) | 2 |
| Barjan | Green gram, maize, 5 gram, tomato | 15(16) | 15(100) |
| Kamrup (Kaxam) | Pineapple, banana, orange | 4(4) | 0 |
| Majurthana | Paddy, mango, guava, cashew | 15(17) | 10(67) |
| Ranchi | Paddy, cauliflower, brinjal | 10(21) | 4(19) |
| Rampur | Groundnut, red gram, pomegranate | 16(20) | 7(44) |
| Fair | Mango, lemon, maize, French beans | 2(14) | 0(0) |
| Rishna | Paddy, mango, turmeric, banana | 10(20) | 10(100) |
| Mahabubnagar | Red gram, paddy, cotton | 1(10) | 1(10) |
| Miraj | Onion, cotton, red gram | 6(10) | 2(20) |
| Frumbhadi (TN) | Maize, cotton, small onion | 4 | 4(100) |
| Tirukur | Coconut, Avocado, banana, tomato, egg | 29(27) | 15(52) |

Source: APFC CWS and Tata Trusts (2012)

Interestingly, though the FPOs were categorised into promoted FPOs, promoted FPOs and Other FPOs, it was found that FPO members were relatively large in terms of landholding and had 14% higher average monthly expenditure than that of their non-member counterparts. The results also showed experience in farming, prior experience in cooperative membership, and higher reliance on private sources of information as important determinants of FPO membership. In fact, non-promoted FPOs had most consistently reported increase in gross income (95% members) as well as increase in productivity. On the other hand, only 12% of the non-FPO members reported increase in gross income. The members attributed the change in income due to better prices and access to new markets. The Other FPOs (non-promoted) also outperformed FPOs in strengthening small holder position in value chains as 84% of OFPO members reported cost reduction compared with only 27% of FPO members. As against this, only 29% of non-FPO members reported any improvement in productivity with 40% actually reporting a drop in the same. The FPO members with higher irrigated areas showed even further improvement in their income. The use of mobile phones by information was the significant factors in improving productivity for both members as well as non-members besides only the OFPO membership being critical in the case of members. The FPOs in general performed better than those in Bihar on most counts like better prices, better negotiation capacity, reduction in transaction cost and lower market rejection of produce. Whereas farmers in Bihar attributed increased income to new markets in Maharashtra, it was more about better prices and quality based purchase of produce, the rejection was lower. The heterogeneity of the group in which different skills combined also seems to matter in delivering better results. Also the FPOs in which farmers and managers' incentives are relatively better aligned were more successful in adopting new technology and better risk management. This kind of alignment of objectives and incentives can also reduce intermediation cost. For this leadership and managerial resources

matter significantly. Therefore, the performance based system which addresses problems of adverse selection and moral hazard and leave to active member participation, can help better performance (Roy et al., 2019).

Another review of literature-based assessment of the FPO performance revealed that Andhra Pradesh had an FPO policy. There was not adequate evidence on the participation of small and marginal farmers. The NGO promoted FPOs were found to be operating on a small scale with limited reach when compared with large PC like those promoted by the NCDs. Further, it was found that business model of a majority of the FPOs focused on procuring farm inputs with limited focus on establishing market linkage for selling the farm produce. Lack of business orientation and limited knowledge of agri value chains are other important deterrents for FPOs from operating as business entities. The NCDs provides for farmers to store their produce for a few months after taking the sell position on the exchange platform. There is also a lack of agreement whether capacity building should focus on farmer members or employees of such entities. It was also suggested that the assessment of performance of FPOs should be done by themselves and should include besides efficiency and equity, other contextual parameters like environmental indicators to judge their adoption of sustainable agriculture practices which is missing from the existing tools of performance assessment. The rating tools are also bias towards quantitative indicators e.g. membership, size is the only indicator which misses the dynamics of participation. Similarly, financial ratios lack standardisation and therefore do not permit any useful comparison besides affecting the capability of the FPOs to raise resource of financial institutions. (MSE, 2019).

Only seven states of India seem to have a conducive policy environment for PCs which include Madhya Pradesh, Karnataka, Maharashtra West Bengal and Rajasthan (Dey, 2018). The states of Karnataka, Orissa and Telangana have state specific FPO policies. Tamil Nadu government has allocated Rs 100 crore for the current year to support 200 FPOs. The Doubling of Farmer Income (DFI) committee recommends a minimum of 7000 FPOs by 2025-26. In seven states of Maharashtra, Madhya Pradesh, Uttar Pradesh, Rajasthan, Gujarat, Karnataka, Telangana, 50% of the FPOs were registered as producer companies as of 2015. 60% of the PCs are in the states of Maharashtra, Uttar Pradesh, Tamil Nadu, Madhya Pradesh, Rajasthan and Karnataka. In fact, West Bengal and Maharashtra are among those states which have added 50% or more of their PCs during the last five years only. The seven state study also showed that 81% of the member farmers were marginal or small, 26% women and 12% were tribal farmers (Prasad, 2019).

The seven-state study also showed that 48% of the FPOs had membership below 500. It is pointed out that most FPOs are either too involved in input supply or buy aggregating produce for public procurement or sale to a buyer. It is only some NDFOs like New Eluru, Ananya Etanaka, Samanathi which lend without collateral. Further, more than 30% of the FPO boards had no external experts or independent directors and 45 percent had no female directors (Prasad, 2019).

Almost all of the PCs have suffered from lack of working capital support (NASCONs, 2011), difficulty in access to loans, lack of finance in leaner years (Singh and Singh, 2016) and

limited access to credit (Pau, et al, 2017). In most cases, vision and direction from the Board of Directors are missing in PCs. Paucity of experts due to lack of resources does not keep the governance and management in place. Lack of experience has led to non-sustainable business plans. Most of the PCs have high operational costs due to high overhead costs and high transactional costs (NABARD, 2011). Thus, there is a need of major change in the way PCs are made to work. But then, the reality of cooperatives has changed and successful cooperatives can only selectively follow principles of cooperation, not member centrality, can have large scale with mixed membership, can evolve top-down with proper modulation and design, need not have fertile grounds to begin with, and successful cooperatives can create their own policy, engagement and manage it to their advantage (Gohajjar, 2015).

1.3 Major research questions and rationale for the study

The above review shows that there has not been adequate academic and professional examination of the issues facing the PC domain which are practice and policy relevant. Some of these research issues are

- i. How far PCs are an improvement over the existing co-operative or other models of producer organization?
- ii. How relevant and appropriate are the PCs in the context of globalized markets?
- iii. Is there a design aspect of the PC which matters and should be provided as an intervention?
- iv. Is there any specificity about the crop or enterprise which matters e.g. commodities or high value crops?
- v. Who is more relevant promoter for a PC— state or civil society or private sector?
- vi. What conditions are necessary for business and economic viability of PCs?
- vii. Are PCs with higher levels of skills and capabilities more successful in working with modern markets as scale and scope become important to do viable business?
- viii. Which model of promotion is more robust and viable?
- ix. What kind of policy treatment do the PCs need to grow as vibrant producer entities and to make an impact on the livelihoods of small producers?
- x. How do innovations in PC take place and what makes them scale up- inclusive or sustainable?

1.3.1 Rationale for the study

There are many types of promoting agencies in India which include IFAC and NABARD at national level public bodies, State Governments and their agencies leveraging RECs at the World Bank funds, NRI/NI Programmes (NIPD), Other NGOs/Trusts/Foundation like Bill & Melinda Gates Foundation, TATA Trust, Reliance Foundation, Arbuja Cement Foundation, HDFC Foundation, C&A Foundation, HSBC CSR, Axis Bank Foundation, Jindal Steel & Power Ltd. and Sreyas Foundation. Each one has its own model of organizing and promoting

the FPOs. It is important to examine the models of major players especially those supported by SFAC, NABARD and state government agencies and some large independent NGOs like AGRSEPI.

The SFAC strategy paper (2019) on promoting 10,000 new FPOs lists various challenges in promotion of FPOs and proposes to support 250 new FPOs in the first year and 1000 in second year followed by 1500 in the third and 4500 in the fourth year with 1750 in the 5th year with 25% funds going for FPO formation and incubation with Rs. 25 lakh per FPO for five years and another 30% for FPO management @ Rs. 10 lakh per FPO over three years. Besides 25% would go for equity grant of Rs. 15 lakh each. It also brings in the concept of cluster based business organisations (CBBOs) for FPO promotion instead of depending on NGOs. This is important departure from the past as in the past majority of FPOs were promoted by local and national NGOs. Therefore, it is important to examine the promotion strategies of the NGOs and professional promoters which this study takes into account and therefore focuses on the performance of FPOs promoted by different type of promoting agencies like NGOs, professional Agency like IIAF and ICS.

The operational guidelines on Formation and Promotion of 10,000 Farmer Producer Organisations (FPOs) by MoAFW (2020) also aim to provide holistic and broad based supportive ecosystem to form new 10,000 FPOs to facilitate development of vibrant and sustainable income oriented farming and for overall socio-economic development and wellbeing of agrarian communities, to enhance productivity through efficient, cost-effective and sustainable resource use and realize higher returns through better liquidity and market linkages for their produce and become sustainable through collective action, and to provide handholding and support to new FPOs up to 3-years from the year of creation in all aspects of management of FPO, inputs, production, processing and value addition, market linkages, credit linkage and use of technology etc. besides providing effective capacity building to FPOs to develop agriculture entrepreneurship skills to become economically viable and self-sustaining beyond the period of support from government.

It defines FPO as a generic term, which means and includes farmer-producer organization, incorporated, registered either under Part IVA of Companies Act or under Co-operative Societies Act of the concerned State and formed for the purpose of leveraging collective through economies of scale in production and marketing of agricultural and allied sector. However, FPOs registered under Cooperative Societies Act of the State (including Mutually Aided or Self-reliant Cooperative Societies Act by whatever name it is called) for the purpose of this Scheme, is to be insulated from all kinds of interference including in election process and day to day management through suitable provisions in their Memorandum of Association and Bye-laws with a view to encourage healthy growth and development of FPO.

The formation and promotion of FPO would be based on Produce Cluster Area, which is broadly defined as "Produce Cluster Monitoring Committee (D-MC), State Level Consultative Committee (SLCC), other Ministries/Departments of Government of India and the States as well as with recommendations of Implementing Agencies (NASARD, NCDC and SFAC) with input from Cluster-Based Business Organization Act" for purpose of FPO Incubation and

management herein means a geographical area wherein agricultural and allied produce such as horticultural produce of similar or of almost similar nature is grown/ cultivated; therefore, an FPO can be formed for leveraging economies of scale in production and marketing. This will also cover Organic Produce and Natural Farming. Tea Produce cluster area is to be identified with the input of District Level (CBDO) and suggestions of relevant Government of India Organizations. The CBDOs will undertake Feasibility Study in assigned clusters including a prospective Business Plan in order to establish a fit case for formation of an economically sustainable FPO.

FPO with a minimum farmer-members size of 200 shall be eligible under the scheme in plains while in North-Eastern and Hill areas (at a height of 1000 metre or above MSL and including such other areas of UTs), size of 100 shall be eligible. Farmer-members cohesively located with almost same interest are to be mobilized to form a group of 15-20 Members, calling the group as Farmer Interest Group (FIG) or Self Help Group (SHG), Farmers Club (FC), Joint Liability Group (JLG), and Rythu Mitra Group. Both 10 or more groups from a produce cluster area or a village/ cluster of neighbouring villages based on certain commonalities are to be put together to form an FPO. It may provide special focus to include small, marginal and women farmers (Women SHGs, SC-ST farmers and other economically weaker categories) etc. as members to make FPOs more effective and inclusive.

It states that while adopting cluster-based approach for products or produce/oids, formation of FPOs will also focus on 'One District One Product' approach for development of product specialization. In case the focused agriculture produce has been declared for that district, whereby FPOs will be encouraged for promoting processing, branding, marketing and export of the product for better value realization. There may be more than one cluster for one product in one district and a cluster also may extend beyond a district.

The scheme on formation and promotion of 11,000 FPOs is to be implemented till 2023-24 with budgetary support of Rs. 4456.00 crore. Since financial support excepting management cost is to be extended for five years, therefore, FPOs formed will be required to be financially supported till 2027-28, with the additional committed liability for period from 2024-25 till 2027-28 of Rs. 2367.00 crore say Rs. 2570.00 crore. Thus, the total budgetary requirement up to 2027-28 would be Rs. 4666.00 crore. The budget requirement is to be met from overall allocations of DAC&FW.

There is a need to do more case studies that can give insights into creating new theories or models for both researchers and practitioners (Prasad, 2019).

1.4 Research objectives and Methodology

The study examines performance and impact of FCs across various institutional and states by-

- i. Assessing physical and financial performance of FCs over the years
- ii. Understanding the factors that influence the performance of FCs and document the best practices followed by successful FCs and reasons behind those that failed.

- iii. Comparing and contrasting different models of PC organisation and promotion for identifying more robust models for scale-up
- iv. Comparing the performance of specialised PCs like all women or special domain PC with rest of the PCs and analysing the factors in differential performance
- v. Examining economic impact on member farmers, and
- vi. Inferring on policy and practice mechanism for improving performance of PCs.

1.1.1 Methodology

As of December 2014, there were total 462 PCs in India, out of which 15% were in MP, 14% in Maharashtra, 11% in Tamil Nadu and about 9% in Gujarat (Table 1.1). By 2014, there were 3200 registered PCs and NABARD (48%) and SEAC (36%) had promoted 84% of them. In all major states of India, only less than 1% farmers were members of FPOs ranging from low of 0.5% in AP to high of 2% in West Bengal and 2.3% in Karnataka, with the Indian average being 1.7%. Only hill states like JK, Sikkim and Nagpur had high %age of 6.8%, 2% and 2% respectively. Infact, 12 states had less than 1% farmers as members of FPOs. In another 6 states, 1-7% were members. In our study states i.e. MP it was 1.9%, Rajasthan 1.5% and U.P it was 0.18%, WB- 2% and TN it was 1.5% (Patil et al, 2014).

Out of 2294 registered PCs under the NABARD, SFAC and non-SFAC lists, 115 PCs were at least 3 years old (registered before 2011) and were considered for this study frame. Further, only those states which had at least 20 PCs were considered.

Infact in 2014, 60% of the members of FPOs were in four states of Karnataka, MP, Tamil Nadu and WB. The highest number of FPOs was in Karnataka (55) which was 3% of all promoting agencies in India. The five study states had 39% of SFAC supported FPOs and 36% of NABARD supported FPOs and in total they accounted for 56% of all FPOs in India supported by these two agencies. These states had 28% of NABARD FPOs and 38% of SFAC FPOs and altogether they had 25% of all promoting agencies in India (table 1.2 and 1.3). Infact, in terms of FPOs per agr. GDP value, TN and MP were at high level (0.54 and 0.74), while WB and Rajasthan were at medium level (0.34 and 0.37) and U.P., was at the bottom (0.14 FPOs per billion rupees of AGDP (Narasim et al, 2014).

These PCs are classified by different Promoting Institutions (PIs) and typically, one PI works across PCs across a state's PIs which have promoted at least 20 PCs, with at 10 PCs in at least one state, and those who are either org based, or in allied sector were considered (table 1.4). Some of these PCs are also supported by special agencies, which are large NGOs without state support, or state agencies like NIDOB, or have participated in national markets (through NCDEX) or availed loans from FSWB, and which are into specific and innovative domains like better cotton, or fair trade or organic. Some of the PCs are cases of failures, and some are cases with restructuring of PCs after initial failure. From each promoter in each state, we would study 2-3 PCs, and one or two other FPOs in their local area. Since some of the promoters are across more than one state like IBI, we may take only 1-2 PCs in the second or third state in case the promotion and business model is same similar across states. The case study PCs -

FPOs were picked up from across states and the total PC/FPOs studied is 35 including two non-PC FPOs (table 1.5).

These PCs were evaluated in terms of their physical and financial performance by analysing and comparing their net worth, net profit, the ratio of equity capital mobilized to authorized equity capital, payment of dividends, external facilitator support and corporate linkages from annual reports and business plans of past few years, and interviews of CEOs, managers, board members and key person of promoting agency for the respective PC.

In each case study PC and other FPO in neighbourhood (if there), 15 member farmers and 15 non-member farmers were interviewed. This was to compare impact of PC in terms of both, before and after the intervention of PC, and with and without the intervention of PC and even with non-FPC formal organisation. The total sample for farmers was 315 member farmers and 315 non-member farmers, totalling to 630. They were interviewed to assess the involvement of members in PC and if PCs had substantially impacted the economic activity of members and their income based on parameters like proportion of produce sold through PCs, inputs bought from PCs, difference in yield and price of their produce after the intervention of PCs, and significant increase in income due to crop diversification.

1.5 Chapterisation

The report is organised into 6 chapters besides introductory chapter 1. Chapters 2, 3, 4, 5 and 6 analyses the profile, performance and impact of PCs in the states of U.P., Karnataka, MP, W.B and Tamilnadu respectively. They not only assess physical and financial performance of the PCs but also examine their input and output interface with members as compared with non-member and as three years before. This is done for member and non-members and also promoter wise and for each PC in case of each promoter. The final chapter (7) summarises the findings for the five states altogether and 35 PCs and other FPOs and makes suggestions for policy and practice to improve the performance and impact of PCs in small farmer households.

Table 1.2: State wise and RI (SFAC) and POPs (NABARD) wise number of FPOs.

| State | No. of RI | FPOs by RI | No. of POPs | FPOs by POPs |
|-------------------------|-----------|------------|-------------|--------------|
| Andaman & Nicobar | | | 1 | 1 |
| Andhra Pradesh | 8 | 12 | 10 | 10 |
| Arunachal Pradesh | | 2 | 1 | 1 |
| Assam | 41 | 10 | 11 | 6 |
| Bihar | 24 | 22 | 19 | 15 |
| Chhattisgarh | 7 | 6 | 11 | 11 |
| Delhi | 2 | 4 | 4 | 4 |
| Goa | 1 | 1 | 1 | 1 |
| Gujarat | 44 | 13 | 10 | 11 |
| Haryana | 14 | 15 | 15 | 15 |
| Himachal Pradesh | 2 | 1 | 1 | 1 |
| Jammu & Kashmir | 1 | 1 | 1 | 1 |
| Jharkhand | 4 | 4 | 4 | 4 |
| Karnataka | 4 | 1 | 1 | 1 |
| Kerala | 1 | 1 | 1 | 1 |
| Madhya Pradesh | 11 | 11 | 11 | 11 |
| Maharashtra | 10 | 11 | 11 | 11 |
| Manipur | 1 | 1 | 1 | 1 |
| Mizoram | 1 | 1 | 1 | 1 |
| Nagaland | 1 | 1 | 1 | 1 |
| Odisha | 1 | 1 | 1 | 1 |
| Punjab | 1 | 1 | 1 | 1 |
| Rajasthan | 1 | 1 | 1 | 1 |
| Tamil Nadu | 1 | 1 | 1 | 1 |
| Telangana | 1 | 1 | 1 | 1 |
| Tripura | 1 | 1 | 1 | 1 |
| Uttar Pradesh | 1 | 1 | 1 | 1 |
| Uttarakhand | 1 | 1 | 1 | 1 |
| West Bengal | 1 | 1 | 1 | 1 |
| Total | 151 | 151 | 151 | 151 |
| Average FPOs per RI/POP | | 1 | 1 | 1 |

Source: Working Paper.

Table 1.3: RI, POPs and FPOs in different study states as %age of total in India.

| State | No. of RI | FPOs by RI | No. of POPs | FPOs by POPs |
|----------------|-----------|------------|-------------|--------------|
| Madhya Pradesh | 10 | 6.6 | 6.6 | 6.6 |
| Rajasthan | 4.6 | 2.7 | 2.6 | 2.6 |
| Tamil Nadu | 1.6 | 1.0 | 1.0 | 1.0 |
| Uttar Pradesh | 1.2 | 0.8 | 0.8 | 0.8 |
| West Bengal | 2.6 | 1.3 | 1.3 | 1.3 |
| All | 151 | 151 | 151 | 151 |

Table 14c: State wise and Promoter wise number of PCs/FPGs Studied

| State / Promoter | SP | Agribus | SP | TS | WB | Total |
|-------------------|---------------------------|----------|----------|-------------------|-----------|-----------|
| SPS | 1 (woman PC) | | | | | 1 |
| AROPH | 2 (one woman, govtary PC) | | | | | 2 |
| ASA | 2 (both women) | | | | | 2 |
| VARE | 1 | | | | | 1 |
| ISD (Bihar) | 1 | 1 | | | 2 | 4 |
| FRADAN | 1 (and one co-op) | | | | | 1 |
| MOOS | | 1 (milk) | 1 (milk) | | | 2 |
| ISAP | | 2 | | | | 2 |
| IRSC (Bihar) | | | 2 | | 2 | 4 |
| SEPI (Bihar) | | | 2 | | | 2 |
| SEES | | | | 2 | | 2 |
| Thrus ATL | | | | 2 | | 2 |
| Vijayal | | | | 2 (Woman govt PC) | | 2 |
| ESAP | | | | 1 | | 1 |
| Supri | | | | | 1 | 1 |
| Chaharwa Bihar | | | | | 1 (Total) | 1 |
| Total | 8 | 3 | 3 | 6 | 4 | 24 |

Performance and Impact of PCs in Uttar Pradesh

Introduction

Uttar Pradesh is the largest agricultural state of India with 17% of all foodgrain production and ranks first in production of wheat, and sugarcane and potato. The state accounts for 32% of potato acreage and 42% of potato production in India with the second highest yield of potato after Gujarat (GOIP, 2009). It also had one of the largest cold storage capacities (40% of India's total) used mostly for potatoes. The agricultural sector accounted for 29% of the state workforce and 24% of the GDP in 2015-16. Every fourth Indian farmer is placed in U.P. 68% of the net cropped area is irrigated and it has cropping intensity of 155. However, the landholdings are extremely small with 92% holdings being marginal or small in 2010-11 with average size of holding of 0.78 hectares. Further, the three crops of wheat, paddy and sugarcane account for 70% of GCA of the state and average monthly income of the farming household was only Rs. 4500 in 2012-13 (Tiwari, 2016). Further, the state has been a laggard in co-operative performance and even in the setting up the PCs until recently. In fact, the recent surge in PC numbers in UP was a surprise and happened mainly because of one state agency i.e. UPBSC. It had promoted 101 PCs by end of 2016 with 44555 shareholders with 445 members per PC. One of our study PCs had the highest share capital in the state in 2016 at Rs. 10.88 lakh. Most of the PCs had farm input sale business and 10 had mandi business also in 2016 with 30 others having applied for the same. The average turnover of inputs was Rs. 16 lakh per PC and output turnover Rs. 19 lakh per PC totaling to Rs. 35 lakh per pc (UPBSC). On the other hand, only for NABARD PCs, which numbered 74, 67% had promoted one PC each, 28% two each and only 12% had promoted 3 or 4 PCs each. On average, one promoter had promoted 1.3 PC each. All our study PCs in U.P. were those supported by IFAC.

The next section of this chapter analyses the profile of all PCs in terms of their physical and financial parameters for at least last three years. The second section focuses on performance and impact of the rural PC on members vis-à-vis non-members and the third section examines the other non-rural PCs in the state promoted by five different but somewhat similar agencies and their impact on farmer members. Section four of the chapter makes a comparison between these two promoters for assessing the differential impact, if any. Section five compares the individual PCs of each promoter. The chapter then concludes in section six with major observations on the performance of the PCs in the state.

2.1 Physical and Financial Performance of PCs

In U.P., of the PCs promoted by NGO/professional development agencies, the authorized capital was modest (from Rs. 5-15 lakh) and most of them except one (Nariyoti) had mobilized that. Their turnover was significant enough (Rs. 20-35 lakh) except in case of one (Narines Kibin) which could not go beyond Rs. 16 lakh. Most of them except one (DOPC) had small profits and most of them (except Nariyoti) had reserves as well (Table 2.1). These PCs showed average performance on various parameters of input and output business. But, they suffered from lack of scale as all of them had only 1000 members each despite the fact that they had been in existence for more than five years each.

In case of one PC, the equity shares remained confined to a large extent with the promoters and a few members only with recently, 45% of the shares were held by just eight members in 2016-17 which is not a desirable thing for a PC though if may be needed initially but continuing with it for years is not a good governance practice.

On the other hand, Saahaj of NDS of NDDB was a class apart in many ways as it had scale in terms of membership, equity base and level of business turnover besides the fact that it dealt with a high value produce- milk. It had profits of the order of Rs. 15 crore and had mobilized most of its authorized capital which was of the order of Rs. 20 crore and earlier Rs. 20 crore. 50% members supply milk exclusively to Saahaj. Another reason for Saahaj's better performance was the governance and business models which were very tight and fool-proof. It relied on low -asset- high turnover model and strictly enforced member discipline besides the professional input it had from the NDDB team. This is one of the six and one of the first PC promoted by the NDS across six states.

Baah- the parent body of BCTE, BKSL, and ICS had promoted 317 FPOs in 17 states as of 2015 (Rani, et al. 2015). There were 10 cases of failure of FPOs promoted by BCTE in U. P. because some traders created problems which led to indigiting within the Board. Some FPOs were organized just to meet the targets and there was no member involvement and, in some cases, there were outright frauds committed by BoDs. Thus, it was more of governance failure. Further, all FPOs in the state had poor staff capacity and there was no money for professional staffing in the project supported by World Bank. In fact, one person was looking after 10 producing FPOs. The BCTE had deployed one project manager in each district. The BCTE had 29 staff under the LITEN for six years which now number only 5 of whom 4 are in the field.

2.2 Milk PC (Saahaj): member and non-member profile

The members, including only one female, were more literate on an average compared to their non-member counterparts with 70% of them being high and higher secondary school literate. As against this, 30% of the non-members (all male) were graduate though 40% of them were illiterate or middle school pass (Table 2.2). The average years of education were 11.4 in case of members and 8.1 in case of non-members. 50% each of the members had farming and animal husbandry as primary occupations and only 40% of the non-members had farming as primary occupation. 30% were animal breeders and 10% had other businesses. 30% each of the members had animal husbandry and farming as secondary occupation as these were Saahaj members.

Average owned land was 4.52 acres for members and 1.92 for non-members. Thus, PC milk producers were larger landholders relatively and their operated average land area even higher at 10.11 acres whereas in the case of non-members, it was same as owned land average. The reason for very high operational holding was the fact that one member had 80 acres, mostly leased in. By owned land, though 66% of the members were marginal owners but they owned only 17% of total area and 30% were semi-medium and 10% medium by ownership accounting for 55% and 24% of all owned land respectively (Table 2.3). By operated land, among members, 30% were marginal and had 8% of all operated land, 18% small with 3% of land, 23% semi-medium with 18% land and 10% each medium and large with 12% and 53% land. The non-members were much small operators with 57% being marginal and operating 27% land with 30% small and 10% semi-medium and medium each operating 4% and 3% of operated land (Table 2.4).

Table 2.1: Profile and performance of various PCAs in U.P.

| Name Performance | 2014 Performance | | | 2015 Performance | | | 2016 Performance | | | 2017 Performance | | |
|---|------------------|---------------|---------|------------------|---------------|---------|------------------|---------------|---------|------------------|---------------|---------|
| | Revenue (₹) | Profit (₹) | Members | Revenue (₹) | Profit (₹) | Members | Revenue (₹) | Profit (₹) | Members | Revenue (₹) | Profit (₹) | Members |
| Members | | | | | | | | | | | | |
| Subsidy/Capex (₹/Year) | 1 | 1 | 8 | 1 | 1 | 8 | 1 | 1 | 8 | 1 | 1 | 8 |
| Feed-in Tariff (₹/kWh) | 2.40 | 2.40 | 1.50 | 2.40 | 2.40 | 1.50 | 2.40 | 2.40 | 1.50 | 2.40 | 2.40 | 1.50 |
| 5 C projects (₹/kWh each (C)) | 1.70 | 1.65 | 1.65 | 1.70 | 1.65 | 1.65 | 1.70 | 1.65 | 1.65 | 1.70 | 1.65 | 1.65 |
| Revenue (₹/Year) | 27 | 24 | 14 | 27 | 24 | 14 | 27 | 24 | 14 | 27 | 24 | 14 |
| Profit (₹/Year) | 20 | 20 | 10 | 20 | 20 | 10 | 20 | 20 | 10 | 20 | 20 | 10 |
| Revenue & Subsidy (₹/Year) | 28 | 25 | 15 | 28 | 25 | 15 | 28 | 25 | 15 | 28 | 25 | 15 |

Note: * These figures in brackets are the %age of accumulated energy investment.

Source: PCA financial sheets and records.

More importantly, the livestock ownership among members was predominantly made up of buffalo (90% farmers having them) and cows with average of three each livestock and making up 46% of all animals. Cows were owned by 30% and average 3 each and were 29% of the total livestock owned by members. The average of three goats per household led to their share of 16% in total livestock though only 30% farmers owned them. The livestock ownership of non-members was more towards goats with 20% owning 11 goats accounting for 49% of all livestock owned by non-members and buffaloes another 41% and cows only 12% with only 30% farmers owning cows and all members owning buffaloes. However, the average size of livestock per household was lower here with 3 buffaloes, one cow and 11 goats per household (Table 2.2). 65% members had electric tube wells for irrigation and 37% diesel engines for the same but only 20% each of the non-members had such facilities and 45% did not report any kind of irrigation.

Table 2.2: Distribution of Milk PC member and non-member farmers by education

| Category | Members | | Non-Members | |
|------------------|-------------|------------|-------------|------------|
| | Farmers (%) | % of total | Farmers (%) | % of total |
| Illiterate | 1 | 10 | 2 | 10 |
| Middle School | 0 | 0 | 1 | 10 |
| Primary School | 1 | 10 | 0 | 0 |
| High School | 3 | 30 | 2 | 20 |
| Higher Secondary | 4 | 40 | 0 | 0 |
| Graduate | 0 | 0 | 1 | 10 |
| Postgraduate | 1 | 10 | 1 | 10 |
| Total | 10 | 100 | 10 | 100 |

Table 2.3: Distribution of Milk PC member and non-member farmers by Owned Land

| Category | Members | | | | Non-Members | | | |
|----------|-------------|------------|--------------|------------|-------------|------------|--------------|------------|
| | Farmers (%) | % of total | Land (acres) | \$/A total | Farmers (%) | % of total | Land (acres) | \$/A total |
| Marginal | 0 | 0% | 0.2 | 100 | 1 | 10% | 5.7 | 2700 |
| Small | 0 | 0% | 0 | 0 | 1 | 10% | 1 | 4500 |
| Semi-M | 2 | 20% | 20 | 1000 | 1 | 10% | 1 | 2000 |
| Medium | 1 | 10% | 0 | 2000 | 0 | 0% | 0 | 0 |
| Total | 10 | 100% | 45.2 | 10000 | 10 | 100% | 13.2 | 10000 |

Chemical fertilizers were reported being bought by two farmers each among members and non-members from dealers, and chemical pesticides were bought by one member (10%) and three non-member farmers (30%) from dealers only and one more member (10%) from both dealers and agricultural university. Only one farmer reported use of herbicides among non-members who bought it from dealers. No farmer reported use of biopesticides. One member

Farmer bought seeds from PC and two (2%) from dealers as compared with three non-member buying seeds from dealers and one from PACS and PC. The most relevant input for the member and non-member milk producers was cattle feed which was bought by 70% members from PC and 10% non-members also buying it from the PC with other non-member buying it from dealers. PC and dealers both, dealer and other local farmers or a combination of dealers and other FPOs. But, 30% and 40% did not report use of cattle feed (Table 2.4). The major reasons among members for purchase of cattle feed from PC included: better and more reliable quality (20% each) and timely availability (12%) in that order.

The cropping intensity of members (1.1) was lower than that of non-members (2). The cropping pattern was dominated by paddy (100% farmers with 33% of kharif area and 20% of GCA) in case of members as well as non-members (60% of farmers with 43% of kharif area and 16% of GCA during the year).

Table 2.4: Distribution of Milk PC member and non member farmers by Operated Land

| Category | Members | | | | Non-Members | | | |
|----------|---------------|------------|-------------------|------------|---------------|------------|-------------------|------------|
| | Farmers (No.) | % of Total | Total Area (Hect) | % of Total | Farmers (No.) | % of Total | Total Area (Hect) | % of Total |
| Marginal | 0 | 0% | 26 | 252 | 0 | 0% | 0 | 200 |
| Small | 1 | 10% | 23 | 3.66 | 3 | 30% | 9 | 6.88 |
| Small-M | 2 | 20% | 18 | 339 | 1 | 10% | 4 | 29.9 |
| Medium | 1 | 10% | 8 | 187 | 0 | 0% | 0 | 0 |
| Large | 1 | 10% | 60 | 10.5 | 0 | 0% | 0 | 0 |
| Total | 40 | 100% | 100 | 100.00 | 40 | 100% | 19.2 | 100.00 |

Table 2.5: Distribution of Milk PC member and non member farmers by Livestock Owned

| Category | Members | | | | Non-Members | | | |
|----------|---------|----------------|-----------------|-----------------|-------------|----------------|-----------------|-----------------|
| | Farmers | No. of animals | Average Animals | % Total Animals | Farmers | No. of animals | Average Animals | % Total Animals |
| Buffalo | 11 | 26 | 2.29 | 65.00 | 10 | 20 | 2.00 | 40.00 |
| Cow | 18 | 27 | 2.75 | 38.00 | 5 | 6 | 1.20 | 12.00 |
| Goat | 3 | 1 | 3.00 | 6.78 | 2 | 10 | 5.00 | 40.00 |
| Pigs | 0 | 0 | 0 | 0 | 1 | 2 | 2.00 | 4.00 |
| Total | 32 | 54 | 1.69 | 100.00 | 18 | 38 | 2.11 | 100.00 |

The other major kharif crop was banya grown by 60% member farmers with 30% of kharif area and 12% of GCA compared with similar usage of farmers growing banya on 30% of kharif area and 16% of GCA (Tables 2.7, 2.8 and 2.9). The non-members also reported 7% of season's area under maize grown by 10% farmers. In Rabi, it was wheat which dominated the cropping pattern with all farmers-members growing it on 75% of kharif season area which was 22% of total GCA, with other crops being potato (by 40% farmers with 12% of rabi area and 5% of GCA) and mustard by 10% farmers on 5% of kharif area and 4% of GCA. Among non-members it was again wheat grown by 60% farmers on 62% kharif average and 28% of GCA followed by gram with 20% farmers growing in to 25% of rabi area and 4% of GCA. Potato and mustard were other important crops grown by 20% and 40% on 11% and 15% of rabi area and it was 5% and 8% of GCA respectively. In summer season, it was moong for 30% member farmers and 31% of summer area and 5% of GCA and urad with 30% of farmers, 27% of summer area and 3% of GCA. The non-member farmers mainly grew moong in 20% area and 4% of summer area and 5% of GCA. Other crops of summer by non-member farmers were banya, maize and potato on 15% of season's area by 10% farmers each and 3% of GCA each. Paddy, mustard and wheat had 3-4 acres per ha in the season while banya and potato had 1-2 acres each for member farmers. The average crop average for non-members was less acre for wheat, Paddy, banya, moong, maize, and potato each per farmer per season (Tables 2.7, 2.8 and 2.9).

Table 2.6: Distribution of MHA FC member and non-member farmers by source of Cattle Feed

| Category/ Farmer Source | Members | | Non-members | |
|-------------------------------|--------------|---------|--------------|---------|
| | No. of farms | % total | No. of farms | % total |
| FC | 2 | 20 | 1 | 4 |
| Dealers | 0 | 0 | 2 | 20 |
| Dealers, FC | 0 | 0 | 1 | 10 |
| Dealers, Other FPOs | 0 | 0 | 1 | 10 |
| Dealers, Local Farmers | 0 | 0 | 1 | 10 |
| None | 1 | 10 | 4 | 40 |
| Total | 3 | 30 | 10 | 100 |

Table 2.7: Habit cropping pattern of Milk-PC member and non-member farmers (area in acres)

| Crops | Members | | | | | Non-Members | | | | |
|-------|------------------|-----------------|---------------|-----------------|-----------------|------------------|-----------------|---------------|-----------------|-----------------|
| | Farmers (No.) | % of Farmers | Total Area | % Total Area | Average Area | Farmers (No.) | % of Farmers | Total Area | % Total Area | Average Area |
| Rice | 6 | 60 | 24 | 94 | 2.5 | 4 | 40 | 7 | 30.00 | 18.25 |
| Wheat | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0.00 |
| Other | 0 | 0 | 0 | 0 | 0 | 1 | 10 | 1 | 4.00 | 2.00 |
| Total | 6 | 60 | 24 | 94 | 2.5 | 5 | 50 | 14 | 34.00 | 10.25 |

Table 2.8: Habit cropping pattern of Milk-PC member and non-member farmers (area in acres)

| Crops | Members | | | | | Non-Members | | | | |
|-------|------------------|-----------------|---------------|-----------------|-----------------|------------------|-----------------|---------------|-----------------|-----------------|
| | Farmers (No.) | % of Farmers | Total Area | % Total Area | Average Area | Farmers (No.) | % of Farmers | Total Area | % Total Area | Average Area |
| Rice | 1 | 10 | 4 | 15 | 4.0 | 0 | 0 | 0 | 0.00 | 0 |
| Wheat | 1 | 10 | 4 | 15 | 4.0 | 0 | 0 | 0 | 0.00 | 0 |
| Other | 0 | 0 | 0 | 0 | 0 | 2 | 20 | 3 | 12.00 | 6.00 |
| Total | 2 | 20 | 8 | 30 | 4.0 | 2 | 20 | 3 | 12.00 | 6.00 |
| Rice | 4 | 40 | 16 | 60 | 4.0 | 2 | 20 | 5 | 20.00 | 13.33 |
| Wheat | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0.00 |
| Total | 4 | 40 | 16 | 60 | 4.0 | 2 | 20 | 5 | 20.00 | 13.33 |

Table 2.3: Summer cropping pattern of Milk F2C member and non-member farmers (area in acres)

| Crop/Type | Milk F2C | | | | | Non-Member | | | | |
|-----------|----------|------------|----------------------|----------------|----------------|-------------------|-----------|--------------|----------------|----------------|
| | Number | N. Farmers | Tractor/Tractor Area | N. Farmer Area | Stalk/Non Area | Area/Tractor Area | N. Farmer | Tractor Area | N. Farmer Area | Stalk/Non Area |
| Bm | 1 | 10 | 1 | 50 | 207 | 1 | 10 | 1 | 100 | 207 |
| Polan | 1 | 10 | 20 | 40 | 200 | 40 | 10 | 0.40 | 100 | 164 |
| Maize | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wheat | 1 | 17 | 20 | 200 | 27 | 20 | 0 | 0 | 0 | 0 |
| Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 3 | 37 | 41 | 400 | 234 | 41 | 20 | 0.41 | 100 | 201 |
| Total | | | 82.3 | 10000 | 1634 | 41 | 0 | 0.41 | 1000 | 1023 |

Information regarding general extension about farming came from PC (37%), friends (37%), PC and friends (28%), PC, mobile and Agri-dep office (10%). On the other hand, non-members received their extension from friends (32%), dealers (23%), PC (10%), veterinary worker (10%) and a combination of various sources in case of 10 each (Table 2.10). Where most of the members received information about PC from PC employees (75%), promoters (18%), and friends (20%), the non-members mostly relied on PC employees (30%) and dairy school/local milk collection centre operators) in 15% cases with 35% having no source of information (Table 2.11). Still, only 60% members knew that PC is owned by member farmers and 25% and 15% thought it was owned by PC employees or promoting agency (NDG/NDGB). 10% had no idea about its ownership. Among non-members, awareness was even poorer especially as only 20% thought it belongs to farmers, 45% reporting it to be PC employees owned and 4% not knowing about it at all (Table 2.12).

Table 2.10: Distribution of Milk PC member and non-member farmers by source of general agricultural information

| Category/ Perceived Source | Members | | Non-members | |
|----------------------------------|----------------|------------|----------------|------------|
| | No. of farmers | % of total | No. of farmers | % of total |
| Friends | 3 | 30 | 3 | 30 |
| PC | 3 | 30 | 1 | 10 |
| PC, Mobile, AOD | 1 | 10 | 0 | 0 |
| PC, Friends | 2 | 20 | 0 | 0 |
| Friends, Media | 0 | 0 | 1 | 10 |
| Friends, FPO, AOD | 0 | 0 | 2 | 20 |
| Friends, Point of purchase | 0 | 0 | 2 | 20 |
| Friends, AOD | 0 | 0 | 1 | 10 |
| Nil | 0 | 0 | 1 | 10 |
| PC, Vet | 1 | 10 | 0 | 0 |
| Total | 10 | 100 | 10 | 100 |

Table 2.11: Distribution of Milk PC member and non-member farmers by source of information regarding PC

| Category/ Perceived Source | Members | | Non-members | |
|----------------------------------|----------------|------------|----------------|------------|
| | No. of farmers | % of total | No. of farmers | % of total |
| Friends | 2 | 20 | 0 | 0 |
| PC Employees | 7 | 70 | 4 | 40 |
| PC Promoters | 1 | 10 | 0 | 0 |
| No One | 0 | 0 | 5 | 50 |
| Schools | 0 | 0 | 1 | 10 |
| Total | 10 | 100 | 10 | 100 |

Table 2.12: Distribution of Milk PC member and non-member farmers by knowledge about PC Owner

| Category | Members | | Non-member | |
|------------------|----------------|------------|----------------|------------|
| | No. of farmers | % of total | No. of farmers | % of total |
| Farmers | 4 | 30 | 2 | 20 |
| PC Employees | 2 | 20 | 4 | 40 |
| Marketing Agency | 1 | 8 | 2 | 8 |
| Don't Know | 1 | 8 | 4 | 40 |
| Total | 10 | 100 | 10 | 100 |

2.2.1 Output/impact of Milk PC

Seven farmer reported selling milk to PC in case of buffalo milk and four farmers selling to PC cow milk where the quantity of milk supplied had increased over the last three years. Four members in case of buffalo milk and three members of cow milk sold to the other FPOs earlier and were still selling in those channels as well. And other channels like local dairy had declined completely as were other co-operatives in the area in the case of members. The members reported an price increase of 15-25% over the previous channel price. As against this, in case of non-members, only four farmers out of eight buffalo milk farmers reported selling to other milk FPO even now in case of buffalo milk and other three out of four cow milk producer continuing with local dairy. There was significant increase (33%) in the number of buffaloes owned by farmer member and also increase in milk yield by 25-50% and therefore, marketed surplus increased by 30-60% in case of cow and buffalo milk respectively.

2.3 Non-Milk PCs: Member and non-member profile and farming

All of the PC members were male and only one among the non-members was a female. Average age of member and non-member farmers was 46 and 42 years respectively.

Most of the members had some level of literacy with only 17% being illiterate and 32% even being graduate and postgraduate. 85% reported farming as a primary occupation and other 14% skilled labour. For 44% of the total who reported any secondary occupation, it was animal husbandry for 22% and agriculture for 2%. The others being process, skilled labour, or unskilled labour (TABLES 2.13 & 2.14).

Table 2.13: Distribution of UP PC Members and Non-Member farmers by education

| Category- Formal Education | Members | | Non-Members | |
|----------------------------------|----------------|------------|----------------|------------|
| | No. of farmers | % of total | No. of farmers | % of total |
| Graduate | 4 | 3% | 7 | 2% |
| High School | 8 | 25% | 10 | 25% |
| Higher Secondary | 5 | 12% | 9 | 22% |
| Illiterate | 7 | 18% | 27 | 33% |
| Middle | 8 | 20% | 1 | 2% |
| Post Grad | 1 | 2% | 0 | 0 |
| Primary | 5 | 12% | 5 | 12% |
| Total | 41 | 100% | 62 | 100% |

27% of the non-members were illiterate and only 5% were graduates. 33% of them reported farming as a primary occupation with other 2% reporting as labour. Of the 50% who had any secondary occupation, 35% were into animal husbandry and 14% worked as labour (Table 2.13 & 2.14).

Table 2.14: Distribution of UP PC Members and Non-Member farmers by Secondary Occupation

| Category- Secondary Occupation | Members | | Non-Members | |
|--------------------------------------|----------------|------------|----------------|------------|
| | No. of members | % of total | No. of farmers | % of total |
| Agriculture | 1 | 2% | 0 | 0 |
| Animal Husbandry | 9 | 22% | 22 | 36% |
| Business | 3 | 7% | 2 | 4% |
| Labour | 2 | 5% | 6 | 10% |
| Retired | 1 | 2% | 0 | 0 |
| Skilled Labor | 2 | 5% | 3 | 5% |
| None | 23 | 56% | 31 | 50% |
| Total | 41 | 100% | 62 | 100% |

The average owned land for members was only 2.25 acres and operated land 2.91 acres (Table 2.15). 91% of the farmers were marginal or small by owned land and 88% by operated land. The small and marginal categories had 64% of the owned land and only 71% of the operated land while there were no medium farmers by ownership or operation. Even semi-medium and medium categories which had more than 50% of the owned land, cultivated only 29% (Tables 2.16 & 2.17).

Table 2.15: Average owned and operated land holding of UP-PC Member and Non-Member farmers

| Category/ Average (acre) | Members | Non-Members |
|-----------------------------|---------|-------------|
| Owned Land | 2.28 | 1.59 |
| Operational Land | 2.59 | 2.56 |

Table 2.16: Category-wise Distribution of UP-PC Members and Non-Member farmers by owned land

| Category/ Farming Category | Members | | | | Non-Members | | | |
|----------------------------------|------------------|---------------|----------------------------|---------------|------------------|---------------|----------------------------|---------------|
| | Farmers (No.) | % of Total | Total Land (Hectare) | % of Total | Farmers (No.) | % of Total | Total Land (Hectare) | % of Total |
| Marginal | 30 | 75.0 | 46.6 | 40.0 | 26 | 62.0 | 26.2 | 34.0 |
| Small | 7 | 17.5 | 26.6 | 34.0 | 4 | 10.0 | 6.2 | 8.0 |
| Semi-Medium | 1 | 2.5 | 3.0 | 3.8 | 3 | 7.5 | 4.0 | 5.0 |
| Medium | 1 | 2.5 | 0 | 0.0 | 0 | 0 | 0 | 0 |
| Total | 41 | 100.0 | 76.2 | 97.8 | 42 | 100.0 | 36.4 | 37.0 |

Table 2.17: Category-wise Distribution of UP-PC Members and Non-Member farmers by Operated Land

| Category/ Farming Category | Members | | | | Non-Members | | | |
|----------------------------------|------------------|---------------|----------------------------|---------------|------------------|---------------|----------------------------|---------------|
| | Farmers (No.) | % of Total | Total Land (Hectare) | % of Total | Farmers (No.) | % of Total | Total Land (Hectare) | % of Total |
| Marginal | 29 | 70.5 | 21.6 | 26.9 | 8 | 19.0 | 20.1 | 26.0 |
| Small | 6 | 14.6 | 52.5 | 44.0 | 6 | 14.3 | 6.2 | 16.4 |
| Semi-Medium | 5 | 12.2 | 34.0 | 28.0 | 7 | 16.7 | 0 | 0.0 |
| Medium | 0 | 0 | 0 | 0 | 7 | 16.7 | 32.3 | 75.7 |
| Total | 41 | 100.0 | 88.1 | 100.0 | 42 | 100.0 | 58.6 | 100.0 |

95% of the non-member farmers were marginal or small in terms of owned land and 69% in terms of operational holdings. Though there was no medium farmer by ownership but due to the leasing in and leasing out, just five farmers came in this category as operated cultivator. 3% of the farmers were medium who cultivate 30% of the operated land. Whereas small and marginal farmers owned 50% of the total owned land, they operated 15% of the area.

56% of the member farmers owned buffaloes and 39% cows besides 12% owning goats. Buffaloes was 44% of the total livestock and cows 39%. On an average a household had two cows, one buffalo and three goats. On the other hand, non-member farmers had buffalo in 48% cases, cow in 24% and goat in 17% cases. In this group, buffaloes were 52% of all livestock, cows 21% and goats 26%. The average ownership of various types of livestock was however similar (Table 2.18).

Table 2.18: Distribution of UP PC Members and Non-Member farmers by Livestock owned

| Livestock | Members | | | | | Non-Members | | | | |
|-----------|------------|------------|------------|------------|-------|-------------|------------|------------|------------|-------|
| | Number (%) | % of total | Number (%) | % of total | Group | Number (%) | % of total | Number (%) | % of total | Group |
| Buffalo | 23 | 56.00 | 35 | 41.30 | 152 | 22 | 4.00 | 40 | 52.00 | 2.00 |
| Cow | 46 | 91.00 | 31 | 35.24 | 124 | 49 | 22.00 | 35 | 25.00 | 1.00 |
| Goat | 5 | 12.50 | 0 | 0.00 | 2.00 | 7 | 1.00 | 20 | 25.00 | 2.00 |
| Total | | | 76 | 88.00 | | | | 76 | 88.00 | |

Most of the member farmers had access to ground water-based irrigation with only 15% reporting lack of access to irrigation. 46% had owned tube wells and 17% shared with another. 22% buying irrigation water.

Tube wells were the major source of irrigation with 46% of members and 52% of non-members owning the tube wells and 17% and 47% respectively sharing them. Others bought water for irrigation. Only 15% member farmers reported no source of irrigation. The tube wells were both electric motor based and diesel engine operated and both owned and shared (Table 2.19).

Table 2.19: Distribution of UP PC Members and Non-Member farmers by Source of Irrigation

| Irrigation Source | Energy Source | Ownership | Number (%) | % of total | Number (%) | % of total |
|-------------------|----------------|-----------|------------|------------|------------|------------|
| Tubewell | Diesel Engine | Owned | 46 | 61.30 | 4 | 2.00 |
| | | Shared | 4 | 5.26 | 0 | 0 |
| | | Shared | 3 | 3.90 | 0 | 0.00 |
| | Electric Motor | Owned | 1 | 1.32 | 21 | 23.00 |
| | | Shared | 5 | 6.58 | 0 | 0 |
| | | Shared | 2 | 2.63 | 0 | 0.00 |
| Well | Diesel Engine | Owned | 0 | 0 | 1 | 1.00 |
| | | Shared | 0 | 0 | 1 | 1.00 |
| Equipped | | | 0 | 0.00 | 0 | 0 |

95% of the members grew paddy and 25% and 20% each maize and jowar with 10% cultivating banana and 4% lady finger. Paddy accounted for 76% of the kharif area followed by maize at 10% and maize at 9%. Paddy area worked out to be 59% area of the gross cropped area (GCA) during the year while it was 4-5% of the total in case of maize and jowar each. In the Rabi season, 95% farmer grew wheat, 35% potato, 35% mustard and 10% garlic. Wheat accounted for 87% of the season's area followed by potato at 17% and mustard at 12%. Wheat took 51% of the GCA followed by potato at 7% and mustard at 5%. Even summer season one of the important crop seasons with 51% of the farmer growing crops like Mungbean (21%) of the members and urad 10% and mung and lady finger at 2%. However, Mungbean alone accounted for 51% of the

seasons' crop area followed by urad at 23% and mung at 20%. In the gross crop area actually, mung took 6% and urad 3% of the total.

Banana a new crop in the area especially introduced by one of the PCs was grown by 12% farmers and in 4% of the cropped area.

Paddy was grown by 31% of the non-member farmers accounting for 57% of the Kharif area. The other major crops in the season were baer grown by 21% farmers taking 15% of the Kharif area and maize and vegetables grown by 21% and 25% farmers taking up 10% and 22% of the Kharif area. In Rabi, wheat was grown by 50% farmers and potato and mustard 43% and 38% respectively. Garlic was the only other important crop grown by 17% farmers in 8% of rabi area. The crops of wheat, potato, mustard, and garlic accounted for 39%, 13% and 12% of the season's area. In summer, it was mainly mung and vegetables which was grown by a significant number of farmers and these crops accounted for 29% and 22% of the summer area. Overall, wheat accounted for 24%, paddy 22%, and baer and mustard 9% each of the GCA during the year maize and mung accounting for 6% and 5% each respectively. The average cropping intensity of these non-member farmer was 2.26 as against 2.13 for member farmers (Table 2.20, 2.21 and 2.22).

Interestingly, 85% members knew the name of the PC and some others knowing it by some other name (6%). Only 2% did not know the name of the PC. 57% members knew that the PC is owned by the farmer members with others reporting BOD (14%), PC employees (12%) and promoting agency (4%) as the owners.

41% of them relied on PC to get the agricultural information another 14% on PC and friends and 12% on friends who were other farmers. PC employees and promoters had been the biggest influence on the members for joining the PC with 33% and 29% respectively reporting that the other major influence was Board of Directors (15%) and friends (16%).

The main source of information about agriculture for non-members was the friends and other farmers in case of 38% and these combined with dealer in 12% cases with PC and dealer exclusively accounting for only 12% each. Rest of the farmers used various combination of sources of information.

Even 77% non-member farmers knew about the PC but only 12% of them thought it is owned by farmers. 30% of them had learnt about it from the PC and its employees and promoters 48% also wanted to become a member of the PC but had not become mainly because they were not aware whether they could become member and no one had approached them. Similarly, those who expressed no desire to become members said so because they had no information, or they were not interested because of various reasons.

Table 2.20: Kharif cropping pattern of UP PC Member and Non-Member farmers

| Category | Farmer Cov | Members | | | | No-Members | | | | |
|--------------|---------------|-----------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|-----------------|
| | | Farmer (No.) | % Total | Area Hect | % Total Area | Farmer (No.) | % Total | Area Hect | % Total Area | % Total Area |
| Maize | 53 | 3571 | 14.9 | 1008 | 5.21 | 9 | 2.62 | 35 | 10.21 | 2.85 |
| Mustard | 1 | 248 | 1 | 0.30 | 0.39 | 0 | 0 | 0 | 0 | 0 |
| Vegetables | 5 | 1463 | 2.7 | 2.40 | 1.06 | 22 | 28.57 | 14.25 | 15.25 | 5.88 |
| Bejo | 4 | 9.28 | 2.4 | 25 | 0.44 | 1 | 2.43 | 10.1 | 10.57 | 4.25 |
| Banana | 3 | 0.20 | 0.2 | 4.68 | 2.04 | 0 | 0 | 0 | 0 | 0 |
| Paddy | 40 | 1056 | 80.75 | 76.30 | 35.68 | 54 | 80.95 | 52.74 | 52.94 | 72.6 |
| Others | 0 | 0 | 0 | 0 | 0 | 4 | 11.21 | 0 | 0.00 | 2.67 |
| Total | | 360 | 100.00 | 309.60 | 41.25 | 399 | 100.00 | 514.89 | 399.00 | 39.71 |

Table 2.21: Rabi cropping pattern UP PC Member and Non-Member farmers

| Category | Farmer Cov | Members | | | | No-Members | | | | |
|--------------|---------------|-----------------|--------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|-----------------|
| | | Farmer (No.) | % Total | Area Hect | % Total Area | Farmer (No.) | % Total | Area Hect | % Total Area | % Total Area |
| Fruits | 3 | 23 | 0.9 | 0.79 | 0.05 | 0 | 0 | 0 | 0 | 0 |
| Cash | 4 | 328 | 1.9 | 3.28 | 0.71 | 7 | 8.67 | 29 | 2.6 | 3.28 |
| Maize | 1 | 2.88 | 0.3 | 0.20 | 0.02 | 0 | 0 | 0 | 0 | 0 |
| Mustard | 16 | 1002 | 13.4 | 1.88 | 3.28 | 16 | 28.9 | 12.28 | 11.25 | 5.8 |
| Potato | 24 | 1854 | 20.75 | 10.1 | 1.5 | 39 | 43.88 | 15.48 | 11.8 | 5.55 |
| Randies | 2 | 4.88 | 1 | 1.88 | 0.28 | 0 | 0 | 0 | 0 | 0 |
| Vegetables | 3 | 23 | 1 | 0.27 | 0.01 | 4 | 3.07 | 2.2 | 2.27 | 0.77 |
| Wheat | 38 | 947 | 76.5 | 65.38 | 70.88 | 38 | 39.88 | 64.48 | 64.58 | 25.35 |
| Others | 0 | 0 | 0 | 0 | 0 | 4 | 3.07 | 1.28 | 1.27 | 2.44 |
| Total | | 100 | 100.0 | 100.00 | 44.38 | 106 | 100.00 | 100.00 | 100.00 | 42.38 |

Table 2.22: Summer cropping pattern UP PC Member and Non-Member farmers

| Crop | Members | | | | | Non-Members | | | | |
|------------|-----------|------------|-----------|------------|------------|-------------|------------|-----------|------------|------------|
| | Area (ha) | % of total | Area (ha) | % of total | % of total | Area (ha) | % of total | Area (ha) | % of total | % of total |
| Fruits | 3 | 33 | 186 | 354 | 241 | 1 | 24 | 24 | 585 | 117 |
| Wheat/Dal | 1 | 244 | 2 | 625 | 629 | 0 | 0 | 0 | 0 | 0 |
| Peppermint | 12 | 2927 | 232 | 2654 | 55 | 0 | 269 | 328 | 2667 | 133 |
| Wheat | 3 | 33 | 13 | 438 | 451 | 0 | 4 | 4 | 4 | 4 |
| Vegetables | 5 | 1220 | 2 | 625 | 629 | 0 | 100 | 36 | 262 | 136 |
| Spice | 0 | 0 | 0 | 0 | 0 | 3 | 43 | 32 | 22 | 64 |
| Misc | 0 | 0 | 0 | 0 | 0 | 3 | 24 | 26 | 313 | 63 |
| Mulberry | 0 | 0 | 0 | 0 | 0 | 2 | 24 | 12 | 219 | 64 |
| Others | 0 | 0 | 0 | 0 | 0 | 1 | 236 | 2 | 62 | 66 |
| Total | | 100 | 265 | 2666 | 645 | | 100 | 448 | 2226 | 267 |

PC interface for inputs

56% of member farmers purchased seeds from the PC and 27% from both PC and dealers (Table 2.23). For chemical fertilizer and chemical pesticides 70% of the members got it from the PC and 15% from dealers and 7% from both. On the other hand, bio-fertilizers and bio-pesticides was used by few farmers, though here too, 29% of them bought from the PC (Tables 2.24 and 2.25).

The seed purchase by non-members farmers was mostly from dealers (37%) or both dealers and PC (31%) with only 11% buying exclusively from the PC (Table 2.23). For chemical fertilizer and pesticides, the dealers were the major sources for 34% of farmers each (Table 23). The PC accounted for 25% and 20% of the farmers for both of these chemical inputs, bio-fertilizer and bio-pesticides being used by the small proportionate of the farmers had PC as the important source with 50% or more farmers reporting it as the source of purchase (Table 24). Most of the agriculture machinery and equipment were rented from other farmers or dealers as PC really did not deal with it. Cattle feed was also bought from dealers by 78% of non-member farmers.

23% non-members farmers were aware of various initiatives being undertaken by the PC and 19% of them had also attended some meetings organized by the PC, but 80% of them had no experience of dealing with the PC.

Table 2.23: Distribution of UP PC Members and Non-Member farmers by Source of Seeds

| Category Purchase Source | Members | | Non-Members | |
|-----------------------------------|------------|--------------|-------------|--------------|
| | Farmer (%) | N (Total) | Farmer (%) | N (Total) |
| Agri Dept, Dealers | 2 | 438 | 1 | 138 |
| Dealers | 0 | 0 | 14 | 138 |
| Dealers, PMS, PC | 1 | 244 | 0 | 0 |
| PC | 29 | 702 | 6 | 138 |
| PC, Swains | 18 | 243 | 12 | 207 |
| PC, Horticulture Dept | 1 | 244 | 0 | 0 |
| PC, Local Farmers | 3 | 70 | 0 | 0 |
| Dealers, Local Farmers | 0 | 0 | 4 | 132 |
| Dealers, Local Farmers, Agri Dept | 0 | 0 | 1 | 138 |
| Dealers, Local Farmers, PC | 0 | 0 | 1 | 138 |
| None | 0 | 0 | 2 | 64 |
| Total | 41 | 10240 | 42 | 10600 |

The reasons for purchase of seed from PC included among others, better quality, lower cost, fair dealing, and easy access. Easy access and lower cost was also reported for purchase of biofertilisers from PC. For chemical fertilisers it was again better quality, fair deal, more reliable source, easy access, and lower cost in that order while for chemical pesticides, it was access, lower cost and better quality and lack of any other source in that order.

Table 2.24: Distribution of UP PC Members and Non-Member farmers by Source of chemical inputs

| Type of input/chemical Category Purchase Source | Fertiliser | | | | Pesticide | | | |
|---|------------|--------------|-------------|--------------|------------|--------------|-------------|--------------|
| | Members | | Non-Members | | Members | | Non-Members | |
| | Farmer (%) | N (Total) | Farmer (%) | N (Total) | Farmer (%) | N (Total) | Farmer (%) | N (Total) |
| Dealers | 8 | 163 | 23 | 147 | 3 | 121 | 21 | 147 |
| Dealers, PMS, PC | 1 | 244 | 2 | 0 | 1 | 244 | 0 | 0 |
| Dealers, PC | 3 | 70 | 4 | 132 | 2 | 132 | 1 | 138 |
| PMS/PC, Swains | 1 | 244 | 0 | 0 | 8 | 0 | 0 | 0 |
| PC | 29 | 702 | 18 | 243 | 29 | 134 | 4 | 138 |
| Agri Dept | 0 | 0 | 0 | 0 | 1 | 244 | 0 | 0 |
| PC, Other Local group | 0 | 0 | 1 | 138 | 0 | 0 | 0 | 0 |
| None | 1 | 244 | 2 | 0 | 3 | 132 | 18 | 138 |
| Total | 41 | 10240 | 42 | 10600 | 41 | 10400 | 42 | 10240 |

Table 2.25: Distribution of UP PC Members and Non-Member farmers by source of Bio inputs

| Type of Bio inputs | Members | | | | Non-Members | | | |
|--------------------|------------|------------|-------------|---------------|-------------|---------------|-------------|---------------|
| | Banana | | Bio-Members | | Banana | | Bio-Members | |
| | Farmer (%) | % of total | Farmer (%) | % of total | Farmer (%) | % of total | Farmer (%) | % of total |
| Dealers | 1 | 2.44 | 0 | 0 | 0 | 0 | 2 | 4.25 |
| Dealers, HCS, PC | 1 | 2.44 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local farmers | 1 | 2.44 | 2 | 4.25 | 0 | 0 | 0 | 0 |
| PC | 0 | 0 | 5 | 10.50 | 1 | 2.44 | 2 | 4.25 |
| Dealers, PC | 0 | 0 | 1 | 2.10 | 0 | 0 | 2 | 4 |
| None | 32 | 78.26 | 34 | 70.55 | 80 | 155 | 38 | 74.80 |
| Total | 41 | 100 | 42 | 100.00 | 81 | 155.00 | 42 | 100.00 |

76% of the members had received share certificates but 50% of them had various complaints about the services provided by PCs which included lack of timely availability of services, low procurement, low price realisation and the like.

In terms of satisfaction of various input services, there was slight improvement in case of members on quality, cost, availability and quantity after the intervention of the PC, but the output side remained more or less unsatisfied especially the price realisation. There was significant increase in area under banana, and banana besides lady finger and potato after the intervention of the PC. Price realisation was reported to be 15-20% higher in banana, maize and paddy. But the time taken for receiving payment had gone up with most of these crops. The payment was particularly delayed in banana. The yield and price gain were reported only in case of banana to the extent of 30% and 60% respectively by the member who sold it through the PC.

Before the intervention of the PC, only one farmer had sold wheat through the PC and one farmer each sold banana and potato. Two wheat farmers had sold through wholesale market earlier who later sold through the PC. After the PC intervention, the number of potato farmers selling through the PC had increased to five. In terms of proportion of output sold, the PC accounted for 10% of wheat and potato and 7% of banana before the intervention and it had gone up only in case of potato at 11%.

The input services were reported by even non-members to have improved after the intervention of PC to some extent and the area under crops like paddy, wheat, sorghum, millets and potato and even maize and garlic had increased in the last few years. The sale price realised had significantly increased in paddy, potato, millets and garlic after the PC intervention. However, the payments were delayed even further in wheat and paddy and maize after the intervention.

More than 50% PC members had problems with services of the PCs which included inadequate input supply and lack of timely availability, low procurement, low price realization and not procuring at all. 80% received no information about govt schemes or subsidies while others mentioned knowing govt schemes, subsidies on farm inputs like seeds and fertilizers and the like. Only 4% had received any subsidy benefit as a member. 71% has no knowledge about activities of the PCs. While others mentioned input supply, knowledge sharing, custom rentals of farm machinery and warehousing facility besides NPM and rear crops.

Only 36% members attended meetings regularly with another 36% once sometime and 50% reported monthly meetings being held and 20% only quarterly. Interestingly, 99% wanted to continue as members due to benefits like good input supply, benefits of membership, timely supply of inputs, and good quantity of supplies, besides knowledge about farming and markets. 74% also wanted to encourage others to join the PC due to its various benefits while others who were not invited mentioned that already most farmers were members of the PCs, or others were not interested and they did not have time for such activity. 50% had suggestions for improvement which included: procurement of output, farm machinery rental, better price realization and warehousing and weighing facilities.

2.4 Promoter wise comparison of member profile and services

All farmers - both of BKSL and BCTS were male and had farming as primary occupation with just one in case of BCTS being skilled worker (Table 2.26). The average age was 49 and 49 years for BKSL and BCTS farmers respectively.

Table 2.26: Distribution of BKSL and BCTS PC member farmers by Education

| Promoter | BKSL | | BCTS | |
|------------------|-------------|-------|-------------|-------|
| | Members (%) | Value | Members (%) | Value |
| Graduate | 2 | 152 | 2 | 100 |
| High School | 2 | 200 | 4 | 200 |
| Higher Secondary | 2 | 30 | 3 | 60 |
| Illiterate | 2 | 32 | 3 | 250 |
| Middle | 3 | 152 | 5 | 250 |
| Post Grad | 1 | 40 | 0 | 0 |
| Primary | 4 | 100 | 1 | 50 |
| Total | 21 | 1000 | 20 | 1000 |

Table 2.27: Distribution of BKSL and BCTS PC member farmers by Secondary Occupation

| Farmers Answering Secondary Occupation | BKSL | | BCTS | |
|--|----------------|------------|----------------|------------|
| | Members (%) | N in total | Members (%) | N in total |
| Animal Husbandry | 4 | 105 | 5 | 150 |
| Skilled Labour | 2 | 52 | 0 | 0 |
| Labour | 1 | 23 | 1 | 30 |
| Retired | 0 | 0 | 1 | 30 |
| Agriculture | 0 | 0 | 1 | 30 |
| Business | 0 | 0 | 2 | 60 |
| None | 14 | 347 | 8 | 240 |

Only 23% had some secondary occupation in case of BKSL farmers and that was mostly animal husbandry and skilled labour or just labour. As against this 55% of the BCTS farmers had secondary occupation which includes animal husbandry in 25% cases, and business in 15% cases besides labour and skilled labour in 5% cases and even 7% reporting agriculture as secondary occupation (Table 2.27). BKSL PC farmers were essentially larger owners of land but they did not lease in as much as the BCTS PC members and therefore the latter were larger operators of land (Table 2.28).

Table 2.28: Average owned and operated land holding of BKSL and BCTS PC member farmers

| Category Average (Hectare) | BKSL | BCTS |
|-------------------------------|------|------|
| Owned land | 120 | 70 |
| Operational land | 70 | 30 |

Whereas 90% of the BKSL and BCTS farmers are small and marginal but the former had 60% of owned area, while it was 70% in case of BCTS farmers. However, in operated land terms, BKSL had 55% farmers as small or marginal with 50% operated area as against 57% of BCTS farmers having 79% of area (Table 2.29 and 2.30).

In terms of livestock holding, whereas there was no difference in the percentage of farmers owning buffalo and cow, there was more of goat ownership in case of BKSL (Table 2.31).

The member farmers of BKSL and BCTS PC's owned three livestock animals viz. buffalo, cow and goat. In case of BKSL PC members, buffalo was owned by 40% member farmers followed by cow (48%) and goat (12%). Buffalo (43%) had the highest share in livestock holdings followed by cow (53%) and goat (24%). 58% of BCTS PC members owned buffalo, followed by cow (7%) and goat (2%). In terms of total livestock, buffalo had the highest share 46%, followed by cow (46%) and goat (8%). Average goat holding per farmer-household for both BKSL PC members (2.5) and BCTS PC members (2) was the highest (Table 2.31).

10 % of BKSL PC member farmers reported no source of irrigation. In the case of BCTS PC members, this was 5%. 45% of BKSL PC members had owned diesel engine. Usage of owned diesel engine for irrigation was 45% in case of BCTS PC members. The share of rented diesel engine was 14 % and 13 % for BKSL and BCTS PC members respectively. 17% of BKSL PC members were using rented electric engine. None of the BCTS PC members used owned or rented electric engine while 30 % were using shared electric motors (Table 2.32).

96% of the members were growing paddy followed by maize (43%), banana (23%) and citrus (14%) in the case of BKSL PC members. For BCTS PC members, paddy was grown by all the farmers followed by maize (20%) and banana (15%). Similarly, paddy had the highest share in the total kharif acreage (66%) of BKSL PC members followed by maize (13%) and banana (3%) while paddy has 86% share followed by maize (7%) and banana (3%). Paddy had 30% and 37% share in in case of BKSL and BCTS farmers in kharif area respectively. Though banana was grown by considerable number of farmers, but its share was only 4% in the total kharif cultivated land (Table 2.33).

Wheat was the most common crop grown in rabi season, grown by 80% of the BKSL PC members followed by potato (74%), mustard (14%) and peas (10%). Wheat also had the largest share in the total rabi area (45%), followed by potato (24%). In case of BCTS PC members, four crops were grown viz. wheat, mustard, potato and radish. Wheat (62%) had the highest rabi area followed by mustard (20%) and potato (12%). Wheat accounted for 36% and 27% of the total rabi cultivated area in case of BKSL and BCTS farmers respectively. (Table 2.34)

Peppermint was the most important crop of Zaid (Summer) season grown by 50% farmers in case of BCTS PC farmers and just 2% in case of BKSL farmers, and occupied 71% of the Zaid acreage which was 12.66% of the total cultivated land by BCTS PC members. The cropping pattern was not similar for BKSL PC members which many crops had a considerable share in Zaid acreage. Peppermint had the highest share (36.3%) followed by citrus (26%), used (17%) and banana (12%) (Table 2.35)

Member farmers purchased seed either from a single source or from a combination of sources. 57% of the BKSL PC members purchased seeds from PC against 58% of the BCTS PC members. PC and Dealers (15%) and agricultural department & dealers (10%) were other major sources for BKSL PC member farmers while PC & dealers (58%) and PC & local farmers (10%) for BCTS PC member farmers (Table 2.36).

Like seeds, chemical fertilizers and pesticides were also purchased from a single source or a combination of sources. PC was the largest source of chemical fertilizers with 52 % of BKSL PC members purchasing fertilizers from there. It was followed by dealers (24%), and dealers and PCs (10%). BCTS PC members preferred buying from PC (62%) followed by dealers (21%) and dealers & PCs (17%). 34% of BCTS PC members had not purchased any pesticide while remaining purchased from PC (30%), dealers (19%), dealers & PCs (10%). 90% BCTS PC members were buying pesticides from the PC (Table 2.37)

Most of the member farmers didn't purchase any bio inputs. In case of bio-fertilizer, 71% of BKSL PC members and 50% of BCTS PC members did not purchase any bio-fertilizer. Similarly, most of the BKSL PC members (95%) and no BCTS PC members purchased any bio-pesticides (Table 2.29).

Table 2.29: Category-wise Distribution of BKSL and BCTS PC member farmers by land owned

| Category | BKSL | | | | BCTS | | | |
|-------------|---------------|------------|-------------|------------|---------------|------------|-------------|------------|
| | Members (No.) | % to total | Land (Hect) | % to total | Members (No.) | % to total | Land (Hect) | % to total |
| Marginal | 4 | 65.0 | 105 | 21.0 | 4 | 20.0 | 27.0 | 10.0 |
| Small | 5 | 21.0 | 14.5 | 3.0 | 3 | 15.0 | 1.5 | 1.0 |
| Semi-Medium | 0 | 0 | 0 | 0 | 2 | 10.0 | 0 | 2.4 |
| Medium | 2 | 14.0 | 7 | 2.0 | 0 | 0 | 0 | 0 |
| Total | 11 | 100.0 | 126.5 | 100.0 | 20 | 100.0 | 40.5 | 100.0 |

Table 2.30: Distribution of BKSL and BCTS member farmers by Operated Land

| Category | BKSL | | | | BCTS | | | |
|-------------|---------------|------------|-------------|------------|---------------|------------|-------------|------------|
| | Members (No.) | % to total | Land (Hect) | % to total | Members (No.) | % to total | Land (Hect) | % to total |
| Marginal | 0 | 0.0 | 0.0 | 0.0 | 1 | 5.0 | 0.4 | 0.8 |
| Small | 5 | 23.0 | 4.3 | 3.0 | 8 | 40.0 | 2.5 | 6.0 |
| Semi-Medium | 2 | 14.0 | 2 | 3.0 | 2 | 10.0 | 0.8 | 2.0 |
| Total | 11 | 100.0 | 6.3 | 100.0 | 20 | 100.0 | 4.0 | 100.0 |

Table 2.31: Distribution of BKSL and BCTS PC member farmers by livestock owned

| Parameter | BKSL | | | | BCTS | | | |
|-----------|---------------|------------|---------------|------------|---------------|------------|---------------|------------|
| | Members (No.) | % to total | Animals (No.) | % to total | Members (No.) | % to total | Animals (No.) | % to total |
| Buffalo | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Ow | 1 | 9.0 | 1 | 3.0 | 7 | 35.0 | 0 | 0.0 |
| Goat | 4 | 36.0 | 10 | 33.0 | 1 | 5.0 | 2 | 6.0 |
| Total | 11 | 100.0 | 30 | 100.0 | 20 | 100.0 | 22 | 100.0 |

Table 2.22: Distribution of BKSL and BCTS PC member farmers by Source of Irrigation

| Irrigation | BKSL | | | | BCTS | | | | Total | | | |
|----------------------|-----------|------------|-------------|------------|-----------|------------|-------------|------------|-----------|------------|-------------|------------|
| | Irrigated | | Unirrigated | | Irrigated | | Unirrigated | | Irrigated | | Unirrigated | |
| | No. | % of total | No. | % of total | No. | % of total | No. | % of total | No. | % of total | No. | % of total |
| Owned | 10 | 432 | 1 | 4% | 3 | 6 | 0 | 0 | 9 | 326 | 1 | 10 |
| Rented | 2 | 1625 | 3 | 1621 | 3 | 6 | 0 | 0 | 3 | 2140 | 3 | 20 |
| Shared | 2 | 552 | 0 | 0 | 1 | 5 | 0 | 3500 | 3 | 1621 | 6 | 50 |
| No irrigation source | 2 | 552 | 0 | 0 | 1 | 5 | 0 | 2 | 0 | 0 | 6 | 0 |
| All | 17 | | 4 | | 14 | | 6 | | 29 | 100 | 16 | 100 |

The cropping intensity of BCTS farmers was somewhat higher at 2.21 compared with 2.04 for case of BKSL farmers.

Table 2.23: Kharif cropping pattern of BKSL and BCTS PC member farmers

| Crops | Farmers | BKSL | | | BCTS | | | Total | % of total | % of total |
|---------|---------|---------|-------|------------|---------|-------|------------|-------|------------|------------|
| | | Farmers | Total | % of total | Farmers | Total | % of total | | | |
| Bajra | 1 | 4% | 54 | 4% | 3 | 6% | 2 | 238 | 4% | |
| Banana | 5 | 71% | 9.2 | 92% | 0 | 0 | 0 | 0 | 0 | |
| Cabbage | 1 | 4% | 0.3 | 0.1% | 0 | 0 | 0 | 0 | 0 | |
| Cauli | 0 | 0 | 0 | 0 | 1 | 6% | 0.3 | 1% | 0.3% | |
| Coconut | 1 | 4% | 0.4 | 0.7% | 0 | 0 | 0 | 0 | 0 | |
| Maize | 6 | 70% | 11.8 | 112% | 1 | 20% | 3.8 | 6% | 7.4% | |
| Mustard | 1 | 4% | 1 | 1% | 0 | 0 | 0 | 0 | 0 | |
| Okra | 3 | 34% | 1.2 | 1.1% | 0 | 0 | 0 | 0 | 0 | |
| Paddy | 10 | 91% | 10.7 | 95.1% | 16 | 100% | 46.5 | 83% | 94.7% | |
| Total | | | 14 | | | | 56.6 | | 100% | |

Table 2.34: Rabi cropping pattern of BKSL and BCTS PC member farmers

| Crops | BKSL | | | | | BCTS | | | | |
|-------------|--------|-----------|------|-----------------|-----------------|--------|-----------|------|-----------------|-----------------|
| | Farmer | % Farmers | Land | % of Total Land | % of Total Area | Farmer | % Farmers | Land | % of Total Land | % of Total Area |
| Banana | 1 | 4.0 | 0.2 | 0.24 | 0.07 | 0 | 0 | 0 | 0 | 0 |
| Cauli | 0 | 0 | 0 | 0 | 0 | 4 | 20.0 | 0.8 | 1.25 | 1.6 |
| Cauliflower | 1 | 4.0 | 0.2 | 0.24 | 0.07 | 0 | 0 | 0 | 0 | 0 |
| Maize | 1 | 4.0 | 0.2 | 0.24 | 0.07 | 0 | 0 | 0 | 0 | 0 |
| Mustard | 3 | 16.0 | 2.2 | 3.79 | 1.02 | 33 | 95.0 | 8.2 | 20.25 | 6.37 |
| Onion | 1 | 4.0 | 0.4 | 0.60 | 0.22 | 0 | 0 | 0 | 0 | 0 |
| Peas | 2 | 10.0 | 0.7 | 1.20 | 0.38 | 0 | 0 | 0 | 0 | 0 |
| Potato | 8 | 40.0 | 4.0 | 6.40 | 2.17 | 8 | 40.0 | 6.6 | 17.00 | 4.37 |
| Pumpkin | 1 | 4.0 | 0.1 | 0.16 | 0.06 | 0 | 0 | 0 | 0 | 0 |
| Wheat | 8 | 40.0 | 26.4 | 42.24 | 12.60 | 20 | 100.0 | 34.5 | 62.50 | 25.30 |
| Watermelon | 0 | 0 | 0 | 0 | 0 | 2 | 10.0 | 1 | 1.60 | 0.25 |
| Total | | | 58 | 100.00 | 47.88 | | | 95.2 | 100.00 | 41.28 |

Table 2.35: Summer cropping pattern of BKSL and BCTS PC member farmers

| Crops | BKSL | | | | | BCTS | | | | |
|-------------|--------|-----------|------|-----------------|-----------------|--------|-----------|------|-----------------|-----------------|
| | Farmer | % Farmers | Land | % of Total Land | % of Total Area | Farmer | % Farmers | Land | % of Total Land | % of Total Area |
| Banana | 2 | 8.0 | 0.8 | 1.28 | 0.68 | 0 | 0 | 0 | 0 | 0 |
| Cauli | 3 | 12.0 | 0.2 | 0.32 | 0.17 | 0 | 0 | 0 | 0 | 0 |
| Onion | 4 | 16.0 | 1.6 | 2.56 | 1.40 | 0 | 0 | 0 | 0 | 0 |
| Peppercorn | 1 | 4.0 | 0.5 | 0.76 | 0.40 | 8 | 40.0 | 2.8 | 4.25 | 1.50 |
| Onion | 3 | 12.0 | 1.3 | 2.08 | 1.08 | 0 | 0 | 0 | 0 | 0 |
| Watermelon | 1 | 4.0 | 0.2 | 0.32 | 0.17 | 0 | 0 | 0 | 0 | 0 |
| Moring Leaf | 0 | 0 | 0 | 0 | 0 | 1 | 5.0 | 0.2 | 0.32 | 0.16 |
| Total | | | 6.4 | 100.00 | 6.47 | | | 2.8 | 100.00 | 2.66 |

Table 2.36: Distribution of BKSL and BCTS PC member farmers by Source of Seeds

| Crops | Farmer's Source | BKSL | | BCTS | |
|--------------------|-----------------|--------------|------------|--------------|------------|
| | | Farmer (No.) | % of Total | Farmer (No.) | % of Total |
| Agri Dept. Dealers | | 2 | 5.0 | 0 | 0 |
| Dealers, BKSL PC | | 1 | 2.5 | 0 | 0 |
| PC | | 0 | 0.0 | 8 | 100.0 |
| PC Agri Dept. | | 1 | 2.5 | 0 | 0 |
| PC Dealer | | 4 | 10.0 | 1 | 12.5 |
| PC Local Farmers | | 1 | 2.5 | 0 | 0.0 |

Table 2.37: Distribution of BKSL and BCTS PC member farmers by Source of Chemical Inputs

| Type of respondent | Farmer | | | | Promoter | | | |
|--------------------|------------|---------|------------|---------|------------|---------|------------|---------|
| | BKS | | BCT | | BKS | | BCT | |
| | Number (%) | % total | Number (%) | % total | Number (%) | % total | Number (%) | % total |
| Dealers | 18 | 21.87 | 1 | 5.00 | 4 | 20.00 | 1 | 5.00 |
| Dealers, PMS/PC | 1 | 4.76 | 0 | 0 | 1 | 4.76 | 0 | 0 |
| Dealers, POC | 2 | 9.52 | 1 | 5.00 | 2 | 10.00 | 1 | 5.00 |
| PMS/POC, Dealers | 1 | 4.76 | 0 | 0 | 0 | 0 | 0 | 0 |
| PC | 77 | 92.38 | 18 | 90.00 | 4 | 20.00 | 18 | 90.00 |
| Agri Dept | 0 | 0 | 0 | 0 | 1 | 4.76 | 0 | 0 |
| Don't buy | 1 | 4.76 | 0 | 0 | 1 | 5.00 | 0 | 0 |

Table 2.38: Distribution of BKSL and BCTS PC member farmers by Source of Bio inputs

| Type of respondent | Farmer | | | | Promoter | | | |
|--------------------|------------|---------|------------|---------|------------|---------|------------|---------|
| | BKS | | BCT | | BKS | | BCT | |
| | Number (%) | % total | Number (%) | % total | Number (%) | % total | Number (%) | % total |
| Dealers | 1 | 4.76 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dealers, PMS/PC | 1 | 4.76 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local farmers | 1 | 4.76 | 0 | 0 | 0 | 0 | 0 | 0 |
| PC | 2 | 14.29 | 1 | 5.00 | 1 | 5.00 | 0 | 0 |
| Don't buy | 7 | 28.57 | 7 | 35.00 | 20 | 35.29 | 20 | 100.00 |

Whereas most of the farmer members of the PCs promoted by the two promoters knew the names of the PC it was the ownership aspects which though quite good at 52-60% farmers across two promoters PCs saying it was owned by farmers left more awareness at farmer level desired.

Table 2.39: Distribution of BKSL and BCTS PC members by knowledge of PC name

| Promoter's knowledge of PC name | BKS | | BCT | |
|---------------------------------|------------|---------|------------|---------|
| | Number (%) | % total | Number (%) | % total |
| Don't know | 1 | 4.76 | 1 | 5.00 |
| Wrong name | 0 | 0.00 | 1 | 5.00 |
| Correct name | 20 | 95.24 | 18 | 90.00 |
| Total | 21 | 100.00 | 20 | 100.00 |

Table 2.40: Distribution of BKSL and BCTS PC members by knowledge of PC owner

| Promoter/ PC owner | BKS | | BCTS | |
|-----------------------|---------------|------------|---------------|------------|
| | Number (%) | % of total | Number (%) | % of total |
| Promoting agency | 3 | 40% | 0 | 0 |
| POO | 4 | 50% | 3 | 33% |
| Farmers | 0 | 0% | 0 | 0% |
| Government | 0 | 0 | 2 | 22% |
| PC Employees | 1 | 12.5% | 2 | 22% |
| Don't know | 4 | 50% | 3 | 33% |
| Total | 12 | | 10 | |

Output sales through PC

Just one member either each reported selling banana and potato *total* through one of the PCs each in case of each promoter during the last three years.

2.5 Within Promoter PC comparison

2.5.1 BCTS PC

Further within the two PCs of BCTS, there was no major difference in average age of members (62 and 65 years) but more of Kishu Vikas PC members were illiterate (40% versus 9% for Navjyoti). But primary and secondary occupational profile of members of the two PCs was similar with large proportion (84% and 70% not having any secondary occupation. Though Navjyoti members had higher owned land but the operated land of Kishu Vikas was higher on average due to leasing in of land by members but in both cases, there was no medium or large farmer even after leasing in. N) also had only diesel engine based and mostly owned irrigation tools while most of KV members had electric tube well ownership or access. There was more of buffalo ownership in case of KV members as against more of cows in case of N). But cropping intensity of Navjyoti was much higher than that of Kishu Vikas members (2.68 versus 1.8) because of cultivation of pepper/mustard as additional crop in kharif by most farmers. Cropping patterns differed significantly with only paddy in kharif in case of Navjyoti and maize and beans in case of Kishu Vikas and only wheat and gram in case of N) and mustard and potato besides these two crops in case of KV.

N) members also showed higher member awareness of PC name (90% against 67% in case of KV) and somewhat higher number (65% knowing it is owned by farmers/wholesaler) only 33% in case of KV knew it. KV was more reliant on PC for general awareness about farming practices and issues and also brought more of inputs than the case with N) whether seeds or bio fertilisers.

2.5.2 BKSL PCs

Both PC member respondents were all men though NK members were more literate on an average with majority being high school or above which was only 37% in case of GD. All of them in both PCs had farming as primary occupation but 80% in GD did not have any secondary occupation as against only 50% in case of NK. Also, GD PC members were larger landowners and operators with 3.4 and 3.2 acres compared with only 2.5 and 2.4 acres in case of NK. In fact NK had no members who were not small or marginal but all of the members of both the PCs were only marginal, small or semi-medium in operated land.

Most of the farmers in both PCs had access to groundwater irrigation owned or leased or shared though it was diesel engine based in majority cases. Both signified ownership of livestock especially buffalo and cows and even goat in case of GD with average ownership of 1-2 cows or buffalo and 3 goat per household.

GD PC members also had higher cropping intensity and a cropping pattern dominated by paddy, wheat, maize and potato compared with that by paddy, wheat, potato, and banana. More significantly, NK members had pepper as a summer crop while GD members had more of only watermelon and urad.

Both the PC members were highly aware of the PC name and its ownership with 60-65% in both knowing that it was owned by farmer members and only 20% in both cases being unaware of who owned the PC. C employees and promoters/ EoD were aware of influence for members to join the PCs in both cases. More than 80% of the members in both cases were reliant on CP for agriculture related information. 45% of GD and 70% of NK also brought seeds from PC and more of GD members brought chemical fertilizers and pesticides from PC (73% and 63% respectively) than those by NK members (30% and 10% only).

2.6. Summary

The overall physical and financial performance of the PCs with the exception of the milk PC shows that they have small authorized capital base of Rs. 5-15 lakh each even after a few years of existence and paid up capital was still not mobilized up to the authorized level of just Rs. 5 and 10 lakh each in two cases. Their revenue base was small ranging from 30-35 lakh in three cases out of four and only Rs. 15-3 lakh in one case. All of them were in loss or had made negligible profits. It was only the milk PC which stood apart in every which way in terms of membership, revenue and profits and mobilized capital. It was mostly due to the nature of its business i.e. milk and its governance model which included asset light high turnover strategy and professional management and tight governance of the PC.

The members of the four non-milk PCs were really smallholders but much larger than their non-member counterparts in same villages at least in owned land. They were all marginal landowners and just marginally above that for operated land on an average. The awareness about the PCs and its ownership was very high among members and non-members compared with other study states perhaps due to the fact that it was part of a larger project funded by the

World Bank which has been around for many years in the state. Also, reported high influence of PC employees and promoters seemed to have played a role in this.

The input side interface of the PCs was high but there was not much impact on the output side so far as farmer income impact was concerned as only a few farmers had sold to the PCs some their output for various seasons like delayed payments. One PC was facilitating contract farming of potato among its members and another had promoted banana cultivation in the local area which was significant activity in terms of crop diversification.

The PCs were male dominated in their members in all cases and both the promoters worked with mostly marginal and small landowners and operators with average being around 2 or 3 acres of land owned or operated. This is the most interesting aspect of the PCs is that they really represent the marginalized sections of the farming community. Also, the awareness of members regarding PC and its ownership was significant in case of both the promoters who were from the same group of promoters i.e. BASIX.

Appendix 2: A profile of individual PCs in Uttar Pradesh

2.1 Saahaj milk PC

It is headquartered at Agra, has functional heads under the CEO, followed by managers at each district. There are Assistant District Incharge, followed by Area officer, who has Facilitator (LFP) under him. The PC sells five types of milk, ghee and butter milk besides supplying cattle feed to its members. There were 136 LFPs in 2013-14 across 1456 villages and 10392 milch animals and 85144 producers. Finally, they have Dairy sabhas (shown by members) (Rs. 1.2/litre) at LFP and a consigner (Rs. 1.05/litre) at BMC level. Members are paid directly in their bank accounts and they receive acknowledgement for the same through SMS. It sells cattle feed, mineral mixture and have a facility for Artificial Insemination. Head office gives targets at district level, and hence the plan is made that way. The staffs are rigorously trained for quality management.

Saahaj was registered on 17/10/2014. Mother Dairy already had its presence in the districts since 1957 there, and all of these milk producers supplying milk to Mother Dairy became members of Saahaj. It is present in 8 districts, where it overlaps with Aardal in 3 districts. Out of the 369 villages, 41 have BMC that are established by Saahaj and run and managed by the consigner. Producers from only those villages can become members where there is LFP (milk pooling point - 246) or a BMC (bulk milk cooler - 566). In 2013-14, it had 3071 supplying members of whom 40062 had been admitted (24% of them being women member and 73% being small producer) as members (Table 2.1), the rest still being provisional members.

It considers farmers with one milch animal as small, with 2-4 as medium and more than 4 as large farmers. The dealing with non-members is negligible at 1% and exclusive members that deal only with PC are at about 55%. Board of Directors (BoD) is selected, not elected, and they must fulfill the primary criteria of member. The BoD also includes 1-3 expert directors among total of 12-15 over different years. Amongst the members, those who supply more than 6000 litres of milk every year for at least 270 days are designated as A grade, those supplying between 4000 to 2000 litres over at least 270 days are called B grade, and those between 500-2000 litres over at least 200 days are called C grade members. Membership criteria include minimum 500 litres of milk in 200 days and lean-to-fattest ratio (winter to summer) should not exceed 1.3. A grade membership required purchase of 60 shares of Rs. 100 each, B grade shares worth Rs. 2000 and C grade at least 5 shares of Rs. 100 each. In 2013-15, this was changed to 12000 litres per year milk supply over at least 230 days besides purchase of at least 120 shares of Rs. 100 each (Rs. 12000), 6000 litres milk supply over 300 days at least and 60 shares (Rs. 6000) for B grade member. Membership can be cancelled if these criteria are not met and can't be revoked till its five years. One needs to buy at least five shares of Rs. 100 each to become a member besides application fee of Rs. 100 (Rs. 50 for women), and Rs. one per litre of milk shareholding is increased once 500 litres is crossed.

In 2014-17 A grade members supplied 57% of total procurement, B grade 15% and C grade 27% and accordingly there were three types of BoD chosen from these categories of members in proportion to the milk supplied by each category of member.

Table 2.1: Profile and performance of Saahaj MPC

| Parameter | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 |
|--|--------------------|------------------------------|----------------------------|----------------------------|----------------------|
| Authorized capital (crores) | 20 | 20 | 20 | 20 | 20 |
| Paid up Capital (crores) | 2,200(11%) | 4,575(23%) | 5,30(26%) | 8,50(42%) | 11,00(55%) |
| Revenue from operations (core) and total revenue | 68.24 (54.73) | 46.14 (46.65) | 42.99 | 77.61 | 44.65 |
| Net Profit after tax (crores) | 4.61 | 5.21 | 6.21 | 21.6 (26 % of turnover 82) | 12.61 |
| Dividend (EPS) | 20.20 (44%) (85%+) | 1.68 (36% (9% per share) 50% | 1.48 (33% (5.4% share) 65% | 1.21 (27% 70% | 2.20 (49%) (44% (75% |
| Total member shareholders | 4450 | 7550/6000 | 8052 | 8001 | 7540 |
| Women members | 2% | 2% | 2% | 2% | 2% |
| SCs | 0 | 0 | 0 | 0 | 11 |
| Women members in BOD | 2 | 2 | 2 | 2 | 0 |
| Total milk pooling units (MPPs) | 365 | 298 | 345 | 345 | 345 |
| Milk procurement (LTPD) | | 1.40 | 1.45 | 1.54 | 1.54 |
| Reserves and Surpluses (Crores) | 4.26 | 10.24 | 6.01 | 25.7 | 38 |

The FC claimed that most of the farmers had 1-5 milk animals though there are some with more than six animals who were called large producers.

2.12 Gram Dev FPC

Gram Development Farmers Producer Company Limited promoted by SCs, was registered in 2013. It has 1100 members out of which 150 are women and they come from 5 gram sabhas with 24 villages in total. Members of 20 Farmer Interest groups joined initially to establish this FC. Share value is Rs 10, and to become a member, one must buy at least 10 shares. Maximum shares that an individual member can buy are 100. The FC was established with 5 BoD out of which one is female, and there were 5 promoters and 8 members. One needs to have at least 0.2 acre of land to be a member. The authorized capital is Rs 10 lakh and paid up capital is Rs 8 lakh. A very small size of the BoD also seems representing the membership poorly though many meetings were held annually, which shows very active BoD though small in size.

The FC has dealership and brand licenses. They have a Custom Hiring Centre, where they own a tractor (40% already, 40% loan, 20% own) and some other machines and equipment (50% already) valued at Rs 5.31 lakh as assets including subsidy (40%). One of the promoters has been appointed as CEO, because of financial issues. One driver and one sales boy are the only 2 employees of the FC and get Rs. 5,000 as salary per person per month.

The main crops of the region are wheat and paddy. Some 3-4 years ago, the FC encouraged the production of lemongrass oil. About 5-10 members cultivated lemongrass in 7 acres of

land, but it wasn't successful. The plants for cultivating lemon grass were given for free to the participating members. But the yield was low, and so they couldn't get the right price.

Almost 50 percent of the members buy inputs only from the PC. It produced wheat from farmers at MSP under government procurement programme. In the same village, there is a co-operative society (PACS) which caters to 48 villages for crop loans. It is also a procurement centre for wheat for the government for MSP implementation.

It transacted through NCCF¹ once earned a profit of Rs. 800 but later on incurred losses hence stopped, as the market prices were comparatively high. Turnover has become 10-fold from about Rs. 5 lakh at its inception. Though, the PC has been sowing lesser since last two years, they received grant of Rs. 3,70,000 from SBAC with per farmer limit for the grant at Rs. 1,000.

A Business plan regarding wheat and paddy seed production was made. Training for 500 was arranged once in the year 2013-14 for three days by Baidi and Agri Department. The training for members, however, has never been arranged. Animal Husbandry training was arranged by Rural Self-Employment Training Institute (RSETI).

As the Table 2.2 below shows though the company has moved towards raising equity capital and has reached 87% of that authorised, the shares remain confined to a large extent with the promoters and a few members only. For example, 49% of the shares were held by just eight members in 2016-17 which is not a desirable thing for a PC though it may be needed initially but continuing with it for years is not a positive development.

Table 2.2: Profile and performance of the GUPC

| Year Particulars | 2012-13 ¹ | 2013-14 ² | 2014-15 ³ | 2015-16 ⁴ | 2016-17 ⁵ |
|---|----------------------|------------------------|------------------------|----------------------|----------------------|
| Authorized Capital (Rs. lakh) | 5 | 5 | 5 | 5 | 10 |
| Paid up Capital (Rs. lakh) | 0.25% | 14.28% | 16.72% | 16.22% | 6.11 (61%) |
| No. of shares | 1000 | 1428 | 1672 | 1622 | 1700 |
| Shares (> 5% of total) held by number of members / promoters as % of total and no. of those who hold them | | 58 (7) | 49% (2) | 61% (2) | |
| Total Sales/Turnover (Rs.) | 140710 | 222224 | 166224 | 224519 | 240000 |
| Financial expenses (Rs.) | | (10722) | (714) | 4022 | |
| Profit (Loss) (Rs.) | (3526) | 216 | 279 | 682 | (214) |
| ROE | | 5 | 5 | 5 | 6 |
| Meeting of full held (% of RsO attended in no. of meetings) | | 07 (20% in 5 meetings) | 02 (20% in 5 meetings) | 1 | |

Further, though the PC has moved to larger turnover after three years (three times of that in the third year) and was able to receive loans from an NFI (Ananya Finance) and public sector

bank (Bank of India), the financial performance remains weak with very negligible profits in the three years after first year and then loss in the fifth year. This is again worrying as despite having loans and subsidies for the farm machinery bank, it was not able to earn enough.

The biggest problem that the PC faces is shortage of manpower and working capital, while externally it is difficult to get permissions for renewals and licenses. It has been in loss for the last five years. It plans to focus on seed production for vicinity though it faces lack of working capital and human resources.

2.13 Naveen Kisan PC

The promoter BKSL was involved in a World Bank funded project in 28 districts across 3-4 states as its technical support agency as well as implementing agency. It carried out value chain study and also organised farmer interest groups which later on ended up as 20 registered FPOs. It was a bottom up approach and 100 FPOs were to be set up in three years in production surplus areas, in mostly arid lands. Later on, the approach was changed to top down where SoCs were mandated to mobilize members and groups. All the FPOs registered in 2014 were based on bottom up approach and had business plans.

Naveen Kisan Producer Company Limited was registered in 2014 in Etawah, Lucknow. It operates in 15 villages. It is promoted by BKSL, with technical support from SASD and also received grants from IFAC but not yet received matching equity grant. The FPO registered in 2015 has 621 shareholders across 22 villages.

Major crops in the area included paddy, both high yielding and hybrid, and various in Kharif and wheat, tomato, cabbage, potato and onion in Rabi season besides mung in summer season. The introduction of banana crop in the villages has led to decline in the area under bottle gourd.



FIGURE 2.1: Office of Naveen Kisan PC and Banana crop in a member's field.

Initially, out of the 200 members registered, 60% were already members of FPOs. It doesn't have any membership criteria other than that the member must be a farmer. A farmer can buy

minimum of 10 and maximum of 100 shares with each share valued at Rs. 10 while a Director has to buy 100 shares. A share certificate is issued for the same. The board had formerly 11 members, which is now at 8, amongst whom one is a female. The FPC has 1004 members, a board of director has to organise FPG of 20 members each to be eligible for applying for membership of the board. There is no expert on the BOD and has one CEO (B.A.) and an assistant to the CEO, both of them paid their salaries by SEAC. Now, the FPC has no CEO and only a chartered accountant is taking care of it. The members of Navara Village FPC had land ranging from 0.5 acre to 4 acres.

As of 2019, there are 1004 members (35 female and 999 male), with target set at 2000. No members have more than 3 acres of land with most of them having 0.5 acre each, making them all either marginal or small farmers. 80% of the members are active who do at least some transactions with the company. Authorized capital initially was Rs. 5 lakh, which has now been increased to Rs. 10 lakh (Table 2.3), whereas the paid-up capital is at Rs. 437,000.

The PC is mostly into input dealership and sells seeds, fertilizers and pesticides (30% on credit). The PC owns 2 sprayer pumps for pesticide valued at Rs. 2500 each, which are lent to farmers when they buy pesticides. The input sales are restricted to members. 90% of the members buy extra seeds from the PC with about 2% lower than market price. More than 80% of members were into vegetable cultivation like lady finger and bottle gourd, but many of them are now cultivating banana due to high returns. 40% members do banana cultivation, where the banana farm cultured plants of GG variety was bought from Jaipur and sold at Rs. 17.5/plant totalling 20700 plants last year and 16000 plants last year. The entire banana produce is sold through the PC. It has also promoted flower cultivation in the area for which they have an APNIC houses. A couple of farmers in two villages are into floriculture and are growing Gladiolas and marigold flowers in a total of 5 acres of land.

The PC has received various trainings through KVK and CHAF in floriculture and for NPM in Orissa. NPM of crops is practiced in Okra, Banana and Tomato. The NPM input sales is done by one member farmer, and 50 farmers have participated in NPM crop growing. The fees for this are Rs. 500 per season per farmer for 0.5 acre of land, which includes providing inputs (biofertilizers and biopesticides) and supervision (Rs. 100/PC, Rs. 100/ENSL, Rs. 50/entrepreneur, and 150/ input cost). An expense club was made to Kerala to undertake the tracking of Navara Farmer PC promoted by BARDI (BCTE).



Photo 2.2: NPM promotion and documentation by the PC

The PC intervention in wheat and paddy was made because farmers were not getting good quality inputs and also wheat farmers were not able to realize MSP. It also registered with MCX for futures trading in mentha oil whereas the futures commodity price was displayed by the PC at the village level. Even mini fertiiser wheat was also attempted to be produced in case of three FPCs. Similarly, extra normal basmati rice and organic farming of paddy and potato was also attempted.

The PC also undertook contract farming with Pepsi and there were large scale defaults from both sides and the arrangement ended after 3 years. This project had brought for the first-time processing varieties of the potatoes in the local area. The PC used to get Rs. 1 per kg vendor commission on seed potato and Rs 0.4 per kg commission on output sales. The contract price was broadly communicated to the PC by Pepsi but actual procurement price was decided only a week before sowing when the actual contract was signed.

The PC engaged in facilitation of contract farming with Siddhant Agril Processing Pvt Ltd. (SAPPL) where it bought seed potato from them, but it did not deliver them the produce because market prices were higher than the contract price. Also, 25% of the potato produce and Odra (30% member farmers cultivate) is sold in e-NAM and PC is registered on e-NAM. Bottle guard which was cultivated by 70% farmers before pc intervention has now come down due to its replacement with banana. A couple of years back, 24 tonnes of produce was sold to Pune based company- Pick and Serve, which was then discontinued because the price was not good enough.

The PC had a four-year business plan under which it has projected the revenue from different crops being handled by it which included paddy, banana and brinjal in Karnataka and potato (in rain) and sales of fertilisers during all the three seasons. The PC doesn't have enough working capital and rubbers from state grant.

Table 2.3: Profile and performance of Naryen Kiran PC

| Key Indicator | 2016/17 | 2017/18 | 2018/19 |
|--|---------|---------|---------|
| Authorized share capital (Rs. Lakh) | 10 | 10 | 10 |
| Paid up Share Capital (Rs. Lakh) and % of authorized | 10(100) | 10(100) | 10(100) |
| No. of shares | 1000 | 1000 | 1000 |
| Total Revenue (Rs.) | 60000 | 51200 | 75000 |
| Profit/Gain (Rs.) | 10000 | 16000 | 7100 |
| Assets (Rs.) | 60000 | 52004 | 84000 |
| Reserves & Surplus (Rs.) | 10000 | 20000 | 20000 |

The BCES was of the view that of all the farmer members 30% understood that the PC belonged to them, another 50% only looked for benefits and rest 20% have no involvement with the FPC. The PC undertook wheat seed contract farming in 20 acres from 10 farmers for state seed corporation. The SFAC has made matching equity grant to 5 out of 7 FPCs. Of the total FPCs

promoted by BCTS, 54 which were more than 3-year-old had received the equity grant. Each PC had Rs. 100 share value which has been increased to Rs. 500 now and a member has to buy minimum of 5 and can buy maximum of 10 shares.

The PC had been aggregating banana, bottle gourd and lady finger for sale. It also sold vegetables in e-NAM. The firm-cultured banana was introduced in the area by this PC where 40% of the members cultivated this crop and sold it to the PC. The PC also supported the production of non-pesticidal farm inputs by some of its members. 50 farmers bought these products.

The PC faced the problem of shortage of working capital and staff besides issues of governance within the company.

It had a five-year plan (2017-2022) which aimed at expanding the membership to 1400 and share capital to Rs. 7 lakh. The business plan mainly focused on input supply, aggregation and sale of farm produce and value chain interventions. It intended to increase the farmer income by 4-5% by building better market linkages for farmer produce. The PC had never brought any produce from non-members though it sold farm inputs to them.

2.14 Navjyoti Kisan PC

Navjyoti Kisan Producer Company Limited, promoted by BCTS was registered at Goudgail, Ludhiana in January 2014. It was formed by the members of 62 Farmer Interest Groups (FIGs) and operates in 12 villages of Goudgail block. It is promoted by BCTS. The membership is restricted to farmers that own land and have subscribed to the membership with shares for Rs. 200. The share value is Rs.10 and share certificates have been issued to the members. Out of total of 1010 members, 30 are female. One of the 7 BOD is woman and there are no experts on the BOD. 96% members of the PC are marginal or small landowners and more than 50% are active members who do some or the other transaction with the PC. Besides CEO, it has one marketing officer, one finance and accounts officer besides a service provider and one Kisan Mitra.

The PC had an authorized Capital of Rs. 15 lakh which is same as the paid-up capital (Table 2.4). Promoting agency UPBN had given Rs. 4.5 lakh as Community Investment Fund to meet the initial working capital. The PC also received a matching equity grant of Rs 5 lakh in 2016-17 from SFAC and a loan of Rs. 12 lakh at 13.5% interest for working capital was availed from Ananya Finance Ltd in 2018.

Upto 2019, NXPCL had total business of Rs. 5.06 crore, with input sales turnover of Rs. 1.28 crore and sale facilitation of agricultural produce of Rs. 1.14 crore in the last three years, mainly wheat. NXPCL also had registration with e-NAM and NCDEX. There are plans of participating in futures market for mung and mustard by 2020-21. NXPCL later obtained dealership of U.P. Bee Vikas Nigam, along with LIC motor insurance agency license and APJSC retail license. The NXPCL had multiple channels for input procurement like IFPCO (Urea with MFZ of Rs. 125 was sold at Rs. 400 in black market prior to this), many seed and fertilizer companies

and five fertilizer companies. This helped farmer members in timely availability, reliable price and adequate quantity.

Activities carried out by NTPCL included: farm level sales, agri produce sale facilitation, farm machinery rental bank, IPFCO Kisan Sanchal Limited, micro-finance agency of LIC and Zinc fortified wheat seed production.

Table 2.4. Profile and performance of NTP Kisan PC

| Item (Million INR) | 2016-17 | 2017-18 | 2018-19 |
|--|--------------|--------------|--------------|
| Members | 502 | 498 | 504 |
| Authorized share capital (Rs. Lakh) | 100000 | 100000 | 100000 |
| Paid up Capital (Rs. Lakh) & (%) of authorized | 100000 (100) | 100000 (100) | 100000 (100) |
| Revenue | 124465 | 120000 | 126465 |
| Profit (Loss) | (1814) | (1647) | 4362 |
| Reserves & Surplus | (16046) | (16046) | (16046) |
| Assets | 25175 | 25749 | 24008 |

The PC sold inputs to both members and non-members but proceed only from members. 80% members bought seeds, fertilizers and pesticides from PC and it was sold lower than market price and about 45-60% bought exclusively these inputs from PC. Custom rental of machinery and equipment was used by 15-20% members depending on the machine or the equipment with cultivator and rotator being used by 55% and seed drill and land levellers only by 12% and 50% each. Over the years, more and more members used input services growing from 80 in 16/17 to 330 in 2018/19.

On the output side, it procured wheat at MSP from only 47 members as an agency for govt. procurement and received 1.3% commission for this.

It conducted training and exposure programmes for its BoD, staff, and about 100 members on months od market and futures trade with the collaboration of MCI and Kisan govtts in Khairi and rabi season for all the above mentioned with the help of KVIC.

2.15 Krishi Vikas FPC

Krishi Vikas Farmers Producer Company Limited promoted by BCTS was established in July 2015. Water user groups mobilized by LWFENL were already present in the area of operations. About 300-350 members from 40 such groups thus joined the PC as members. All the farmers are registered as individual members and can only be a part of this PC if they own land.

This FPC originated from water user groups numbering 40. It had membership of 201. 50% of the members are active. The FPC had 90 members to begin with which number 1135 now including 300 female members. Most of the farmers had land holding lower than 5 acres each.

The input stores have been running since beginning. The five outlets cover 37% of members across 10 villages. Rest of the members are from remaining 15 villages. The FPC claims that its input intervention had led to end of black marketing in inputs and improvement in quality. It claims that 57% of its members buy exclusively from FPC. It had 7 farmers with 27.5 acres in contract farming of processing variety potato for the last three years.

The FPC business was managed by Board Members with each one of them looking into a cluster of farmers and the board member received commission for the same. The contracting company rejected 20% produce due to the small size of the potatoes. It also had plans to get into maize procurement for supplying to feed companies.

PC started with more 50 members and had 1139 members by 2016-17 out of which 100 were female and all of these members were either marginal, or small farmers. With 10 board members when initially registered, they are 8 now, and one of them is a woman. To be a part of BCO, one needs to have 10 shares. Chairman looks after the BCO, which in turn has a CEO under them.

The paid-up capital increased from Rs. 1.36 lakh to Rs. 5 lakh (Table 2.5). Each share was priced at Rs. 100, with a cap of 10 shares per member. This was in accordance with SEAC rules, where no member was allowed to invest more than Rs. 1000 if the PC wanted to avail the grant from SEAC. Kishu Vyas was yet to avail the grant. Two of the directors managed the input store, whose license was owned by the PC, and in turn, the profit was shared equally between the two.

Even though 50% members were active, PC faced last mile problem, as there were only five outlets (for agr. inputs) which could cater only to 10 villages out of the 25, in which PC was present. It did not have trading license yet, but had dealership of Zoster, IFFCO, Biji Vikas Nigam, Nirmal and Sakti for seeds, fertilizers and pesticides. Zinc fortified seeds were provided to the members. 50% of the members exclusively dealt with PC. These service activities helped in catering to local supply by providing them with good quality products on MFP, which were sold at higher rates before. Potato Contract farming with PepsiCo started three years ago (see agreement between PC and board members in appendix 2.1.6a), with 7 farmers willing in 36 hectares of land. 50% of contract production met PepsiCo standards. PC undertook soil testing and three visits were made for inspection while potatoes were sown. PC takes a facilitation fee of Rs. 40 per quintal for the same. Net sown area for potatoes has increased because of this.

It received a capital subsidy of Rs. 43 lakh each in 2014-17 and 2017-18. PC availed a loan of Rs. 5 lakh at an interest of 25.75% for seeds from Samruddhi in 2017-18. While the PC had problems of funds and was waiting for SEAC matching equity grant, there were also problems in that licenses were not issued in a timely manner and IFFCO was unable to meet timely delivery. The area of operations of PC was divided into clusters, where each cluster was managed by one of the BoD on commission basis. This innovation in business model helped increase sales.

Krishn Vikas had plans to set up its own processing plant for potatoes (costs around Rs 1-1.25 lakhs, 40% potatoes can be used). Apart from that, they wanted to aggregate corn which in turn could be sold to cattle feed plants. It also planned to establish seed processing plants for groundnut and wheat to get better margins for the member farmers.

Table 2.5: Profile and performance of Krishn Vikas PC

| Particulars | 2016-17 | 2017-18 | 2018-19 | 2019-20 |
|---|---------|-------------------------|--------------------|-------------------------|
| No. of shareholders | 85 | 257 | 338 | 329 |
| Authorized capital | 5 | 5 | 5 | 5 |
| Paid up capital (Rs. lakh) | 130(26) | 120(24) | 120(24) | 57(11) |
| Revenue (Rs. lakh) | - | 834 | 718 | 406 |
| Net profit (Rs.) | - | 120 | 159 | 208 |
| Reserves & surplus (Rs.) | - | 167 | 47 | 43 |
| % of shares with Shareholders holding with >5% share each (%) | 7% | 2% (10-250 shares each) | 2% (10-250 shares) | 1% (10-250 shares each) |

Source: PC records.

Appendix 2.35A

Contract farming agreement Letter with member farmers

I, _____ son of _____ resident of _____ certify that I have _____ quintal of potato seeds. I will buy _____ quintal of new potato seeds. I will sow my seeds for kachha potato crop and later seed for palka Potato crop. I will plant these seeds in atleast _____ bigha land and will provide Kashi Vikas Farmer Producer Company with _____ Quintal Potato.

Conditions to sell Potato through Company

1. Sowing of Kachha crops must be done between 1-10 October and digging between 20 December and 10 January. Sale price will be decided on the day the produce is weighed and loaded in truck, while the final price will be decided after the produce is accepted by the plant.
2. Sowing of Palka crops must be done between 15-23 October and digging any time after 6th February. Sale Price will be decided on 30th September.
3. Potatoes will be graded and potatoes of sizes between 40 mm and 65 mm will be bought. Company won't buy green, cut and diseased potatoes.
4. Netted Plastic bags must be used for packing. Produce will be weighed on the scale of one quintal 400 grams.
5. Producers will be fully responsible if potatoes are rejected due to incorrect size grading, agricultural chemicals, etc. Company will not pay any kind of compensation for this.
6. Loading in the trucks will be done by the producers themselves, and company will not pay for any kind of labour charges.
7. Palka Produce is supposed to be sent to Agra and Mathura by farmer at their own expense. All Mandi charges will be paid by the Producer. Mandi charges will be returned once the produce in vehicle is accepted.
8. Payment will be done through bank account once the PC receives the payment from the Company.
9. No urea should be used after 60 days of sowing as it can lead to higher sugar content at the time of testing.
10. If a producer sells seeds to any other person without the consent of the PC, the produce will not be bought by the PC.
11. PC will provide the producer with crop safety kit, which needs to be used by the producer. Producer will need to pay for each a kit.

Witness Farmer Sign

Sign Farmer

Mobile Number: _____

Performance and Impact of PCs in Rajasthan

Introduction

Rajasthan, the largest state of India, occupying 10.25% of geographical area, is an agrarian state where a large part of the population lives in rural areas. More than 70% of the population is dependent on agriculture and its allied sectors for their livelihood. It is the fourth largest producer of foodgrains in India after Uttar Pradesh, Punjab, and Andhra Pradesh.

Agriculture contributes 18.58% of GDP of the state. Nearly 68% of the total cultivated area is sown in Kharif season (Goval, 2017). Rajasthan is India's largest producer of mustard (6%), pearl millet (21%), cluster beans (6%), and Isabgol (16%), and the second largest producer of pulses and the third largest producer of soybean (7%) (Sharma and Sharma, 2013). The state has first rank in the production of cucumber, coriander, and fenugreek and ranks second in the production of livestock contributing 10% of India's milk and 30% of mutton production. Farming and livestock production take place in many parts of Rajasthan often in extreme agroclimatic conditions. Of the total cultivated area (20 million hectares), irrigated area is only 20% (Goval, 2017). Rajasthan had 224 FPOs in early 2017 with 1.1 lakh farmer members mostly under NABARD support (61%), SFAC (18%), and RKVJ (17%) and a few by private sector CSR (2%) (GoR, 2017). In this context of high production and market risks, it is important to examine the role and potential of FPOs in the state.

The first section of this chapter analyses the physical and financial performance of the FPOs. The second section examines the profile and impact of milk FPO on members vis-à-vis non-members. The third section examines the non-milk FPOs in the state promoted by two different professional Agencies and their impact on farmer members. Section 4 of the chapter also makes a comparison between these two promoters for assessing the differential impact, if any. Section 5 compares FPOs of each promoter between themselves. The chapter then concludes with some observations on the performance of the FPOs in the state.

3.1 Physical and financial performance of FPOs

Most of the FPOs, other than Pawayamli FPO and Milaran FPO could not mobilise enough equity capital from their members. It was not even 70% even after a few years of the existence of the FPOs. Two of them were stuck at just 20% and 32% each of the authorised capital which itself was small i.e. Rs. 5 lakh each in case of each of the FPOs promoted by ISAP. Further, all of the non-Pawayamli FPOs made losses throughout their existence. Consequently, they had nil or negative reserves and surpluses and minimal assets. The main reason for this was their low turnover which was a few lakh rupees each except one (Bakharvat) (Table 3.1).

Compared with this, the milk PC turnover ran into more than Rs. 50 crore per year and it had generated profits of the order of more than Rs. 10 lakh per year and surplus of Rs. 25-30 crore per year. The low turnover in case of the BAP PCs was for the reason that they had not undertaken much output business so far and were mainly supplying farm inputs to members and non-members. Even IGF promoted PCs had undertaken only some procurement for the SFAC at MSP which helped them stay afloat for some time as they received some commission and service charges for it. This helped one of them to receive matching equity grant and another a capacity building grant from SFAC though they had no business plans of any significance.

Rajasthan is the second largest milk producing state in India despite being arid/semi arid region. The major competitor of PAAYAS include RCOF – a state level milk cooperatives producing 25 lakh litre annually with 30% coming from non-members and the largest player in buying and selling milk in the state. GCHDF (Amul) had 11 lakh litres procurement mainly sourcing from neighbouring milk unions in Gujarat; private players which include Modi Dairy (with Lotus brand) procuring five lakh litres annually through a mix of direct procurement and through intermediaries and Dhatrapal Sahyapal (with Kaheer brand) handling one lakh litres mainly procured through intermediaries and Paternal foods procuring 1.5 lakh litres through a mix of direct buying and through intermediaries. The latter two players were of recent origin whereas Lotus was there for more than 22 years and even before Amul entered this market. Reliance and Kivally dairies had shut down their operations while Heritage, Bull and Dey Milk Foods were new entrants in the state milk market. The other significant private player was DG Group from Catch Masala brand which was around for seven years and sold one lakh litre per day. However, due to the state government patronage, RCOF offered a subsidy of Rs 2/- per litre which increased to Rs 5/- by 2018 which led to unfair competition for the PC.

Table 3.1: Profile and Performance of PCs in Rajasthan

| Cooperative | 2017-18 | | | | 2018-19 | | | | 2019-20 | | | | 2020-21 | | | |
|--------------------|----------------|--------------|-------------|--------------|----------------|--------------|-------------|--------------|----------------|--------------|-------------|--------------|----------------|--------------|-------------|--------------|
| | Production (L) | Revenue (Rs) | Profit (Rs) | Surplus (Rs) | Production (L) | Revenue (Rs) | Profit (Rs) | Surplus (Rs) | Production (L) | Revenue (Rs) | Profit (Rs) | Surplus (Rs) | Production (L) | Revenue (Rs) | Profit (Rs) | Surplus (Rs) |
| PAAYAS | 100000 | 10000000 | 1000000 | 1000000 | 100000 | 10000000 | 1000000 | 1000000 | 100000 | 10000000 | 1000000 | 1000000 | 100000 | 10000000 | 1000000 | 1000000 |
| RCOF | 250000 | 25000000 | 2500000 | 2500000 | 250000 | 25000000 | 2500000 | 2500000 | 250000 | 25000000 | 2500000 | 2500000 | 250000 | 25000000 | 2500000 | 2500000 |
| GCHDF (Amul) | 1100000 | 110000000 | 11000000 | 11000000 | 1100000 | 110000000 | 11000000 | 11000000 | 1100000 | 110000000 | 11000000 | 11000000 | 1100000 | 110000000 | 11000000 | 11000000 |
| Modi Dairy | 500000 | 50000000 | 5000000 | 5000000 | 500000 | 50000000 | 5000000 | 5000000 | 500000 | 50000000 | 5000000 | 5000000 | 500000 | 50000000 | 5000000 | 5000000 |
| Dhatrapal Sahyapal | 100000 | 10000000 | 1000000 | 1000000 | 100000 | 10000000 | 1000000 | 1000000 | 100000 | 10000000 | 1000000 | 1000000 | 100000 | 10000000 | 1000000 | 1000000 |
| Paternal Foods | 150000 | 15000000 | 1500000 | 1500000 | 150000 | 15000000 | 1500000 | 1500000 | 150000 | 15000000 | 1500000 | 1500000 | 150000 | 15000000 | 1500000 | 1500000 |
| DG Group | 100000 | 10000000 | 1000000 | 1000000 | 100000 | 10000000 | 1000000 | 1000000 | 100000 | 10000000 | 1000000 | 1000000 | 100000 | 10000000 | 1000000 | 1000000 |
| Reliance | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kivally | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Heritage | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bull | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dey Milk Foods | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

3.2 Milk PC (Paayas): Member and Non-Member Profile

All the ten respondent members were women farmers and mostly literate or middle standard pass with only one each being high school literate and postgraduate each (Table 3.2). 70% of them reported farming as the primary occupation and the remaining animal husbandry. The animal husbandry and dairying was the secondary occupation for 70% of them and farming for another 30% (Tables 3.3 and 3.4). Among the non-member who were all men, only one

was illiterate and rest middle high to higher secondary literate with one being graduate. 36% of them reported farming as primary occupation followed by animal husbandry, 57% or a combination of the two. Animal Husbandry was major secondary occupation with 66% followed by farming (5%), and salaried job or self-employment at 29% respectively.

Table 3.2: Distribution of Milk PC member and non-member farmers by education

| Farmer Category | Members | | Non-Members | |
|------------------|---------------|------------|---------------|------------|
| | Farmers (No.) | % in total | Farmers (No.) | % in total |
| Illiterate | 4 | 40 | 1 | 11 |
| Middle School | 4 | 40 | 3 | 33 |
| High School | 1 | 10 | 3 | 33 |
| Higher Secondary | 0 | 0 | 2 | 22 |
| Graduate | 0 | 0 | 1 | 11 |
| Postgraduate | 1 | 10 | 0 | 0 |
| Total | 10 | 100 | 10 | 100 |

Table 3.3: Distribution of Milk PC member and non-member farmers by Primary Occupation

| Farmer Category | Members | | Non-Members | |
|------------------|---------------|------------|---------------|------------|
| | Farmers (No.) | % in total | Farmers (No.) | % in total |
| Farming | 7 | 70 | 6 | 60 |
| Animal Husbandry | 3 | 30 | 4 | 40 |
| Total | 10 | 100 | 10 | 100 |

Table 3.4: Distribution of Milk PC member and non-member farmers by Secondary Occupation

| Farmer Category | Members | | Non-Members | |
|------------------|---------------|------------|---------------|------------|
| | Farmers (No.) | % in total | Farmers (No.) | % in total |
| Animal Husbandry | 7 | 70 | 6 | 60 |
| Farming | 1 | 10 | 1 | 10 |
| Skilled Labour | 1 | 10 | 2 | 20 |
| None | 1 | 10 | 1 | 10 |
| Total | 10 | 100 | 10 | 100 |

Average land owned by a member milk producer was 1.3 acres with all of them being marginal or landless farmers. In terms of operated land which was on average 1.4 acres (Table 3.5), the distribution of farmers remained the same. However due to some leasing in and leasing out, all the farmers became operated landowners but all of them remained marginal in size (Tables 3.6 & 3.7).

The average owned land among non-members was 2 acres with 67% being marginal and 17% semi-medium. Due to some leasing in and leasing-out average operated land was of the order of 2.5 acres with 67% operators being marginal, 21% small and 12% semi-medium. The latter 8% farmers accounted for 21% of the operated area. Interestingly there was no farmer in the category of medium or large farmer in terms of ownership or operation of land.

Table 3.5: Average Owned and Operated Land of Milk PC Members and Non-Members

| Land category (Owned Land (Acres)) | Members | Non-Members |
|------------------------------------|---------|-------------|
| Owned Land | 121 | 204 |
| Operated Land | 141 | 229 |

Table 3.6: Distribution of Milk PC member and non-member farmers by Owned Land

| Farmers Land category | Members | | | | Non-Members | | | |
|-----------------------|---------------|------------|--------------|------------|---------------|------------|--------------|------------|
| | Farmers (No.) | % of total | Land (Acres) | % of total | Farmers (No.) | % of total | Land (Acres) | % of total |
| Marginal | 10 | 100 | 13.37 | 100 | 10 | 63.3 | 12.8 | 63.34 |
| Small | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Semi-medium | 0 | 0 | 0 | 0 | 2 | 6.7 | 10.5 | 4.9 |
| Total | 10 | 100 | 13.37 | 100 | 12 | 60.0 | 23.3 | 68.24 |

Table 3.7: Distribution of Milk PC members and non-members by Operated Land

| Farmers Land category | Members | | | | Non-Members | | | |
|-----------------------|---------------|------------|--------------|------------|---------------|------------|--------------|------------|
| | Farmers (No.) | % of total | Land (Acres) | % of total | Farmers (No.) | % of total | Land (Acres) | % of total |
| Marginal | 10 | 100 | 14.37 | 100 | 8 | 66.7 | 16.3 | 71.7 |
| Small | 0 | 0 | 0 | 0 | 3 | 25.0 | 10.2 | 45.2 |
| Semi-medium | 0 | 0 | 0 | 0 | 1 | 8.3 | 5.8 | 25.1 |
| Total | 10 | 100 | 14.37 | 100 | 12 | 100.0 | 32.3 | 100.0 |

Most of the members (90%) had buffaloes, and 60% and 37% each respectively had cows and goats with average holding of two buffaloes and one cow or goat each. In fact buffaloes accounted for 70% of livestock and cows and goats 1% and 12% each respectively (Data 3.8). Non-member farmers had large livestock holdings of four buffaloes or cows each and three goats. But, buffaloes accounted for only 50% of total livestock and cows and goats 46% and 6% each respectively; all farmers had buffaloes and most had cows but only 12% had goats.

Most of the member farmers still depended on dealers for buying seeds of various crops or used home saved seeds. Only in case of fodder, 17% farmers reported buying seeds from the PC (Table 3.9). About 43% farmers reported PACS as a source of chemical fertilisers and 53% of those who used chemical pesticides reported the PACs as the main source (Table 3.10). Only one member bought biofertilisers from a dealer and others and non-members did not use it. Similarly, in case of biopesticides, only 3 non-members bought them with two buying from dealer and one from the PACS.

Table 3.8: Distribution of Milk PC member and non-member farmers by livestock Owned

| Livestock category | Members | | | | Non-Members | | | |
|--------------------|---------|------------|----------------|----------------|-------------|------------|----------------|----------------|
| | Farmers | % of total | Average Income | % Total Income | Farmers | % of total | Average Income | % Total Income |
| Cattle | 3 | 28 | 2.02 | 1000 | 2 | 6 | 1.90 | 5000 |
| Goat | 4 | 5 | 0.25 | 5.02 | 8 | 42 | 1.02 | 4020 |
| Sheep | 3 | 4 | 0.20 | 0.20 | 2 | 5 | 0.20 | 1.02 |
| Total | | 36 | | | | 54 | | |

Cattle feed was bought from PC by 90% member farmers as it was cost effective and had better quality, lower price, available in time, and no other reliable source. On the other hand, only 17% non-members reported buying from PC DCS and others (32%) buying from dealers and 25% not using it at all. Some others (17%) bought it from other FPOs and 8% from both dealers and DCS. So far as purchase of various crop seeds was concerned, non-members were mostly dependent on dealers and in some cases PACS. Only in case of barley and goat, they bought seeds from milk PC in 10% cases for reasons of better quality (Table 3.9). Most of the other inputs were also largely bought from dealers with only 26% reporting exclusive purchase of chemical fertilisers from PACS (Table 3.10). Only in the case of cattle feed 23% farmers reported buying from the PC because of better quality and timely availability with other important sources besides dealer and other cooperative like PACS and farmer groups.

Table 3.9: Distribution of Milk PC member and non-member farmers by Source of Seeds

| Livestock category | Members | | Non-members | |
|--------------------|----------------|------------|----------------|------------|
| | No. of farmers | % of total | No. of farmers | % of total |
| Dealers | 4 | 10 | 8 | 14.8 |
| Dealers, PACS | 1 | 3 | 1 | 1.9 |
| PACS, PC | 2 | 6 | 1 | 1.9 |
| PACS, Other FPOs | 2 | 6 | 1 | 1.9 |
| PC | 1 | 3 | 3 | 5.6 |
| Dealers, PACS, PC | 1 | 3 | 0 | 0 |
| Total | 13 | 35 | 13 | 24.2 |

The cropping intensity of member farmers was 1.59 and the major crops grown in Kharif included bajra, groundnut and cluster beans and those in Rabi included wheat, mustard and barley, besides vegetables and bajra in summer. Overall, wheat, bajra, Bajra, groundnut, cluster beans and mustard accounted for 99% of the GCA. 98% of the farmers had electric motor based tube wells.

Table 3.10: Distribution of Milk PC member and non-member farmers by Source of Chemical Inputs

| Type of Agricultural | Inhibits | | | | Fertilisers | | | |
|----------------------|----------------|------------|----------------|------------|----------------|------------|----------------|------------|
| | Members | | Non-members | | Members | | Non-members | |
| | No. of Farmers | % of total | No. of Farmers | % of total | No. of Farmers | % of total | No. of Farmers | % of total |
| Dealer | 4 | 40 | 4 | 33.3 | 3 | 28 | 1 | 7.69 |
| FWCS | 1 | 10 | 4 | 33.3 | | | 6 | 46.15 |
| Dealers/ FWCS | 0 | | 3 | 25.00 | 1 | 10 | 6 | 46.15 |
| None | 1 | 10 | 1 | 8.33 | 7 | 68 | 3 | 23.08 |
| Total | 6 | 100 | 12 | 100.00 | 10 | 100 | 12 | 100.00 |

The cropping intensity of non-members was 2.01. Major crops grown in Kharif by members and non-members were bajra, groundnut and guar. In Rabi, wheat, barley, mustard and fodder and in summer season it was mostly bajra or vegetables and fodder (Tables 3.11-3.13). In general, wheat and bajra accounted for 15% each of the GCA for members and non-members followed by barley (10%), groundnut (12%), guar (6%) and mustard (8%), and in case of non-members, fodder (8%). All the farmers had groundwater based tube wells run with electric motors.

Table 3.11: Kharif Cropping Pattern of Milk PC members and non- members (acres)

| Crops | Members | | | | | Non-Members | | | | |
|-------------------------|---------|--------------|-------------------|-----------------|-----------------|-------------|--------------|-------------------|-----------------|-----------------|
| | Farmers | Cropped Area | Avg. cropped area | % of total area | % of total area | Farmers | Cropped Area | Avg. cropped area | % of total area | % of total area |
| Bajra | 4 | 441 | 110 | 33.8 | 6.21 | 8 | 355 | 44 | 10.8 | 14.25 |
| Groundnut | 3 | 15 | 5 | 15.15 | 0.18 | 3 | 44 | 14.7 | 3.65 | 11.68 |
| Guar | 4 | 188 | 47 | 14.57 | 2.25 | 3 | 1 | 0.33 | 0.08 | 2.62 |
| Bajra, Guat, Guar | 1 | 7 | 7 | 14.57 | 0.27 | 1 | 55 | 55 | 13.8 | 43.2 |
| Bajra, Vegetables | 4 | | | | 0.02 | 1 | 7 | 7 | 1.75 | 5.25 |
| Barley | 1 | 51 | 51 | 14.7 | 2.84 | 0 | | | | |
| Bajra, Guat, Guat, Sume | 1 | 120 | 120 | 36 | 4.61 | 0 | | | | |
| Total | 16 | 732 | 45.75 | 100 | 43.26 | 20 | 461 | 23.05 | 100 | 46.44 |

Table 3.12: Rabi Cropping Pattern for Milk PC members and non-members (in acres)

| Cropping Pattern | Members | | | | | Non-members | | | | |
|------------------------|-----------|-------------|-----------------|------------|-------------|-------------|-------------|-----------------|------------|-------------|
| | Household | Croped Area | % of Total Area | Total Area | Total Yield | Household | Croped Area | % of Total Area | Total Area | Total Yield |
| Barley | 4 | 385 | 0.66 | 2807 | 127 | 5 | 525 | 1.65 | 3029 | 164 |
| Fodder | 2 | 125 | 0.21 | 150 | 630 | 4 | 187 | 0.60 | 229 | 151 |
| Mustard | 3 | 182 | 0.34 | 1233 | 537 | 2 | 111 | 0.35 | 421 | 230 |
| Wheat | 7 | 537 | 0.97 | 4007 | 1338 | 9 | 75 | 0.24 | 1688 | 1404 |
| Barley, Mustard | 0 | 0 | 0 | 0 | 0 | 1 | 23 | 0.07 | 1054 | 55 |
| Barley, Mustard, Wheat | 2 | 325 | 0.58 | 2473 | 938 | 1 | 7 | 0.02 | 479 | 325 |
| Wheat, Mustard | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0.00 | 185 | 167 |
| Wheat, Mustard | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0.01 | 250 | 175 |
| Wheat, Mustard, Gram | 0 | 0 | 0 | 0 | 0 | 1 | 25 | 0.08 | 330 | 409 |
| Total | | 634 | | 190 | 4849 | | 759 | | 100 | 6972 |

Table 3.13: Summer Cropping Pattern for Milk PC members and non-members (in acres)

| Cropping Pattern | Members | | | | | Non-members | | | | |
|------------------|-----------|-------------|-----------------|------------|-------------|-------------|-------------|-----------------|------------|-------------|
| | Household | Croped Area | % of Total Area | Total Area | Total Yield | Household | Croped Area | % of Total Area | Total Area | Total Yield |
| Fodder | 0 | 0 | 0 | 0 | 0 | 2 | 7 | 0.02 | 403 | 375 |
| Gram | 0 | 0 | 0 | 0 | 0 | 1 | 57 | 0.18 | 533 | 609 |
| Hay | 1 | 67 | 0.12 | 1034 | 436 | 0 | 0 | 0 | 0 | 0 |
| Vegetables | 2 | 125 | 0.22 | 623 | 302 | 0 | 0 | 0 | 0 | 0 |
| Total | 3 | 192 | | 100 | 229 | 3 | 64 | | 100 | 644 |

Most of the members of the PCs had received their certificate (80%). Only one member reported the membership of another FPO which she had joined in 2012. In majority cases, they had become aware of various aspect of livestock and milk production through the PC or a combination of PC and FPO and in other cases from friends and relatives besides formal FO structures. 30% aware that the PCs belonged to the farmers. In 60% cases, it was PC employees who made them join the PC. Another 10% were influenced by promoters, and PC employees and others each and 30% by friends and other farmers.

All the farmers reported receiving dividends on their share capital and 80% didn't have any complaint against the functioning of the PC. They reported better satisfaction level on the availability, quantity, cost, quality and accessibility of cattle feed, moving from good to very good or excellent on most parameters after the intervention of the PC.

40% farmers also reported PC making them aware of various government schemes and 30% about receiving special subsidy due to the PC. 60% attended the meetings every month and all of them wanted to continue as members of the PC because of its responsiveness, transparency and profitable interface besides quick payment and good service delivery. All of them also wanted others to join the PC because they were getting good benefits including good price and profits on their produce.

Before the PC intervention, all farmers sold milk either to other FPOs or did not sell at all. There was 60% increase in buffalo milk sale because of the PC intervention though the price came down later compared with the alternative channels of sale. Whereas only 50% sold to the PC a few years ago, 100% started selling to it after a few years of it coming in. In terms of channels, earlier they dealt with traditional cooperative and the PC and had since moved over to the PC completely. The member farmers reported a price increase of 13% over the previous channel prices.

25% non-member farmers reported membership of another FPO which was the local milk cooperative society (MCS or PCDF) and they had been the members of the same for last many years. None of them reported receiving any information about Farming or animal husbandry from the PC and depended mostly on private companies, agri department office and the combination of non-personal and personal extension sources. In fact, 40% of them were aware of the milk PC and 40% reported that it was invited by farmers. A significant proportion of them (25% of the total) had learnt about it from PC employees or promoters. Only 30% showed interest in becoming the member of the milk PC. They were not members yet due to reasons like location, presence of other channels and availability of other benefits from those sources, and the fact that some of them could not meet the quality standards of the PC.

30% non-members had no dislike for the services offered by the PC while others reported lack of access or high-quality standard as the barrier. In general, they rated various aspects of input service better after the coming in of the PC except availability and inadequate amount. 30% of them had no had experience with the PC and some of them even attended the meetings of the PC. They expected doorstep procurement, improve access and other benefits for them to re-stimulate to become members of the milk PC. There was significant increases in cow milk production and milked surplus even price appreciation besides faster payment after the intervention of the PC. More of them had started supplying milk to the PC than use the old outlet.

The above analysis of member profile shows that the milk PC members were ready marginal or landless land operators and livestock rears. The PC made good impact on their livelihoods with various interventions like input supply and milk procurement besides supply of fodder, seed and other services.

3.3 Non-Milk PC member and non-member farmers: profile and impact

Of the total 61 member-respondents across 4 PCE, 26% were female. There were only 7% illiterates and 17% each primary, literate or graduate degree holders. The largest chunk (25%) were middle standard literate and the rest higher secondary pass (Table 3.15). 35% reported farming as the primary occupation and 5% petty business. 15% reported animal husbandry as secondary occupation and most others rural nonfarm or farm skilled jobs with 49% being dependent only on farming (Tables 3.16 & 3.17).

The average land ownership was 6.2 acres with 5% being landless and 24% each being small or medium landowners and 27% semi-medium farmers. Only 2% were in the large farmer category. Due to the leasing in and leasing out by 15-30% farmers, the operated land was of the order of 10.3 acres. Operationally, there were 12% farmers in semi-medium categories, 25% in medium categories and 7% were large farmers. On the other hand, marginal and small farmers who were 54% of the total operated only 14% land whereas 7% large farmers operated 54% of the total land (Tables 3.18&3.19).

80% of the non-members were male and 24% illiterate. 90% were high school and 17% middle standard and 12% graduates (Table 3.25). 88% of them reported farming as their primary occupation. The others were mostly into some skilled non-farm occupation (Table 3.16). As usual, animal husbandry emerged as the largest secondary occupation with 40% followed by farming in case of another 12%. 31% did not report any secondary occupation (Table 3.17). Average land ownership was 6 acres with 43% of the farmers being marginal or small and 32% being semi-medium. Only 17% farmers were medium category. The average operated land did not differ from average owned land. The distribution of operational holdings in various farmer categories also remained the same. But marginal and small categories (63%) cultivated only 18% whereas medium category farmers who were only 12% of the total cultivated 24% with 41% of the land being cultivated by semi-medium farmers. Importantly, there were no large farmers among non-member farmers (Tables 3.18 & 3.19).

Table 3.35: Distribution of non-milk PC member and non-member farmers by education

| Education Category | Members | | Non-members | |
|--------------------|-----------|-----------|-------------|------------|
| | Count (%) | % Total | Count (%) | % Total |
| Illiterate | 3 | 5 | 10 | 24 |
| Primary | 2 | 3 | 2 | 6 |
| Middle | 10 | 16 | 7 | 17 |
| High School | 18 | 29 | 8 | 19 |
| Higher Secondary | 5 | 8 | 2 | 5 |
| Under Grad | 0 | 0 | 4 | 10 |
| Graduate | 2 | 3 | 3 | 7 |
| Post Grad | 1 | 2 | 1 | 2 |
| Total | 41 | 66 | 42 | 100 |

Table 3.16: Distribution of Non-milk PC member and non-member farmers by Primary Occupation

| Farmer category | Members | | Non-members | |
|-----------------|--------------|------------|--------------|------------|
| | Farmer (No.) | % to total | Farmer (No.) | % to total |
| Farming | 39 | 97.5 | 39 | 92.5 |
| Business | 1 | 2.5 | 1 | 2.5 |
| Skilled Labour | 0 | 0 | 2 | 4.8 |
| Student | 0 | 0 | 1 | 2.5 |
| Total | 40 | 100 | 42 | 100 |

Table 3.17: Distribution of Non-milk PC member and non-member farmers by Secondary Occupation

| Farmer category | Members | | Non-members | |
|------------------|--------------|------------|--------------|------------|
| | Farmer (No.) | % to total | Farmer (No.) | % to total |
| Business | 2 | 4.8 | 5 | 11.9 |
| Animal Husbandry | 6 | 14.6 | 4 | 9.5 |
| Skilled Labour | 5 | 12.5 | 4 | 9.5 |
| Labourer | 2 | 4.8 | 2 | 4.8 |
| Farming | 1 | 2.4 | 5 | 11.9 |
| TPD | 1 | 2.4 | 0 | 0 |
| None | 20 | 47.5 | 21 | 49.8 |
| Total | 40 | 100.00 | 42 | 100.00 |

Table 3.18: Distribution of non-milk PC member and non-member farmers by Land owned

| Farmer category | Members | | | | Non-Members | | | |
|-----------------|--------------|------------|----------------|------------|--------------|------------|----------------|------------|
| | Farmer (No.) | % to total | Land (Hectare) | % to total | Farmer (No.) | % to total | Land (Hectare) | % to total |
| Marginal | 8 | 19.5 | 825 | 7.38 | 39 | 23.8 | 33 | 4.9 |
| Small | 10 | 24.6 | 224 | 1.92 | 8 | 6.88 | 26.7 | 3.92 |
| Semi-M | 0 | 0 | 88.8 | 7.69 | 20 | 43.2 | 82.3 | 11.9 |
| Medium | 10 | 24.6 | 1629 | 14.32 | 4 | 9.52 | 65 | 9.52 |
| Large | 1 | 2.4 | 35.7 | 0.31 | 0 | 0 | 3 | 0.4 |
| Total | 40 | 100 | 3337 | 29.28 | 42 | 100 | 251.8 | 29.28 |

Table 3.19: Distribution of Non-milk PC member and non-member farmers by Land operated

| Farmer category | Members | | | | Non-Members | | | |
|-----------------|--------------|---------|-------------|---------|--------------|---------|-------------|---------|
| | Farmer (No.) | % total | Land (Hect) | % total | Farmer (No.) | % total | Land (Hect) | % total |
| Marginal | 8 | 10.01 | 5405 | 2 | 10 | 23.81 | 10 | 4.01 |
| Small | 6 | 7.53 | 2047 | 5 | 9 | 6.05 | 207 | 8.05 |
| Semi-M | 14 | 14.05 | 30626 | 25 | 20 | 40.2 | 623 | 60.7 |
| Medium | 10 | 12.02 | 16254 | 34 | 4 | 3.52 | 205 | 24.1 |
| Large | 3 | 3.02 | 4051 | 34 | 0 | 0 | 0 | 0 |
| Total | 41 | 100 | 42215 | 100 | 42 | 100 | 2508 | 100 |

55% PC members had electric tube well connections and 2% diesel engine based with 7% no source of irrigation, as compared with 46% non-members having electric tube wells and only 2% non-members not having irrigation.

Table 3.20: Distribution of non-milk PC member and non-member farmers by Livestock Owned

| Farmer category | Members | | | | | Non-Members | | | | |
|-----------------|--------------|---------|--------------|---------|-------|--------------|---------|--------------|---------|-------|
| | Farmer (No.) | % total | Animal (No.) | % total | Group | Farmer (No.) | % total | Animal (No.) | % total | Group |
| Cow | 26 | 63.41 | 50 | 35 | 34 | 26 | 61.9 | 63 | 34 | 1.0 |
| Buffalo | 30 | 73.17 | 45 | 33 | 27 | 28 | 66.67 | 74 | 38 | 2.0 |
| Sheep | 7 | 17.07 | 4 | 3 | 200 | 7 | 16.67 | 0 | 0 | 0 |
| Goat | 11 | 26.83 | 10 | 7 | 100 | 11 | 26.19 | 51 | 27 | 3.0 |
| Total | 41 | 100 | 250 | 100 | 42 | 100 | 188 | 100 | | |

63% and 73% of the members had cows and buffaloes respectively, with 40% having goat and 2% sheep. Cows and Buffaloes were 55% and 33% of the member livestock with 31% being goats. The average number of large livestock, i.e. 3 cows and/or buffaloes per household and 3 goats and two sheep per household (Table 3.20).

Among the non-members, 62% and 71% had cows and buffaloes respectively and 34% had goats. Cows and buffaloes were 34% and 39% of the total livestock of non-members and goats accounted for 27%. Average ownership per household was 2 cows or buffaloes and 3 goats. No non-member owned any sheep.

Members mostly bought chemical fertilizers from PACS (22%), PC (30%) and dealers (7%). In fact, more of non-members bought more from PC (29%), followed by dealers (33%), and PACS (16%). In chemical pesticides, 54% members bought from PC and 30% from dealers and very few from PACS and combination of PC and Dealers. As against that, non-members mostly bought from dealers (45%) and from PC (23%). 22% members used biofertilizer and bought it from PC and only 2% non-members did so but in biopesticide it was 22% members and 14% non-members using it and buying from PC and 10% non-members buying it from dealers (Table 3.21).

Table 3.21: Distribution of non-milk PC member and non-member farmers by Source of Chemical Inputs

| Type of Appliance | Fertilizer | | | | Pesticide | | | |
|--------------------|--------------|---------|--------------|---------|--------------|---------|--------------|---------|
| | Members | | Non-members | | Members | | Non-members | |
| | Farmer (No.) | N/A (%) | Farmer (No.) | N/A (%) | Farmer (No.) | N/A (%) | Farmer (No.) | N/A (%) |
| Dealers | 3 | 12 | 4 | 28 | 0 | 0 | 25 | 62 |
| PACS/PCS | 6 | 24 | 7 | 54 | 2 | 4 | 0 | 0 |
| PC | 4 | 16 | 9 | 73 | 25 | 100 | 5 | 13 |
| Dealers & PACS/PCS | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dealers & PC | 1 | 4 | 0 | 0 | 1 | 4 | 0 | 0 |
| Total | 16 | 64 | 20 | 76 | 28 | 100 | 30 | 74 |

The members cultivated larger acreage on an average in each season except summer that that by non-members (Table 3.22). The cropping intensity was 1.7 and major crops grown in Kharif included kharif (25% of Kharif area), gram (24%), oilseeds (11%), mung (9%) and paddy (9%) in that order. Tomato accounted for 5% of the GCA in Kharif. In rabi, the major crops were wheat (42%), mustard (23%), gram (14%), and onion (11%). The only crop grown in summer in very small way was vegetables (Table 3.23, 3.24 and 3.25).

For non-members, average cropping intensity was 1.68 and major crops grown in Kharif included kharif, gram, mung and paddy. In Rabi, major crops were wheat, gram, onion, mustard, and Isabgol. Vegetables were the only set of crops cultivated in summer and they accounted for 5% each of the Kharif and rabi area. In general, wheat accounted for 27% of the GCA followed by kharif at 22%, gram and mung at 7% and vegetables 5% (Tables 3.23, 3.24 and 3.25).

31% of members had received share certificates but some of them had yet received dividend on their share capital. 34% members also happened to be members of other FPOs mostly cooperatives and in some cases, self-help groups. They had mostly received information on agricultural activities from the FPO, other cooperatives and the agricultural department headed 1.3% relying only on friends and neighbours and others on distant media like radio or mobile

phone. Only 15% reported getting it from the PC. Only 2% were aware that the PC was owned by farmer members with other reporting promoting NCD, PC employees, government as the owners and 39% not being aware at all. In 42% cases each PC promoters or PC employees had persuaded them to become members of the PC.

Input purchase

21% of the member farmers bought baits seeds, 25% other cereals, 43% fodder seeds, 16% gram seeds, 14% isabgol seeds and mung seeds, 20% mustard seeds, and 45% corn seeds from the PC for reasons of easy availability, better quality, and lower price besides the fact that as members they had to buy from PC as reported by 50% of the members who bought from the PCs. On the other hand, PCs had major role in chemical fertilizer and bio-pesticides where 36% and 35% of the farmers respectively bought chemical fertilizers and bio-pesticides from the PC. 53% reported buying chemical pesticides from the PC for reasons of better quality, easy availability, lower price and timely availability while 45% bought it from PC as it was an obligation as being members. Easy access along with lower cost was major factor for 65% of those who bought bio-pesticides from the PCs while in bio-fertilizers, it was more about better quality and lower cost and easy access in that order or a combination thereof (Table 3.21A). In 25% cases, where agricultural machines were used on rental basis by farmers, PC was the source of that due to the timely availability.

Table 3.21A: Type of input with Reasons for purchase of inputs from PC by members

| Item | Sales | | Chemical fertilizers | | Biopesticides | | Biofertilizers | | Machinery | |
|---|-----------|--------------|----------------------|-------------|---------------|-------------|----------------|------------|-----------|-------------|
| | Number | Revenue | No. | % of total | No. | % of total | No. | % of total | No. | % of total |
| Better Quality | 0 | 3600 | 4 | 6.2 | 3 | 3.6 | 2 | 4.0 | 1 | 20.0 |
| Better Quality, Lower Price | 1 | 2100 | | | 1 | 4.0 | 1 | 20.0 | | |
| Compulsory to buy | 12 | 3252 | 6 | 6.0 | 0 | 0.0 | | | 1 | 20.0 |
| Easy Accessibility, Lower Cost | 6 | 1520 | 4 | 5.4 | 3 | 3.6 | 1 | 2.0 | 2 | 40.0 |
| Easy Accessibility, Lower Cost and membership | 6 | | 1 | 4.2 | 1 | 4.0 | | | 0 | |
| Easy Accessibility, Lower Cost, Better Quality | 2 | 540 | 1 | 4.2 | 1 | 4.0 | 1 | 2.0 | 0 | |
| Fair Deal, More Reliable, Timely Availability, Easy Accessibility, Lower Cost | 1 | 250 | 1 | 4.2 | 1 | 4.0 | 0 | | 0 | |
| Other benefits | 1 | 350 | 3 | 4.2 | 1 | 4.0 | 0 | | 0 | |
| Lower Price | 4 | 1020 | 3 | 3.6 | 1 | 4.0 | 0 | | 2 | |
| Total | 42 | 10420 | 25 | 30.9 | 22 | 28.0 | 3 | 6.0 | 3 | 60.0 |

In general, non-member farmers reported an improvement in various parameters of input supply after the intervention of the PC where it moved from good to very good. They were keen to join the PC as a member provided it supplied good quality inputs at lowest price and made them aware about its services. On the output side, there was no change reported by the non-members in terms of the effect of the PC.

Most of the member farmer (85%) did not have any dislike for the PC services but 2% were unhappy about procurement, price realization, and payment aspects of the transaction. The input services provided by the PC were rated improved after the PC intervention from good to very good. On the other hand, no farmer reported any improvement on the output side of their transactions. 71% also did not report receiving any information about government subsidy and schemes and 88% did not receive any special benefit being members of the PC. 74% reported that meetings of the company were held monthly and quarterly and 58% attended that every time with others occasionally or sometimes and 13% never attending them. They still wanted to continue as members of the PC due to supply of the inputs especially seeds, benefit of transacting with the PC, and price benefits. 88% of them also wanted to encourage others to become members because it is profitable to be member of the PC.

Table 3.22: Season wise Average Cropped Area (acres) for non-milk PC members and non-members

| Category/Season | Members | Non-Members |
|-----------------|---------|-------------|
| Kharif | 64 | 129 |
| Rabi | 87 | 54 |
| Summer | 60 | 0 |

Table 3.23: Kharif Cropping Pattern of non-milk PC members and non-members

| Category/Season/Crop | Members | | | Non-Members | | |
|----------------------|----------------------|---------------|--------------|----------------------|---------------|--------------|
| | Cropped area (acres) | % Kharif Area | % Total Area | Cropped area (acres) | % Kharif Area | % Total Area |
| Bajra | 52.07 | 75.08 | 77.03 | 52.07 | 40.04 | 74.07 |
| Foxtail | 2.28 | 3.50 | 3.39 | 4 | 3.08 | 6.25 |
| Sorghum | 50.06 | 74.07 | 73.03 | 3.04 | 2.36 | 4.71 |
| Mung | 20.06 | 29.62 | 29.03 | 2.01 | 1.55 | 3.07 |
| Groundnut | 20.06 | 29.62 | 29.03 | 2.01 | 1.55 | 3.07 |
| Other Cereals | 2.09 | 3.12 | 3.01 | 0 | 0.00 | 0.00 |
| Wheat | 1.01 | 1.53 | 1.47 | 0 | 0 | 0 |
| Pulses | 6.06 | 9.01 | 8.66 | 0 | 0 | 0 |
| Small | 0.01 | 0.01 | 0.01 | 0 | 0 | 0 |
| Fodder | 2.04 | 3.06 | 2.94 | 0.01 | 0.00 | 0.02 |
| Other | 2.05 | 3.07 | 2.95 | 0 | 0.00 | 0.00 |
| Vegetables | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | 246.31 | 100 | 49.37 | 222.03 | 100.00 | 52.25 |

Table 3.24: Rabi Cropping Pattern of non-milk PC members and non- members

| Category | Members | | | Non-Members | | |
|---------------|-------------------|----------|----------|-------------------|----------|----------|
| | Cropped Area (ha) | % of GCA | % of GCA | Cropped Area (ha) | % of GCA | % of GCA |
| Fodder | 4 | 0% | 0% | 400 | 3.0% | 0% |
| Gram | 50.0 | 0.9% | 0.5% | 1005 | 6.2% | 0.9% |
| Barbajul | 5.0 | 0.0% | 0.0% | 70 | 0.0% | 0.0% |
| Mustard | 41.8 | 7.7% | 0.0% | 0.0 | 0% | 0% |
| Onion | 10.0 | 0.5% | 0.0% | 0.0 | 0% | 0% |
| Other Cereals | 0.0 | 0% | 0% | 0.0 | 0% | 0% |
| Vegetables | 27.4 | 0.2% | 0.0% | 70.4 | 0.5% | 0.0% |
| Wheat | 140.5 | 4.0% | 20.0% | 105.4 | 0.8% | 20.0% |
| Fruit | 1 | 0.0% | 0% | 0 | 0% | 0% |
| Tomato | 0.0 | 0% | 0% | 0 | 0% | 0% |
| Total | 355.75 | 1% | 43.0% | 143.6 | 0.8% | 43.0% |

Table 3.25: Summer Cropping Pattern of non-milk PC members and non- members

| Category | Members | | | Non-Members | | |
|------------|-------------------|----------|----------|-------------------|----------|----------|
| | Cropped Area (ha) | % of GCA | % of GCA | Cropped Area (ha) | % of GCA | % of GCA |
| Vegetables | 165 | 100% | 0.0% | 4.0 | 0% | 0% |
| Total | 165 | 100% | 0.0% | 4.0 | 0% | 0% |

The area under mango, and paddy had increased significantly after the PC intervention with yields being reported significantly higher in case of paddy. However, there was hardly any improvement in the total production, marketed surplus with only transactions cost coming down in soybean, wheat, mustard and price realised in onion and maize besides wheat going up significantly. The time to receive the payment had also come down significantly in soybean, tomato and paddy.

The Kharif crops of bajra, guar, paddy and moong which were grown by significant proportion had 50% of the total area under used followed by bajra at 22%. Similarly, in Rabi, wheat was grown by 40% by the farmers followed by mustard by 20%, onion by 17%, gram by 17% had 50% of the area under wheat and 25% mustard. Overall, it was wheat, and, bajra, mustard which accounted for more than 50% of the GCA. Two major crops which were handled by PC in comparison with the past included mustard, and wheat.

In case of non-members, the crops grown by more than 10% of the farmers included bajra, guar, moong, paddy and urad in Kharif and wheat, mustard, barley and onion in Rabi. In Kharif, bajra was the major crop followed by moong, guar and paddy besides urad and in Rabi, it was wheat followed by onion, barbajul, barley and mustard, and gram in that order. Overall, wheat and bajra accounted for 47% of the GCA and guar and onion and moong 7% each. The other crops shared ranged between 2-5%.

50% of the non-members were aware of the presence of PC in their area but 82% did not know who owned it with the others reporting 10% each that it is owned by farmers, PC employees, PC Board of Directors and farmer groups. 34% and 10% learnt about the PC from its employees and promoters respectively. 69% of them had never thought of becoming a member of the PC for the reasons of not being aware. The others waiting for an invite from the PC or did not have time for the same.

Output outputs:

Three years before, only one farmer each reported selling to PC in case of sesam, soyabean, and wheat. Only in mustard, sesam, soyabean, and urad one member farmer each in case of ISAP PCs reported selling to PC and in wheat it was six farmers who sold to PC. Thus, 10% farmers reported selling to PC and the number increased only in wheat by 67% after three years mainly due to MSP procurement for SPAC. Among non-members, one farmer sold musong to the PC. In case of IGS PCs, there were no farmer members or non-members selling any produce to the PCs. Since there was not much intervention by PCs on the output front, average price realised compared with three years before was higher only in mustard and wheat by 15-20% which was more about farmers being supported to get MSP through the PCs.

3.4 Promoter wise comparison

The IGS has promoted 12 PCs out of which eight were functional. In this area, there was no PC before the intervention. Most of the failed PCs had to be shut down because either they could not utilise share capital or had no business plan. One of the PCs in Ebar dealing with vegetable was struck off by the Govt for failure to comply with the documentary compliance. The promoter also had five PCs under the NFSM programmes in Rajasthan.

The ISAP which is a PCOI of NABARD had set up 11 PCs in the state of which only three were functioning. Under the OCTF (funded by a Marwari based Foundation) project, all six PCs were functional, but the project ended in 2015.

Whereas 45% of ISAP PC members were women, it was all men in case of IGS PCs. In both cases, major occupation for almost all members was farming with only two members (10%) in case of ISAP being non-farm workers in business and skilled labour work. But, IGS PC members were slightly more liberal in terms of level of education (Table 3.24). The secondary occupation was not there in case of 45-52% of IGS and ISAP members but other secondary occupations included animal husbandry and skilled labour (Table 3.27). Average years of schooling of IGS and ISAP farmer did not differ much being 8.46 and 8.33 years respectively.

The IGS PC members were relatively large land owners with none of them being marginal and only 20% being small owners compared with 57% of ISAP PC members being small or marginal (Table 3.28) and 47% operated land holders as against only 13% of IGS PC members (Table 3.29). The average cultivated area of IGS PC members was higher across all seasons and average cropping intensity was lower than ISAP PC members. Average owned land was only 8.84 acres for ISAP farmers while it was 11.02 acres for IGS farmers. However, operated land was less divergent between the two with ISAP farmers having 7.31 acres and IGS members 11.8 acres.

Table 3.26: Distribution of ISAP and IGS members by Education

| Category Formal Education | ISAP | | IGS | |
|---------------------------------|-------------|------------|-------------|------------|
| | Members (%) | % of total | Members (%) | % of total |
| Illiterate | 1 | 4% | 2 | 10% |
| Primary (1-4) | 3 | 14% | 4 | 20% |
| Middle (5-8) | 6 | 28% | 4 | 20% |
| High (9-12) | 2 | 10% | 4 | 20% |
| ES (14-17) | 2 | 10% | 2 | 10% |
| Undergraduate | 1 | 5% | 0 | 0% |
| Graduate | 1 | 5% | 1 | 5% |
| Others (Postgraduate) | 1 | 5% | 0 | 0% |
| Total | 21 | 100% | 20 | 100% |

Table 3.27: Distribution of ISAP and IGS members by Secondary Occupation

| Category Formal Secondary Occupation | ISAP | | IGS | |
|--|-------------|------------|-------------|------------|
| | Members (%) | % of total | Members (%) | % of total |
| Normal Husbandry | 2 | 10% | 4 | 20% |
| Skilled Labour | 6 | 28% | 5 | 25% |
| Farming | 4 | 19% | 6 | 30% |
| Business | 1 | 5% | 1 | 5% |
| None | 8 | 38% | 4 | 20% |
| Total | 21 | 100% | 20 | 100% |

Table 3.28: Distribution of ISAP and IGS members by Owned Land

| Category Formal Land Category | ISAP | | IGS | |
|-------------------------------------|-------------|------------|-------------|------------|
| | Members (%) | % of total | Members (%) | % of total |
| Landless | 2 | 10% | 0 | 0% |
| Marginal | 6 | 28% | 0 | 0% |
| Small | 16 | 76% | 4 | 20% |
| Semi-Medium | 4 | 19% | 0 | 0% |
| Medium | 2 | 10% | 0 | 0% |
| Large | 0 | 0% | 2 | 10% |
| Total | 21 | 100% | 20 | 100% |

The livestock ownership of the two PC members was very different with ISAP PC members having mostly buffalo (57%) and cows (32%), and 10% also both cows and buffaloes (Table 3.29). Further, 16% had no livestock. But IGS PC members has more of cows (45%) and buffaloes (45%) and even goat (45%) and both buffalo and goat (20%).

Table 3.29: Distribution of ISAP and IGS members by Operated Land

| Category | ISAP | | | | IGS | | | |
|--------------|-------------|------------|--------------|------------|-------------|------------|--------------|------------|
| | Members (%) | % of Total | Acreage (ha) | % of Total | Members (%) | % of Total | Acreage (ha) | % of Total |
| Landless | 1 | 4% | 0 | 0 | 0 | 0 | 0 | 0 |
| Marginal | 7 | 33% | 94% | 5% | 0 | 0 | 0 | 0 |
| Small | 3 | 14% | 34 | 0.2 | 3 | 15 | 30 | 4 |
| Small-Medium | 5 | 23% | 37% | 1% | 3 | 15 | 25 | 3 |
| Medium | 3 | 14% | 8 | 0.2 | 7 | 35 | 15 | 1 |
| Large | 2 | 9% | 16 | 0.6 | 1 | 5 | 9 | 0 |

Table 3.30: Distribution of ISAP and IGS member farmers by livestock owned

| Livestock | ISAP | | | | | IGS | | | | |
|-----------|---------|------------|------|------------|-----------------|---------|------------|------|------------|-----------------|
| | Members | % of Total | Head | % of Total | Value (₹ Lakhs) | Members | % of Total | Head | % of Total | Value (₹ Lakhs) |
| Buffalo | 11 | 50% | 46 | 5% | 100 | 6 | 30% | 66 | 1% | 120 |
| Cow | 8 | 37% | 70 | 1% | 250 | 7 | 33% | 100 | 1% | 300 |
| Goat | 4 | 18% | 6 | 0% | 20 | 5 | 23% | 10 | 0% | 30 |
| Oxen | 1 | 4% | 1 | 0% | 10 | 1 | 5% | 1 | 0% | 10 |
| Sheep | 1 | 4% | 1 | 0% | 10 | 1 | 5% | 1 | 0% | 10 |
| Total | | | 88 | | 390 | | | 184 | | 490 |

The average cropped area of IGS farmers was higher across seasons of 10Acre and 8Acre (10 and 8 acres) as against 7.6 and 5.5 acres in case of ISAP farmers except in summer. Therefore, average cropping intensity for ISAP farmers was 1.32 against 1.33 in case of IGS PC members. There was only a minor difference in terms of source of irrigation of the two promoters' farmers and sources of energy for extracting water (Table 3.31-32).

Table 3.31: Distribution of ISAP and IGS member farmers by source of irrigation

| Category | ISAP | | IGS | |
|---------------------|-------------|------------|-------------|------------|
| | Members (%) | % of Total | Members (%) | % of Total |
| Shallow well | 6 | 27% | 1 | 5% |
| Well | 3 | 14% | 4 | 20% |
| Well & Shallow well | 7 | 32% | 3 | 15% |
| None | 1 | 4% | 2 | 10% |

Table 3.22: Distribution of ISAP and IGS PC farmers by source of energy for irrigation

| Category | ISAP | | IGS | |
|----------------|------------|------------|------------|------------|
| | Number (%) | % of total | Number (%) | % of total |
| Electric Motor | 10 | 83% | 0 | 0% |
| Diesel Engine | 2 | 15% | 0 | 0% |
| None | 1 | 7% | 2 | 10% |

The cropping patterns differed significantly with IGS farmers more into cereals, vegetables and grain and ISAP farmers growing more average under paddy, sesame, maize, sorghum and urad and tomato in khacit. In fall, it was wheat and mustard for ISAP and wheat grain and onion for IGS farmers. Vegetables were more common among ISAP farmers compared with IGS farmers (Table 3.33 and 3.34). In summer, only some vegetables were grown by a few farmers in a small scale among both promoter PC members.

Table 3.23: Kharif cropping pattern of ISAP and IGS PC member farmers

| Category | ISAP Farmers | | | IGS Farmers | | |
|---------------|----------------|-----------------|-----------------|-------------|-----------------|-----------------|
| | Area (in hect) | % of total Area | % of total Area | Area | % of total Area | % of total Area |
| Bajra | 657 | 72% | 144 | 0 | 0% | 20% |
| Fodder | 103 | 11% | 23 | 2000 | 82% | 54% |
| Maize | 117 | 12% | 24 | 0 | 0% | 0% |
| Chilly | 201 | 22% | 24 | 0 | 0% | 0% |
| Onion | 121 | 13% | 26 | 0 | 0% | 0% |
| Other Cereals | 575 | 62% | 103 | 0 | 0% | 0% |
| Paddy | 316 | 34% | 36 | 0 | 0% | 0% |
| Pulses | 67 | 7% | 15 | 5 | 24% | 1% |
| Sesame | 840 | 91% | 13 | 0 | 0% | 0% |
| Soyabean | 124 | 13% | 13 | 0 | 0% | 0% |
| Timoto | 111 | 11% | 16 | 0 | 0% | 0% |
| Urad | 215 | 23% | 23 | 0 | 0% | 0% |
| Vegetables | 52 | 5% | 214 | 585 | 23% | 10% |
| Groundnut | 0 | 0% | 0 | 0 | 0% | 0% |
| Grain | 0 | 0% | 0 | 145 | 5% | 2% |
| Other | 0 | 0% | 0 | 144 | 5% | 2% |
| Total | 9000 | 100% | 820 | 2000 | 100% | 82% |

43% of ISAP farmers were members of other FPOs compared with only 30% in case of IGS and that were mainly co-operatives and SHCs whereas it was only co-operatives in case of IGS. ISAP farmers had more reliance on FPO FPO for extension than in case of IGS farmers who

relied more on traditional sources like govt. dept. or PPOs (Table 3.35). More of ISAP members knew that farmers owned the PC (45%) compared with IGS farmers (30%) (Table 3.36). In case of case PC of ASAP, it was claimed by employees and promoters that 70% members know that PC belonged to farmer members, but our survey showed only 28% were aware.

Also, more of the PC employees (19%) and promoters were the source (30%) for information on PC while in case of IGS, promoters (20%) and govt. agency (25%) were major sources (Table 3.37). In both ISAP and IGS, promoters and PC employees (30% and 75% respectively) and friends and other farmers influenced the farmers (10% and 15%) to become members of the PC (Table 3.37).

Table 3.34: Kabi crop pattern among ISAP and IGS PC member farmers

| Crop/Category | ISAP Members | | | IGS Members | | |
|---------------|--------------|-------------|-------------|-------------|-------------|-------------|
| | Area | % Kabi Area | % Kabi Area | Area | % Kabi Area | % Kabi Area |
| Wheat | 883 | 0.6 | 88 | 337 | 1.88 | 688 |
| Fruits | 1 | 0.00 | 0.00 | 0 | 0 | 0 |
| Oil | 0.07 | 0.00 | 0.04 | 0 | 0 | 0 |
| Mixed | 608 | 0.4 | 10.58 | 6.58 | 0.35 | 14.07 |
| Other Cereals | 2.35 | 0.00 | 0.00 | 0 | 0 | 0 |
| Soyab | 0.07 | 0.00 | 0.04 | 0 | 0 | 0 |
| Vegetables | 113 | 0.07 | 1.28 | 0.04 | 0.00 | 0.00 |
| Wheat | 883 | 0.6 | 78.34 | 33.76 | 0.18 | 15.17 |
| Feeds/straw | 0 | 0 | 0 | 14 | 0.07 | 1.88 |
| Grain | 0 | 0 | 0 | 24.52 | 0.13 | 5.00 |
| Grain | 0 | 0 | 0 | 438 | 2.32 | 11.00 |
| Barley | 0 | 0 | 0 | 0.38 | 0.00 | 2.24 |
| Bajrapit | 0 | 0 | 0 | 5.1 | 0.03 | 1.28 |
| Total | 174.09 | 1.00 | 52.40 | 176.6 | 0.95 | 64.00 |

About 10% members in both promoters' PCs did not like the working of the PCs as they could not procure at offered lower price or delayed payments. Only 20-24% acknowledge PC helping them with information or subsidy or availing of any government schemes. 15% of ISAP PCs reported special subsidy for PC members as against nil in case of IGS PCs. ISAP PC meeting frequency (more of monthly meetings) and participation of members in them (71%) was in general higher than in case of IGS PCs (40% and 47% respectively). All members of all PCs of both promoters wanted to continue as members due to seed supply, profits, and price benefits. All of them in ISAP PCs were keen to encourage others and 95% in case of IGS for the same reasons as those for continuing as members.

Table 3.35: Distribution of ISAP and IGS PC member farmers by source of general agricultural information

| Producer Information Source | ISAP | | IGS | |
|---|------------------|------------|------------------|------------|
| | Members (No.) | % in total | Members (No.) | % in total |
| Friends/Neighbours/Relatives | 1 | 2.5 | 0 | 0 |
| Friends/Neighbours/Relatives & PC/FPO | 1 | 2.5 | 0 | 0 |
| Friends/Neighbours/Relatives, PC/FPO & Extension workers | 1 | 2.5 | 0 | 0 |
| Friends/Neighbours/Relatives & Extension workers | 1 | 2.5 | 0 | 0 |
| Agriculture Department Office, PC/FPO & Mobile/Mobile groups | 1 | 2.5 | 0 | 0 |
| Agriculture Department Office, PC/FPO | 2 | 5 | 0 | 0 |
| Others (Don't know) | 1 | 2.5 | 0 | 0 |
| Newspapers/Radio & Mobile/Mobile groups | 1 | 2.5 | 0 | 0 |
| PC/FPO | 5 | 12.5 | 1 | 2.5 |
| Agriculture Department Office | 0 | 0 | 2 | 5 |
| Others (N/A) | 0 | 0 | 1 | 2.5 |
| Newspapers/Radio | 0 | 0 | 0 | 0 |
| Total | 20 | 100% | 20 | 100 |

Table 3.36: Distribution of ISAP and IGS member farmers by knowledge of PC system

| Producer Information Source | ISAP | | IGS | |
|-----------------------------------|------------------|------------|------------------|------------|
| | Members (No.) | % in total | Members (No.) | % in total |
| PC Employees | 3 | 15% | 1 | 5% |
| Processing agency | 2 | 10% | 4 | 20% |
| BOC | 1 | 5% | 4 | 20% |
| Farmers | 0 | 0% | 4 | 20% |
| Government | 0 | 0% | 4 | 20% |
| Don't know | 4 | 20% | 0 | 0% |
| Total | 20 | 100% | 20 | 100 |

Table 3.37: Distribution of ISAP and ISS PC member farmers by influencer for Membership

| Primary Influencer | ISAP | | ISS | |
|---|------------|------------|------------|------------|
| | Number (%) | % of total | Number (%) | % of total |
| PC Promoters | 3 | 66 | 4 | 20 |
| PC Employees | 10 | 22 | 7 | 35 |
| Family/ Neighbours/ Relatives | 4 | 8 | 3 | 15 |
| PC Promoters & PC Employees | 0 | 0 | 1 | 5 |
| PC Employees & Family/ Neighbour/ Relatives | 0 | 0 | 1 | 5 |
| Total | 17 | 100 | 20 | 100 |

3.5 Within Promoter PC comparison

This section compares and contrasts two PCs by the same promoter in terms of their member profile and member interface besides member engagement in PCs.

3.5.1 ISAP PC

All the member farmer respondents of Shridar PC were female while all members farmers in the case of Khandak PC were male. Proportion of member farmers with education upto middle school was higher for Shridar PC (70%) than that in case of Khandak PC (64%). Educational profile of Khandak PC members, 50% with high school or above, was higher than that of Shridar PC (30%). (Table 3.38)

All Khandak PC members had farming as primary occupation while in case of Shridar PC members, 80% had farming as secondary occupation and 20% had business as primary occupation. Most of the Khandak PC members (73%) did not have any secondary occupation while only 30% Shridar PC members didn't have any secondary occupation. 10% and 13% of member farmers of Shridar and Khandak respectively were involved in animal husbandry. Skilled labour was an important secondary occupation for Shridar PC (50%) as compared to Khandak PC (3%). Similarly, business was also an important secondary occupation for Shridar PC with 20% member farmers involved in it and no member farmer of Khandak PC was reported to be engaged in it. (Table 3.39)

Table 3.38: Distribution of ISAP PC members by Education

| PC | Shoude | | Khandar | |
|------------------|----------------|------------|----------------|------------|
| | No. of Farmers | % of total | No. of Farmers | % of total |
| Illiterate | 1 | 100 | 0 | 0 |
| Primary | 1 | 100 | 0 | 0 |
| Middle | 3 | 300 | 2 | 22.2 |
| High School | 0 | 0 | 1 | 11.1 |
| Higher Secondary | 1 | 100 | 4 | 44.4 |
| University | 0 | 0 | 4 | 44.4 |
| Graduate | 1 | 100 | 1 | 11.1 |
| PC | 1 | 100 | 0 | 0 |
| Total | 10 | 1000 | 11 | 111.1 |

Table 3.39: Distribution of ISAP PC members by Secondary Occupation

| PC | Shoude | | Khandar | |
|------------------|----------------|------------|----------------|------------|
| | No. of Farmers | % of total | No. of Farmers | % of total |
| Farming | 1 | 100 | 0 | 0 |
| Animal Husbandry | 1 | 100 | 2 | 22.2 |
| Skilled Labour | 3 | 300 | 1 | 11.1 |
| Business | 0 | 0 | 0 | 0 |
| None | 3 | 300 | 8 | 88.9 |
| Total | 10 | 1000 | 11 | 111.1 |

Both the average owned, and operated land was higher for Khandar PC members (7 & 14 acres) than that in case of Shoude PC (3.3 & 3 acres). There was a huge difference in the number of marginal landholders for Shoude PC (70%) and Khandar PC (9%). Landownership was also highly different with marginal farmers of Shoude PC owning 21% of land against 1% land owned by Khandar PC marginal farmers. Semi-medium farmers were in the range of 10-20% of the total but their landownership was in the range of 9-22%. Majority of the Khandar PC members were medium farmers owning 45% of the total land. Though, the number of large farmers was in the range of only 10-15% for both PCs but their landownership was 47-57% of the total in case of for both the PCs (Table 3.40).

Table 3.40: Distribution of ISAP PC members by Owned Land

| PC | Shridhar | | | | Khandad | | | | |
|----------|---------------------------|-------------------|---------------|------------------|---------------|-------------------|---------------|------------------|---------------|
| | Members/ Land category | No. of Farmers | % of Total | Area in Acres | % of Total | No. of Farmers | % of Total | Area in Acres | % of Total |
| Marginal | | 7 | 70.0 | 24 | 20.4 | 1 | 5.0 | 5.0 | 0.5 |
| Small | | 2 | 20.0 | 25 | 21.7 | 2 | 10.0 | 15 | 1.5 |
| Semi-M | | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | 0.0 |
| Medium | | 1 | 10.0 | 20 | 17.4 | 2 | 10.0 | 30.75 | 3.15 |
| Total | | 10 | 100 | 29 | 25.0 | 5 | 50 | 61.25 | 6.15 |

In terms of operational landholding size, marginal farmers (70%) had 20% of land in case of Shridhar PC while it was 15% large farmers who had 30% of land in case of Khandad PC and there were hardly any marginal or small farmers among the members (Table 3.41). Buffalo (40%), cow (40%) and goat (20%) were three important animals owned by Shridhar PC members. Goats (45%) had the largest in number followed by buffalo (25%) and cow (21%). In the case of Khandad PC members, buffalo and cows (70% and 64%) were more commonly owned by farmers and accounted for 67% and 25% of the total livestock respectively (Table 3.42).

Table 3.41: Distribution of ISAP PC members by Operated Land

| PC | Shridhar | | | | Khandad | | | | |
|----------|---------------------------|-------------------|---------------|------------------|---------------|-------------------|---------------|------------------|---------------|
| | Members/ Land category | No. of Farmers | % of Total | Area in Acres | % of Total | No. of Farmers | % of Total | Area in Acres | % of Total |
| Marginal | | 7 | 70.0 | 8.8 | 29.7 | 1 | 5.0 | 0.25 | 0.4 |
| Small | | 2 | 20.0 | 8.4 | 28.0 | 0 | 0 | 0 | 0 |
| Semi-M | | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.17 | 0.4 |
| Medium | | 1 | 10.0 | 10 | 33.3 | 2 | 10.0 | 30 | 6.3 |
| Large | | 0 | 0 | 0 | 0 | 2 | 10.0 | 21 | 4.3 |
| Total | | 10 | 100 | 27.2 | 88.0 | 5 | 50 | 51.5 | 11.0 |

Table 3.42: Distribution of ISAP PC members by Livestock Owned

| PC | Shridhar | | | | | Khandad | | | | |
|---------|-----------------------|-------------------|---------------|-------------------|---------|-------------------|---------------|-------------------|---------|--|
| | Members/ Livestock | No. of Farmers | % of Total | No. of Animals | Average | No. of Farmers | % of Total | No. of Animals | Average | |
| Buffalo | | 4 | 40.0 | 8 | 2.0 | 4 | 80.0 | 8 | 2.0 | |
| Cow | | 4 | 40.0 | 7 | 1.75 | 7 | 140.0 | 7 | 1.0 | |
| Goat | | 2 | 20.0 | 14 | 7.0 | 2 | 40.0 | 2 | 1.0 | |
| Sheep | | 1 | 10.0 | 1 | 1.0 | 0 | 0 | 0 | 0 | |
| Other | | 1 | 10.0 | 2 | 2.0 | 0 | 0 | 0 | 0 | |
| Total | | 10 | 100 | 24 | 2.4 | 13 | 130 | 17 | 1.3 | |

Friends/ neighbors/ relatives was the most important source of general agricultural information for Shriidev PC members with 50% members using it as a source of information. In case of Khandar PC, friends/ neighbors/ relatives and PC were equally important sources of agricultural knowledge for 27% of the member farmers each (Table 3-43).

The cropping intensity was higher (1.94) for Shriidev as they were small farmers than that of the Khandar farmer members (1.77). Maize (70%), jowar (45%), black gram (30%) and vegetables (30%) were major crops grown by member farmers of Shriidev PC occupying 94%, 14%, 3% and 11% of the kharif area respectively. In case of Khandar PC, paddy (50%), soybean (32%), black gram (36%) and vegetables (36%) were major crops grown by member farmers occupying 14%, 17%, 3% and 8% of the kharif area respectively (Table 3-44).

Table 3-43: Distribution of ISAP PC numbers by source of general Agri knowledge

| PC Members Count | Shriidev | | Khandar | |
|--|-----------------|------------|-----------------|------------|
| | Agri Farmers | % of total | Agri Farmers | % of total |
| Friends/ neighbors/ relatives | 5 | 50% | 3 | 22% |
| Friends/ neighbors/ relatives, PC | 1 | 10% | 0 | 0 |
| Friends/ neighbors/ relatives, PC, Extension Workers | 0 | 0 | 1 | 7% |
| Friends/ neighbors/ relatives, extension workers | 0 | 0 | 1 | 7% |
| Newspapers/ Radio, Mobile groups | 0 | 0 | 1 | 7% |
| PC | 2 | 20% | 3 | 22% |
| PC, Mobile groups, Agri Dept | 0 | 0 | 1 | 7% |
| PC, Agri Dept | 1 | 10% | 1 | 7% |
| Others | 1 | 10% | 0 | 0 |
| Total | 10 | 100 | 14 | 100 |

Wheat and vegetables were two major crops in the case of Shriidev PC members grown by 70% and 30% of member farmers, respectively. But, the acreage under vegetables was only 2.65% of the kharif area. In case of Khandar PC, wheat (70%) and mustard (14%) were the major crops grown by most of the farmers. Vegetable was another major crop grown by 11% of the Khandar PC members with 4% of kharif area. Other crops were grown by 3-10 % of the member farmers of both the PCs (Table 3-45). No member farmer of Shriidev PC grew any crop in summer season while in case of Khandar PC, only 9% of member farmers growing vegetable crops in summer season on just 1.25 acres.

Table 2.46: Khantli Cropping Pattern of 1647 30 members

| Cultures & Crop | 2016/17 | | | | | 2017/18 | | | | |
|--|----------------|------------|------------|--------------|--------------|----------------|------------|------------|--------------|--------------|
| | No. of Farmers | % of Total | Cult. Area | % Cult. Area | % Total Area | No. of Farmers | % of Total | Cult. Area | % Cult. Area | % Total Area |
| Bare | 0 | 0 | 0 | 0 | 0 | 2 | 0.12 | 0 | 0 | 0 |
| Bare pasture | 0 | 0 | 0 | 0 | 0 | 1 | 0.06 | 0 | 0 | 0 |
| Bhus grass | 4 | 2.43 | 1 | 0.03 | 1.00 | 4 | 0.24 | 0.30 | 0.30 | 3.00 |
| Fodder | 0 | 0 | 0 | 0 | 0 | 1 | 0.06 | 0 | 0 | 0 |
| Food crop | 1 | 0.61 | 34 | 1.02 | 0.40 | 0 | 0 | 0.40 | 0.40 | 4.00 |
| Grainbar | 0 | 0 | 0 | 0 | 0 | 1 | 0.06 | 0 | 0 | 0 |
| Grass | 4 | 2.43 | 2.6 | 0.08 | 0.26 | 3 | 0.18 | 0.01 | 0.01 | 0.10 |
| Maize | 1 | 0.61 | 16.4 | 0.50 | 0.20 | 3 | 0.18 | 2.24 | 2.24 | 22.40 |
| Mulch, Green, Soyabam | 1 | 0.61 | 14 | 0.43 | 0.17 | 3 | 0.18 | 1.63 | 1.63 | 16.30 |
| Mulch, Green, Gram | 1 | 0.61 | 14 | 0.43 | 0.17 | 3 | 0.18 | 0.00 | 0.00 | 0.00 |
| Paddy | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Paddy, Green, Soyabam | 0 | 0 | 0 | 0 | 0 | 1 | 0.06 | 0.20 | 0.20 | 2.00 |
| Paddy, Green, Soyabam, Green, Soyabam, Vegetable | 0 | 0 | 0 | 0 | 0 | 1 | 0.06 | 0 | 0 | 0 |
| Brinjal, date | 0 | 0 | 0 | 0 | 0 | 1 | 0.06 | 0 | 0 | 0 |
| Soyabam | 0 | 0 | 0 | 0 | 0 | 1 | 0.06 | 0.00 | 0.00 | 0.00 |
| Vegetable | 3 | 1.85 | 2.2 | 0.07 | 0.28 | 3 | 0.18 | 1.00 | 1.00 | 10.00 |
| Total | 16 | 92.19 | 10.4 | 0.32 | 0.17 | 16 | 0.92 | 10.4 | 10.4 | 104.00 |

Table 3.45: Rabi Cropping Pattern of ISAP PC members

| PC | Khandar | | | | | | Shridar | | | | | |
|---------------|----------------|-------------|-------|------------|---------------|-------|----------------|-------------|-------|------------|---------------|-------|
| | No. of Farmers | No. of Hect | Wheat | Wheat+Gram | Wheat+Mustard | Other | No. of Farmers | No. of Hect | Wheat | Wheat+Gram | Wheat+Mustard | Other |
| Khandar | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 400 | 7 | 0 | 0 | 0 |
| Shridar | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 500 | 500 | 0 | 0 | 0 |
| Gram | 1 | 1000 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Mustard | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 100 | 0 |
| Mustard+Wheat | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Vegetables | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wheat | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Wheat+Gram | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 |

Dealer (40%) was the largest source for seed procurement for Shridar PC members. While, in the case of Khandar PC members it was PC (45%), 9-10% of member families were purchasing from dealers & PACS while 15-20% were purchasing from dealers & PCs. (Table 3.45)

Table 3.46: Distribution of ISAP PC members by Source of Seeds

| PC | Khandar | | Shridar | |
|---------------|----------------|-------------|----------------|-------------|
| | No. of Farmers | No. of Hect | No. of Farmers | No. of Hect |
| Dealers | 1 | 0 | 1 | 0 |
| PC | 1 | 0 | 1 | 0 |
| Dealers, PACS | 1 | 0 | 1 | 0 |
| Dealers, PCs | 1 | 0 | 1 | 0 |
| Total | 0 | 0 | 0 | 0 |

PACS was a major source of chemical fertilizers for Khandar PC members (75%) while in the case of Shridar PC members, PCs (50%) was the most important source of fertilizers. Other sources were in the range of 9-10% for both the PCs. In case of chemical pesticides, Dealers (50%) and PCs (50%) was the most important source for Khandar and Shridar PC members, respectively. (Table 3.47)

Table 2.47: Distribution of ISAP PC members by Source of Chemical Inputs

| Chemical Input (PC Name) | Shridhar | | | | Khandar | | | |
|-----------------------------|----------------|------------|----------------|------------|----------------|------------|----------------|------------|
| | Shridhar | | Khandar | | Khandar | | Khandar | |
| | No. of Farmers | % of Total | No. of Farmers | % of Total | No. of Farmers | % of Total | No. of Farmers | % of Total |
| Dealers | 1 | 100 | 1 | 30% | 2 | 20% | 6 | 34% |
| PCS | 1 | 100 | 4 | 32% | 0 | 0 | 2 | 10% |
| PCs | 6 | 60% | 0 | 0 | 0 | 0% | 1 | 5% |
| Dealers, PCS | 0 | 0 | 1 | 3% | 0 | 0 | 0 | 0 |
| Dealers, PC | 1 | 100 | 0 | 0 | 0 | 0 | 1 | 5% |
| Direct Buy | 1 | 100 | 1 | 3% | 2 | 20% | 1 | 5% |
| Total | 11 | 100 | 8 | 100 | 20 | 100 | 11 | 100 |

Majority of the member farmers of Shridhar PC (60%) and Khandar PC (31%) did not purchase any biofertilizers. The remaining member farmers purchased from only one source viz. PC. In case of pesticides, no member farmer of both the PCs did not purchase any biopesticides.

A large majority of the member farmers of Shridhar PC (50%) and majority of Khandar (55%) provided the correct name of PC. 18-20% of the members farmers of both the PCs did not know the PC name and 27% in Khandar gave incorrect name each. 27-51% of the member farmers did not know the name of PC owner. 30 and 10% of Shridhar PC members gave the name of PC employee and BOD for PC owner while no Khandar PC member gave the name of PC employee and BOD. Member farmers who know that farmer was PC owner were higher in the case of Khandar PC (55%) and only 30% in case of Shridhar mobile PC (30%). (Table 2.48)

Table 2.48: Distribution of ISAP PC members by Knowledge about PC Owner

| PC Promoter/ PC Owner | Shridhar | | Khandar | |
|-----------------------------|----------------|------------|----------------|------------|
| | No. of Farmers | % of Total | No. of Farmers | % of Total |
| Don't know | 3 | 30% | 3 | 22% |
| Promoting Agency | 0 | 0% | 3 | 22% |
| PC Employees | 2 | 20% | 0 | 0 |
| BOD | 1 | 10% | 0 | 0 |
| Farmers | 2 | 20% | 4 | 28% |
| Total | 11 | 100 | 11 | 100 |

64% Khandar PC member farmers were influenced by PC promoter while in the case of Shridhar PC, this percentage was 10%. 70% Shridhar PC members and 27% Khandar PC members were influenced by PC employees. 9-10% of member farmers of both the PCs were influenced by friends/ neighbours relative to join the PCs. (Table 2.49)

Table 3.49: Distribution of ISAP PC members by PC Influencer

| IPC Primary PC Influencer | Shikhar | | Rohini | |
|---------------------------------|------------------|------------|------------------|------------|
| | Total Farmers | % of total | Total Farmers | % of total |
| PC Promoters | 2 | 200 | 2 | 654 |
| PC Employees | 2 | 200 | 2 | 237 |
| Friends/ neighbours/ relatives | 1 | 100 | 3 | 359 |
| Total | 5 | 10000 | 7 | 10000 |

3.5.2 ICS/PCs

All the respondent member farmers of both the PCs were male. 60% Molaxar PC members were educated up to higher secondary or graduation while no member farmer of Shalchavati PC was in this category. Further, 60% of Shalchavati PC members were middle or high school literate while in case of Molaxar PC members, the share was only 20%. (Table 3.50)

Table 3.50: Distribution of ICS/PC members by Education

| PC Primary Occupation | Shikhar | | Rohini | |
|-----------------------------|----------------|------------|----------------|------------|
| | No. of Farmers | % of total | No. of Farmers | % of total |
| Literate | 2 | 200 | 0 | |
| Primary | 2 | 200 | 2 | 200 |
| Middle | 3 | 300 | 1 | 100 |
| High School | 3 | 300 | 1 | 100 |
| Higher Secondary | 0 | | 3 | 300 |
| Graduate | 0 | | 5 | 500 |
| Total | 10 | 10000 | 10 | 100 |

All member farmers of both the PCs had farming as the primary occupation. 40% and 50% of Shalchavati and Molaxar PC members respectively, didn't have any secondary occupation. 30% of Shalchavati PC members, each had animal husbandry and skilled labour as secondary occupation. In case of Molaxar PC, 30% of member farmers were working as skilled labour as secondary occupation and only 10% were into animal husbandry as secondary engagement.

The average owned land was similar in case of Molaxar PC (11.3 acres) than Shalchavati PC (10.5 acres) while the average operated land holding was higher for Shalchavati PC (14 acres) than that in case of Molaxar PC (10 acres). 80% of the Shalchavati PC members were in the category of small, semi-medium and medium category while in the case of Molaxar PC, all the member were in the category of small, semi-medium and medium farmers though latter with 50% share had 75% share in land. No large farmer was present for Molaxar PC while 10% of Shalchavati PC members were large farmers which owned 25% of the total land. There were no marginal category members in any of the two PCs. (Table 3.51)

Table 3.51: Category wise Distribution of IIS PC members by Owned Land

| PC | Deshbandh | | | | Jaljeev | | | |
|-------------|----------------|------------|---------------|------------|----------------|------------|---------------|------------|
| | No. of Farmers | % of Total | Area in Acres | % of Total | No. of Farmers | % of Total | Area in Acres | % of Total |
| Small | 2 | 30.00 | 194 | 8.43 | 1 | 20.00 | 39 | 3.29 |
| Semi-Medium | 2 | 20.00 | 1571 | 14.51 | 4 | 40.00 | 235 | 26.51 |
| Medium | 4 | 40.00 | 434 | 4.27 | 5 | 50.00 | 814 | 22.29 |
| Large | 1 | 10.00 | 3578 | 33.8 | 0 | 0 | 0 | 0 |
| Total | 9 | 100 | 5833 | 100 | 10 | 100 | 1128 | 100 |

On the other hand, 40% of the Shikharwati and Molasses PC members were semi-medium farmers by operated land holding with share of 27% in total member land. Medium farmers were dominant in both the PCs with 50% of Molasses PC members operating 69% of the land and 50% of Shikharwati PC with 27% of the land. 10% of the Shikharwati PC members were large farmers but operated 43% of the operational land. (Table 3.52)

Table 3.52: Category wise Distribution of ICS PC members by Operated Land

| PC | Deshbandh | | | | Jaljeev | | | |
|-------------|----------------|------------|---------------|------------|----------------|------------|---------------|------------|
| | No. of Farmers | % of Total | Area in Acres | % of Total | No. of Farmers | % of Total | Area in Acres | % of Total |
| Marginal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Small | 2 | 20.00 | 56 | 4.8 | 1 | 10.00 | 14 | 1.58 |
| Semi-Medium | 4 | 40.00 | 3425 | 25.32 | 4 | 40.00 | 716 | 22.44 |
| Medium | 3 | 30.00 | 304 | 2.12 | 1 | 10.00 | 164 | 6.59 |
| Large | 1 | 10.00 | 3437 | 6.25 | 0 | 0 | 0 | 0 |
| Total | 10 | 100 | 13422 | 100 | 10 | 100 | 1014 | 100 |

All the member farmers of Shikharwati PC owned buffalo and cow which were 17% and 52% of the total animals owned. In case of Molasses PC 97%, 50% and 70% of the member farmers owned goat, buffalo and cow. The average number of animals owned was higher for all the animals. (Table 3.53)

Table 3.53: Distribution of IIS PC members by Livestock Owned

| PC | Deshbandh | | | | | Jaljeev | | | | |
|---------|----------------|------------|----------------|------------|---------|----------------|------------|----------------|------------|---------|
| | No. of Farmers | % of Total | No. of Animals | % of Total | Average | No. of Farmers | % of Total | No. of Animals | % of Total | Average |
| Buffalo | 10 | 100.00 | 26 | 8.58 | 2.6 | 0 | 0.00 | 0 | 0.00 | 0.0 |
| Cow | 10 | 100.00 | 62 | 23.47 | 6.2 | 1 | 10.00 | 6 | 25.00 | 2.0 |
| Goat | 3 | 30.00 | 17 | 15.27 | 5.67 | 5 | 50.00 | 37 | 61.25 | 7.4 |
| Oxen | 1 | 10.00 | 1 | 0.69 | 1.00 | 0 | 0 | 0 | 0 | 0 |
| Sheep | 1 | 10.00 | 32 | 32.47 | 32.00 | 0 | 0 | 0 | 0 | 0 |
| Total | 10 | 100 | 134 | 100 | 13.4 | 6 | 100 | 72 | 100 | 12.0 |

The cropping intensity was higher for Shekhawat PC (1.71) than Molassi PC (1.3). Suga was grown by all the member farmers of both the PCs. But in case of Shekhawat PC members (54%) kharif area under it was lower than that in case of Molassi PC members (44%). Vegetables was grown by 50-90% of member farmers with the kharif acreage in the range of 20-21% - 50%. Shekhawat PC members cultivated grain while in case of Molassi PC, 66% member farmers were cultivating grain in similar area (24%). Fodder was grown by 40% member farmers of both the PCs but the share of kharif acreage much higher for Molassi PC (17%) than Shekhawat PC (3%) (Table 3.54). The number of crops grown in rabi season were higher than kharif season. Wheat (60%), onion (40%), fodder (40%) and gram (30%) were grown by large number of Shekhawat PC members. But the rabi acreage was the highest for gram (23%). In case of Molassi PC, 70% of the member farmers were growing wheat followed by vegetables, mustard and fodder (20% for each crop). The highest rabi acreage was occupied by wheat (45%) followed by ipar and mixed crops (Table 3.55). Only 20% of only Molassi PC members cultivated summer vegetable in a small area.

Table 3.55: Field Chopping Patterns of 168 PC members

| PC | Blossed | | | | | Bleed | | | | |
|---------------------------|---------------|----------|----------|------------|--------------|---------------|----------|----------|------------|--------------|
| | Field Pattern | LOT (kg) | MSU (kg) | % MSU (kg) | % Total (kg) | Field Pattern | LOT (kg) | MSU (kg) | % MSU (kg) | % Total (kg) |
| Field Chopping | 0 | 0 | 0 | 0 | 0 | 1 | 1440 | 647 | 45% | 236 |
| Water, Green, Wheat, Khus | 2 | 2000 | 400 | 20% | 650 | 0 | 0 | 0 | 0 | 0 |
| Green | 4 | 4000 | 100 | 2.5% | 240 | 2000 | 144 | 7.2% | 663 | 27.6% |
| Green with Wheat | 3 | 3000 | 1000 | 33.3% | 1033 | 0 | 0 | 0 | 0 | 0 |
| Green, Green | 1 | 1000 | 300 | 30% | 300 | 0 | 0 | 0 | 0 | 0 |
| Green, Green | 2 | 2000 | 700 | 35% | 650 | 0 | 0 | 0 | 0 | 0 |
| Green | 0 | 0 | 0 | 0 | 0 | 2000 | 835 | 41.7% | 343 | 17.1% |
| Wheat | 2 | 2000 | 200 | 10% | 270 | 0 | 0 | 0 | 0 | 0 |
| Wheat, Wheat | 1 | 1000 | 200 | 20% | 200 | 0 | 0 | 0 | 0 | 0 |
| Wheat, Wheat, Green | 2 | 2000 | 0 | 0% | 0 | 0 | 0 | 0 | 0 | 0 |
| Wheat, Wheat | 1 | 1000 | 0 | 0% | 0 | 1000 | 1430 | 143% | 530 | 53% |
| Wheat | 1 | 1000 | 100 | 10% | 170 | 0 | 0 | 0 | 0 | 0 |
| Wheat, Green, Wheat | 1 | 1000 | 100 | 10% | 200 | 2000 | 630 | 31.5% | 231 | 11.5% |
| Wheat | 4 | 4000 | 300 | 7.5% | 800 | 0 | 0 | 0 | 0 | 0 |
| Wheat | 0 | 0 | 0 | 0% | 0 | 2000 | 647 | 32.3% | 236 | 11.8% |
| Wheat | 0 | 0 | 0 | 0% | 0 | 7000 | 452 | 6.4% | 165 | 2.3% |
| Total | | | | | 3440 | | | | | 1672 |

Friends, PC and PC & ADO were important sources for Shakhawat PC members providing information for 56% member farmers. While friends and PC & ADO were source of general awareness for 50% member farmers of Molassar PC. (Table 3.56)

Table 3.56: Distribution of IGS PC members by source of general agricultural knowledge

| PC/ Promoter > Zone | Shakhawat | | Molassar | |
|---------------------------|----------------|------------|----------------|------------|
| | No. of farmers | % of total | No. of farmers | % of total |
| Friends | 4 | 40% | 4 | 40% |
| Newspaper/ Radio | 3 | 30% | 1 | 10% |
| PC | 2 | 20% | 0 | 0% |
| PC/ADO | 2 | 20% | 4 | 40% |
| ADO | 1 | 10% | 1 | 10% |
| Total | 10 | 100 | 10 | 100 |

Majority of the Shakhawat PC members (70%) and Molassar PC members (60%) purchased seeds from PC. Dealers & PC was another important source for seed purchase for Molassar PC members (50%). All the member farmers of Shakhawat and Molassar PC purchased chemical fertilizer from PC (80%) followed by dealers (10%). In case of chemical pesticides, 40% Shakhawat and 10% Molassar PC members did not buy pesticides PC supplied to the remaining 60% Shakhawat member farmers and 50% Molassar PC members. 90% of member farmers of both the PCs didn't purchase any biopesticides. In case of biopesticides, 50% Shakhawat PC members and 70% Molassar PC members did not purchase any biopesticides. The remaining 50% Molassar PC members bought biopesticides from PC.

60% of Shakhawat didn't know the name of PC while the remaining 40% member farmers know the correct PC name. In the case of Molassar PC, 50% member farmers were aware of the correct PC name while remaining 20% could not give the exact name of the PC.

Half of the Molassar PC members know that PC was owned by farmers while 20% did not know. 10% each thought it was owned by PC employees or PC promoting agency. 30% and 20% Shakhawat PC members mentioned promoting agency and government respectively as the PC owner. A large number of member farmers didn't know the PC owner. (Table 3.57)

Table 3.57: Distribution of IGS PC members by Knowledge about PC Owner

| PC/ Promoter > PC Owner | Shakhawat | | Molassar | |
|-------------------------------|----------------|------------|----------------|------------|
| | No. of farmers | % of total | No. of farmers | % of total |
| PC employees | 0 | 0% | 1 | 10% |
| Promoting Agency | 3 | 30% | 1 | 10% |
| Don't know | 4 | 40% | 2 | 20% |
| Farmers | 1 | 10% | 3 | 30% |
| Government | 2 | 20% | 1 | 10% |
| Total | 10 | 100 | 10 | 100 |

50% Shikharis PC members each were influenced by PC promoters, employees and friends while in case of Molapur PC members major influences were PC promoters (60%) and PC employees (40%) or both of them (30%) (Table 3.58).

Table 3.58: Distribution of HPS PC members by PC influencer

| PC Promoter's PC Influence | Molapur | | Shikharis | |
|----------------------------|----------------|------------|----------------|------------|
| | No. of Farmers | % of total | No. of Farmers | % of total |
| PC Promoters | 3 | 30% | 5 | 50% |
| Friends | 3 | 30% | 7 | 70% |
| PC Employees | 3 | 30% | 4 | 40% |
| PC Employees, Friends | 1 | 10% | 9 | 90% |
| PC Promoters, PC Employees | 0 | 0 | 1 | 10% |
| Total | 10 | 100 | 10 | 100 |

Output Impact-Promoter wise

In the case of ISAF PCs, 0th farmer in mustard, urad, sesame and soyabean each and all farmers in wheat reported selling to the PC. There was no increase in four crops in number of farmers over last three years but the number of member farmers in wheat increased six times. On the other hand, IGS PCs did not undertake any output transactions.

3.6 Summary

The analysis of case study PCs in Rajasthan shows that except milk PC which was very vibrant displaying high level of physical and financial performance and impact on marginal producer livelihoods, the other four PCs promoted by so-called professional agencies did not show any promise and some were non-starters even after a few years of working. They could neither mobilise enough resources nor undertake any output activity to make any impact on farmer members. Other than being reliant on government for buying for it from its members and non-members, they could not undertake any other significant activity on the output side and did not have any business plans. They were more like projects undertaken for a fixed period and then abandoned. This is a typical case of external promoters undertaking such activity of FPO promotion without any local base unlike a local NGO which has local presence and reputation and good will which makes all the difference. On the other hand, much can be learnt from milk PC in terms of governance and business model which led to sustainable member relations and business activity besides scale up and viability. However, it also involved public funding in initial mobilisation and handholding which made a major difference.

Appendix 2J

PAAYAS Milk PC

The Paayas milk PC had its origin in the Mother Dairy (MDDB) project started in 2009 in Rajasthan. However, Mother Dairy didn't have a formal structure of cooperative membership of milk producers. The Paayas was set up in 2012. By 2018, it had covered 240 villages in 5 districts with a membership of 7633 of whom 38% were small holders and 41% were women. It was procuring 4.91 lakh litres of milk per day (Table 3.1). It had, by then, 2571 MPPs and had employed 1216 ERPs and covered 1.44 lakh animals and had covered 2955 villages with Artificial Insemination (AI). For example, one of the villages which was 32 kms from chilling centre (MCC) had 65 registered members and 60 were delivering milk totalling to 370 litres per day. It was supported by a *sahayak* (assistant) who was a local farmer and one facilitator from the PC.

The mission of PAAYAS includes increasing the income of shareholders by reducing the cost of milk production and enhancing their milk business. Paayas was a single tier structure with 1.2 lakh members. At the local level, there were villages contact groups (VCG) and member relation groups (MRG) which are informal structures between the PC and the members which acted as a bridge between the members and the PC at the procurement at the village level) was undertaken by a private individual. The VCG had 5 to 8 members at the MPP level whereas MRGs had 10 to 12 members at the milk route level. Whereas VCG encouraged farmers to become members and made the members adhere to the rules of the PC, the MRG was more about supporting PC in organizing various campaigns, meetings and workshops.

The shareholding was as per quantity of milk delivered and one share gave the right to deliver 100 litres of milk in a year and a member had to buy 5 shares of Rs 100 each (Rs one per litre of milk) and had to pay a membership of Rs 100. The maximum shares which could be held by one member was 1000. A member had to supply a minimum of 500 litres of milk for a minimum of 200 days per year with a stock to loan ratio 1:1. The members who supplied for higher number of days in a month/year were given loyalty incentives.

The PC had three types of members, A, B and C depending on the number of shares held and milk delivered. A C-category member had to buy five shares of Rs 100 each and supply at least 300 litres of milk for at least 200 days. A B-category member was mandated to buy at least 40 shares and supply at least 4000 litre of milk for 270 days in a year. An A-category member had to buy 100 shares and supply at least 10,000 litres of milk for 330 days in a year at least.

The elected BoD had 10 farmer shareholders based on their category of membership which had it based on patronage. Five expert directors, who were subject matter specialists and CEO. Of the ten elected farmer members, there was a male-female ratio of 7:3 and 3, 2 and 5 each were elected from A, B and C categories. The PC annually carried out eight programmes for the BoD and eight corporate visits for them. It also organized monthly and annual programmes for produce awareness on quality, leadership and business motivation among them. The PC also provided medical insurance, life insurance, child education scholarships and incentives on cattle feeds to offset low milk prices.

The PC had presence in 3500 villages which covers 85 percent of milk animal owning households in these villages. 40% of the milk in case of Pargua came from non-members. Its sales are 65% institutional 35% retail. The institutional sales were mainly to National Dairy and a small quantity also went to RCFD.

It had outsourced facility for processing and packing upto 1.5 lakh litres a day and cold storage capacity of one lakh litres and ghee making capacity of 4.5 metric tonnes per day. The PC has 125 distributors and 4000 retailers. Over the years it had been gaining market share while RCFD was losing its market share. The PC provided four types of cattle feed which included mineral mixture and ration balancer besides plain and bold versions of its mainline animal feed.



Photo 32: A milk collection centre of Pargua and details of membership and procurement.

The organisational structure included: procurement head with 5 cluster managers across eight districts and 11 area managers at the drilling centre level and 120 facilitators at the village level (MPP). Overall, there were 400 staff working with the PC. PC made annual plans for its business. The major product innovations include: state specific mineral mixtures and urea free cattle feed besides a two-litre ghee pack.

The PC supplied cattle feed and various other inputs and services like mineral mixture, fodder seeds, group medical insurance and AI facility, which was availed by 90% of the members. It is also supplying milking machines for large dairy animal holders. It also supplied fodder seed and ration like D-15 and other specific types of feed and nutrients for animals. Many of its services were provided to both members and non-members because non-members are potential members, which could help expand procurement and turnover of the PC. The PC also provided bunkers for biomass and fodder storage at the household level, which are provided free or at 50% cost to women dairy farmers.

It claimed that the ration balancing intervention has led to 0.22 kg. increase in average milk yield, 0.08% increase in milk fat and Rs 2.23 reduction in cost of feeding leading to reduction of Rs 18 per animal per day. This led to Rs 28 per animal increase in daily income of farmers and 10 percent reduction in feed cost per kg of milk. The PC had also set up 14 model dairy farms in three districts and more than 500 farmers had been trained in model dairy farming.

Major problems the PC experienced as per promoter's opinion were that the mindset of the BoD was still of the traditional cooperative type which it was trying to change with training and orientation. Further, it had been working on an asset light high turnover business model which would have to change as the scale increased as that would require more reliable systems of handling raw material as well as finished products. More importantly, the state did not provide a level playing field for the PC as it subsidised only cooperatives.

Table 3.1: Profile and Performance of Poyas PC

| Key Parameter | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 |
|---------------------------------------|----------|--------------|----------|--------------|---------------|--------------|
| Authorized capital (Rs. crore) | 20 | | 20 | 21 | 25 | 31 |
| Share capital (Rs. crore) | 16 (80%) | | 22 (70%) | 22 (100%) | 22 (88%) | 24 (77%) |
| Reserve (Rs. crore) | | | 4% | 3% | 1% | 14% |
| Profit (Rs. crore) | | | 0.2% | 0.5 | 0.4 | 0.0 |
| Reserve and Surplus (Rs. lakh) | | | 10 | 240 | 450 | 670 |
| Assets (Rs. Lakh) | | | 41% | 60% | 54% | 24% |
| Number of shareholders (lakh) (women) | | 650 (80%) | | 11 (100%) | 100 (100%) | 10 (100%) |
| Milk Procurement (lacs in lakh) | | 2.0 | 4.0 | 6.0 | 6.0 | 6.0 |

Shreejee Mahila Kisan PC

This PC was registered in 2014 and deals with procurement of milk and sale of cattle feed. It has 800 members and authorised capital of Rs.3 lakh. So far, it has issued share for Rs.1 lakh but has mobilised a total of Rs.1.7 lakh share capital (Table 3.2). The PC worked with 360 self-help groups of women with a monthly contribution of Rs.100 besides Rs.200 membership fee which were organised in 2013. At present, there were 50 such active groups across 50 villages with each member holding 10 to 100 shares.

It had seed licence since 2017 as well as FSSAI licence. It had also been involved in selling tea, maize seed, urea and DAP and pesticides. Its total turnover in 2017-18 was Rs.3.11 lakh with a profit margin of Rs.0.11 lakh. The promoter and BoD had 100 shares each. The major crops grown in the area included maize, soybean, pulses, mustard, wheat, barley, and vegetables. The PC had still not issued share certificates.

Of the 245 members, most were marginal or small landowners and 10% were landless. 65% of the members of the PC were active it had five BoD members all of whom were women. The PC believes that 70% members know that PC belonged to them. Of the 200 shareholders, 146 had bought 100 shares each, 34 had 50 shares each, two had 20 shares each, and rest had only 10 shares each amounting to Rs.100 each. Though it had 800 members by the 4th year but only 270 shareholders had paid up total equity capital of Rs.1.7 lakh. The PC had been supported by NABARD for the salary of the CEO and it had no other staff.



Photo 3.2: Office cum godown of Shree Dev Mahila KPC

On the input side, 50 to 60% of the sales went to the members and 50% of the tea sales went to non-members. Only 10% of the members bought equipment from PC. Even coffee seed sales were equally divided between members and non-members. The PC earns 5% commission on the sale of various inputs. The PC had not yet dealt with any produce in terms of buying from member farmers. The PC had no business plan though it has been able to secure capacity building grants from NABARD for these years and had been supported by the promoting agency to the tune of Rs.5000. It had also not done any training of the BoD other than on the use of farm inputs with the help of EVK and NABARD. The PC had taken the members for exposure to other milk PCs promoted by another NGO and another exposure visit to EVK Kota in which 10 members each participated.

In terms of its problems, it faced working capital constraint as well as inactive Board. It was planning to target membership of 1000 and focus on seed production and its sale with a brand name. The CEO of the PC was a commerce graduate and a former employee of the promoter with one of its PCs in Bihar. The PC could hold only three meetings of BoD in the first year but held 12 and 5 meetings in the next two years.

Table 3.2: Profile and Performance of Shree Dev Mahila PC

| Key Parameter | 2014 | 2017 | 2018 | 2019 | 2020 |
|-------------------------------|------|-------|-------|-------|-------|
| Authorized capital (Rs. lakh) | 5 | 5 | 5 | 5 | 5 |
| Share capital (Rs. lakh) | | 1,125 | 1,125 | 1,125 | 1,125 |
| Turnover (Rs. lakh) | | | 32 | 68 | |
| Profit (Rs. lakh) | | | 12 | | |
| Number of shareholders | | 26 | 26 | 80 | |

Khandar Agro PC

The PC was registered in 2018 and promoted by ISAF. It was organized from 70 FICs, from 25 of which and another 5 IHGs, 500 members across 20 villages joined the PC with each member holding 50 to 100 shares. There are mostly male members with only 20 being women and 85

of all are active. It has authorised capital of Rs.5 lakh and paid up capital of Rs.3.5 lakh. Member reserves of Rs.1 lakh. It had a turnover of Rs.3.19 lakh in 2015-16 and made some profits. The promoter, which started it is a part of the project hardware, wound up its engagements.

The PC had 5 Directors on the Board of whom 4 are women. Among 60 total promoters, there was one woman. The chairperson of the PC was a village council head (Sarpanch) and a political party local leader. The PC had only a CEO who belonged to the promoting agency and worked as block coordinator.

The 10 seed producers had 40 shares in the PC, and they all operated 10 to 12 acres each. On the other hand, 50% of the members had an average land holding of two acres. But, only 130 households dealt with PC in any year. In fact, all 300 members came from only 150 households with multiple membership from the same household in different names. Therefore, more than 50% of the members household had no dealing with the PC. The PC mostly dealt in inputs and major inputs provided included Fertilisers, seeds, and irrigation equipment, 80% of which is bought by the members with 10% exclusively relying on it. It also ran an ODFP funded custom hiring centre (CHC) which had three tractors and many other equipment which were used mostly by members.

On the output side, it promoted market linkages, undertakes warehousing, and processing of spices and their retailing and marketing. It stated that it has introduced new fruit and other high value crops among local farmers. It had only once facilitated government procurement of pulses and sold 40 member farmers' wheat in wholesale to private traders. It owned a warehouse and sold banana to Jaipur traders and organic products to an online buyer. On the output side, it had not yet attempted contract farming but was planning to undertake it in spice crops.

It had also undertaken contract production of seed with 15 growers who purchase 50 nominally for production of wheat, mustard, pulses, soybean, paddy seeds. Mostly members bought seeds from the PC for lower price for members and for better quality in case of non-members. Only 50 farmers bought exclusively from the PC. It was into losses up to 2017-18 (Table 3.3) and made a small profit in 2018-19 with a turnover of Rs.10.5lakh. It also treated seed contract farming as a good practice. Its other good practices included: sale to farmer members only on cash payment. It believed that its warehousing activity started in 2017-18 was a good practice. It had not received any support from NABARD or IFAC. It had only taken some progressive farmers for some exposure with the KVK and local agricultural university once.

Shekhawati Farmer PC

The PC originated in 2015 from 40 FPGs across 30 villages. Each member holds 100 shares of Rs.10 each and there are 311 shareholders, most of whom being marginal, small or semi-traditional farmers. There are no ladies members and by 2019 the membership had increased to 326. Only 40 members are women. The PC had authorised capital of Rs.17 lakh and paid up capital of Rs.4.36 lakh in 2018-19 and reserves of Rs.2.5 lakh (Table 3.4). The PC had never made any loss and its turnover in 2018-19 was Rs.62 lakh.

Table 3.3: Profile and Performance of Khandar Agro PC

| Key Indicators | 2015 | 2016 |
|---------------------------------|------|------|
| Authorised capital (Rs. lakh) | 5 | 5 |
| Share capital (Rs. lakh) | 100% | 100% |
| % of shares held by promoters | 10 | 10 |
| Turnover (Rs. lakh) | 24 | 25 |
| Profit (Rs.) | -10 | -10 |
| Reserves and Surplus (Rs. lakh) | -10 | -10 |

Among the 11 Board of Directors, four were promoters and only one was a woman. The BOD members were elected by PC members; they had to be active in PC work to get selected. The PC had only a CEO now though earlier, it had five Local Resource Persons (LRPs).

The PC had input selling license as well as output trading license. On the input side, it mostly dealt in with seeds, fertiliser, pesticides, besides cattle feed and most of the members bought exclusively from the PC. Only 30% of the sales of inputs were to non-members. The sales of inputs were carried from the office-run shop of the PC. There was also a FACS in the village from which farmers bought inputs. It also undertook procurement for the government at MSP.

On the output side, of the total turnover, 30% came from non-members. It had not undertaken any contract farming as output business. The PC claimed that it had promoted ashgourd and fenugreek crops among its farmer members. 50% of the PC members were active.

The PC had received capacity building grant from IFAC. It did not pay any dividends to the members in order to mobilise money for being eligible for matching equity grant. The business plan is made by the promoter and the BOD committee. It had also been able to avail of loan from Samanvay Finance in 2016-17 for Rs 1.75 lakh at the rate of 12% for undertaking input activities. The CEO had been provided exposure to another PC promoted by another agency (ISAP). However, the Board has not been exposed to much training. The PC had not undertaken any initiative or activity which could be called a best practice. It planned to focus on pulses and oilseeds for its supply to the government under IFAC procurement mechanism.

Major problems faced by the PC included shortage of working capital as there is no bank cash credit limit as of now, absence of output business, lack of professional leadership, especially by BOD and CEO, and lack of state government support. The PC planned to set up a pulse processing unit and also get into minor storage and processing. Unfortunately, it was also selling to farmers on credit up to Rs one lakh for short period which involved 100 such farmers. There was also an absence of local warehouses which did not let the PC make use of the warehouse receipt system.

Table 3.4: Profile and Performance of Shalhwati FPO

| Year - Parameters | 2014-15 | 2015-16 | 2016-17 |
|---------------------------------|---------|---------|---------|
| Authorized capital (Rs. lakh) | 10 | 10 | 10 |
| Share capital (Rs. lakh) | 10000 | 620000 | 620000 |
| Turnover (Rs. lakh) | 2145 | 223 | 363 |
| Profit (Rs.) | 24 | 262 | -48 |
| Reserves and Surplus (Rs. lakh) | 545 | 08 | 000 |
| Assets (Rs. lakh) | 624 | 105 | 000 |

Molassi SKS PC

The PC was registered in 2015 and promoted by IGS. The authorized capital of the PC was Rs. 10 lakh and the paid-up capital Rs. 7.35 lakh (Table 3.5).

The PC originated from FIGs (65) which had 1005 members including 155 women members which came from some 40% FIGs only. It had 511 members all of whom were landowners and 13 among them were women, and come from 10 villages. 80% of the shareholders were small or marginal and owners with 40% being medium or large farmers. However, only 20 of the shareholders were active members and only about 400 out of 1005 FPO members were active. It had 10 promoters and had 6 members of the Board of Directors including one woman from 2014-17 due to SFAC mandate, all of whom are also promoters. They all had 1000 shares each worth Rs.10000 each. The BoD are selected from among the heads of FIGs (20) including chairperson and vice-chairperson. But those with political positions or elected body positions like Sarpanch were not eligible to be on the BoD as it requires devoting time for PC work. It had all the input sale licenses as well as APSC license as a buyer. It had a CEO and one LSP (while earlier there were two LSPs). The CEO was a former LSP of the promoter and had worked with MGNREGS as a state officer. The administrative costs of the PC including CEO and other staff salary were borne by SFAC for three years some of which was not paying and being used to sustain the CEO salary.

It sold farm inputs like seed and fertilizers as well as cattle feed. It had no warehouses and ran from a rented shop cum office and had into three rented shops. It had not undertaken any processing since by 2017.

The PC had an agreement with SFAC for procuring pulses under price stabilization. And wherein the PC had to procure at MSP at the procurement centre and pay farmers within three days through electronic bank transfer. The PC was paid 1% of the value of pulses procured as administrative charges. All the mandatory charges like mandi fee, over handling charges, cost of gunny bags and transportation charges were to be either paid or reimbursed by the SFAC. The quality standards for various pulses were specified in terms of foreign matter, admixture, other grains, damaged grains, broken split or unhusked grains, pest infested pulses and immature and shrivelled grains which was of the order of 1 to 3% maximum and moisture level of 12% maximum. Further, the FSSAI standards were to be followed for urea acid and

allocation. The damaged grain and pest infested grains exemption level was higher in case of moong i.e. 4%. The farmers were given MSP for three crops of moong, urad and arhar in 2014-17 plus a bonus of ₹425 per quintal.

This PC participated in procurement of green gram worth ₹11.88 crore from 156 members. In the next year, it jointly procured 512 tonnes of pulses along with Andhra KSPCL and earned 1.5% commission totalling ₹6.34 lakh. It claimed that the average additional benefit worked out to be ₹17149 per farmer because MSP was ₹4400 per quintal higher than the market price. The government provided a bonus of ₹425 per quintal to the farmers. Because of this, the share capital of the PC doubled as most farmers joined as members.

The PC earned commission on SPAC driven procurement of moong dal and also availed of matching equity grant of ₹2.63 lakh from SPAC. The PC was running into losses earlier and has made a small profit of ₹73000 in 2017-18.



Photo 3.3: Melasa SCS PC office and a share certificate of a shareholder

Table 3.4: Profile and Performance of Melasa SCS PC

| Key parameter | 2016-17 | 2017-18 | 2018-19 | 2019-20 |
|---------------------------------|---------|---------|---------|----------|
| Authorized capital (Rs. lakh) | 30 | 60 | 60 | 30 |
| Share capital (Rs. lakh) | 1000% | - | 1000% | 126(21%) |
| Turnover (Rs. lakh) | 228 | 894 | 824 | 118 |
| Profit (Rs. lakh) | - | - | 6.5 | 6.6 |
| Reserves and Surplus (Rs. lakh) | -608 | - | 6.5 | 6.4 |
| Number of shareholders | 20 | 58 | 58 | 58 |

Performance and Impact of PCs in MP

Introduction

In Madhya Pradesh, Agriculture contributes 12% of GDP and provides employment to around 34.8% of its population. 45.91% of the total area of the state is cultivated. The cropping intensity of Madhya Pradesh is 148%. Only 32% of the GCA is irrigated with large parts of the state being dry. MP is primarily a food grain growing state with around 61% of its GCA devoted to foodgrains and 21% to oilseeds in 2014-15 (Gulati, et al, 2017). The cropping pattern consists of sorghum accounting for 27% of GCA, wheat 22%, gram 14%, paddy 8%, mustard and maize 4% each, urad, masur, tur and cotton 3% each, jowar and sesame 2% each and baajra, peanut and peas 1% each (Sharma, et al, 2013). Wheat is the major crop grown during the rabi season and it is intercropped with gram. In the Kharif, MP mostly grows oilseeds, specifically soyabean (Gulati et al, 2017). Within food grains, cereals crops had 39.4% of GCA and pulses 23%. In MP, food grains (cereals and pulses) is the largest segment constituting around 37.5% of gross value of output followed by livestock (18%), fruits and vegetables (17.4%) and oilseeds (16.2%) (Gulati et al, 2017). In 2010-11, 44% operated land holders were marginal and 25% small with 12% and 22% of area respectively and semi-medium holders were 13% of total with 26% area and only 8% were medium with 27% area and 1% being large with 4% area (Sharma et al, 2013).

There are 4,330 primary agriculture credit societies (PACS) operational in the state. The state has been also a pioneer in the setting up of new form of co-operatives- producer companies- since 2009 (Singh and Singh, 2016). The state was also the first to set up a state level PC as a consortium of PCs which had 97 members (Rani et al, 2015). The state has put in place a set of incentives to strengthen FPOs through financial support, infrastructure building and relaxation of the provisions of the APMC Act (Gulati et al, 2017).

This chapter examines physical and financial performance of PCs across promoters in section 1, analyses the member and non-member differential impact across all PCs together in section 2. Section 3 focuses women specific PCs and section 4 on other PCs. Section 5 examines promoter specific performance and section 6 the PCs within each promoter and section 7 concludes the chapter.

4.1 Profile and performance of PCs

A comparative analysis of the various PCs in MP by various promoters shows that ACA promoted PCs had small size of membership though they had registered with good amount of authorized capital of Rs. 15 lakh each but one of them could not even reach 50% of it even

after 4 years of working (Table 4.1). But their turnover was significant enough (Rs. 45-51 lakh) given the small size of membership. However, they also seemed to have passed on the profits to the members as revealed by the small profits and reserves they had. On the other hand, AARSP promoted PCs which were of more recent origin had really small authorised capital (Rs. 5-10 lakh) and small mobilised equity (only 25-34% of authorised). But they were able to achieve good level of revenue/turnover (Rs. 24 and 60 lakh each) and remained in profit almost throughout. The performance of goat PC was even more impressive as it was all women member PC and was in an unusual and unorganised sector of meat and animal trade.

PRADAN promoted PC has good start and mobilised a significant amount of equity from members (50% of authorised i.e. of Rs. 25 lakh in 2017-18 raised from earlier Rs. 10 lakh). In fact, it had reached 75% of its earlier authorised capital of Rs. 10 lakh. It had high level of revenue (> Rs. one crore in 2017-18) and profits throughout and created some small reserve as well (> Rs. one lakh).

However, the minor PC of ICG had a poor start and working and it was even delisted by the Registrar of Companies (ROC) as it did not file returns. It was delisted for some time, could not even mobilise 10% of its authorised equity of Rs. 25 lakh, had conducted no business in 2015-18, and had only Rs. four lakh revenue in 2017-18. Vratni promoted PC (Beta) was even in worse condition as it also could not go beyond mobilising 10% of its authorised capital of Rs. 10 lakh and had no business in 2015-19, and therefore, no revenue. It showed large revenue in 2017-18 mainly due to the opportunity given by SFAC to procure on its behalf which also it did not buy from its members but from a market.

A major departure in performance among PCs was that of the BDTTC, promoted by BPS which was all women member PC and had equity of a large order i.e. authorised equity of Rs. 40 lakhs in 13-14 which was raised to Rs. one crore in 2017-18 and it had mobilised 100% of it in 16-17 and 40% of the enhanced limit. It had very large turnover (Rs. 5 crore), decent profits (Rs. 1-11 lakh) and surplus of above Rs. 20 lakhs. It had also created assets worth Rs. 12 lakh. The warehouse and other facilities created by it later showed that it was on the path to sustainability.

Table 4.1: Profile and performance various PCs in M.P.

| PC | Storage Access (IOPS) | | | | Storage PC | | | | Storage PC | | | |
|---|-----------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | PC-100K | PC-200K | PC-300K | PC-400K | PC-100K | PC-200K | PC-300K | PC-400K | PC-100K | PC-200K | PC-300K | PC-400K |
| System Accessed Capacity (LMB) | 100 (100) | 200 (200) | 300 (300) | 400 (400) | 100 (100) | 200 (200) | 300 (300) | 400 (400) | 100 (100) | 200 (200) | 300 (300) | 400 (400) |
| Profile Capacity (LMB) | 0.5 (0.5) | 1.0 (1.0) | 1.5 (1.5) | 2.0 (2.0) | 0.5 (0.5) | 1.0 (1.0) | 1.5 (1.5) | 2.0 (2.0) | 0.5 (0.5) | 1.0 (1.0) | 1.5 (1.5) | 2.0 (2.0) |
| File Share Capacity (LMB) | 0.5 (0.5) | 1.0 (1.0) | 1.5 (1.5) | 2.0 (2.0) | 0.5 (0.5) | 1.0 (1.0) | 1.5 (1.5) | 2.0 (2.0) | 0.5 (0.5) | 1.0 (1.0) | 1.5 (1.5) | 2.0 (2.0) |
| File Share Access (LMB) | 0.5 (0.5) | 1.0 (1.0) | 1.5 (1.5) | 2.0 (2.0) | 0.5 (0.5) | 1.0 (1.0) | 1.5 (1.5) | 2.0 (2.0) | 0.5 (0.5) | 1.0 (1.0) | 1.5 (1.5) | 2.0 (2.0) |
| Access (LMB) | 0.5 (0.5) | 1.0 (1.0) | 1.5 (1.5) | 2.0 (2.0) | 0.5 (0.5) | 1.0 (1.0) | 1.5 (1.5) | 2.0 (2.0) | 0.5 (0.5) | 1.0 (1.0) | 1.5 (1.5) | 2.0 (2.0) |

(Continued...)

4.2 All PC member and non-member comparison: Profile and impact

Of the 71 member farmers interviewed across the state from 6 PCs (where 42% per male and 38% female members (Table 4.2) for the reason that four of the PCs were predominantly women member based or exclusively women PCs. Most of them (47%) were either literate, or middle-high school passed (12% each). Only 7% happened to be graduates (Table 4.3). 88% of the members had farming as primary occupation. Among the secondary occupation reported by 50% members, labour again emerged as the largest followed by shop keeping, business, agricultural (rural mother and child care centre) workers and other such secondary livelihoods (Table 4.4). Average age of members was 39 and that of non-members 62 years.

Table 4.2: Distribution of PC member and non-member farmers by Gender

| Category Farmer/ Gender | Members | | Non-Members | |
|-------------------------------|-------------|------------|-------------|------------|
| | Farmers (%) | % of total | Farmers (%) | % of total |
| Female | 41 | 57.7 | 4 | 34.3 |
| Male | 30 | 42.3 | 24 | 65.7 |
| Total | 71 | 100 | 28 | 100 |

Table 4.3: Distribution of PC member and non-member farmers by education

| Category Farmer/ Education | Members | | Non-Members | |
|----------------------------------|-------------|------------|-------------|------------|
| | Farmers (%) | % of total | Farmers (%) | % of total |
| Illiterate | 33 | 46.5 | 4 | 14.3 |
| Primary | 4 | 5.6 | 8 | 28.6 |
| Middle School | 10 | 14.1 | 14 | 50 |
| High School | 9 | 12.7 | 7 | 25 |
| Higher Secondary | 4 | 5.6 | 2 | 7.1 |
| University | 2 | 2.8 | 0 | 0 |
| Graduate | 0 | 0 | 1 | 3.6 |
| Total | 71 | 100 | 28 | 100 |

Table 4.4: Distribution of PC member and non-member farmers by Secondary Occupation

| Category Farmer/ Secondary Occupation | Members | | Non-Members | |
|---|-------------|------------|-------------|------------|
| | Farmers (%) | % of total | Farmers (%) | % of total |
| Agriculture | 1 | 1.4 | 0 | 0 |
| Rural Handicraft | 3 | 4.2 | 4 | 14.3 |
| Business | 4 | 5.6 | 4 | 14.3 |
| Labour | 6 | 8.4 | 16 | 57.1 |
| Self-Employed | 7 | 9.9 | 7 | 25 |
| None | 50 | 70.5 | 14 | 50 |
| Total | 71 | 100 | 28 | 100 |

Among the non-members there were 55% female and 45% male farmer respondents, with most of them (55%) being illiterate and another 21% only middle standard educated (Table 4.3). 94% of them reported agriculture as the primary occupation with 3% as above with another 1% each reporting dairy and animal husbandry each. Among the secondary occupations, which was reported by less than 50% of the total, daily wage labour was the most predominant (25%) followed by animal husbandry & dairying (9%) and petty grocery shops and agriculture (3% each) (Table 4.4).

Average size of owned land of members was 5.3 acres and operated land was of the order of 6 acres with very small amount of leasing as most of the farmers were marginal or small farmer or even landless. 61% of the farmers were marginal or small and another 25% were medium with only 10% and 9% being medium and large farmers respectively (Table 4.5).

Interestingly, though 61% of the member farmers were small or marginal, they cultivated only 25% of the total cultivated area. The medium and large farmers which were very tiny percentage of farmer households (10% and 9% respectively) had 26% and 18% of the cultivated land respectively totalling 44% (Tables 4.6 and 4.7).

Table 4.5: Average Owned and Operated Land of PC Members and Non-Members

| Category/ Average (Acres) | Members | Non-Members |
|------------------------------|---------|-------------|
| Owned Land | 5.38 | 4.38 |
| Operated Land | 6.09 | 5.42 |

Table 4.6: Distribution of PC member and non-member farmers by Owned Land

| Category/ Farmer/ Total Group/ | Members | | | | Non-Members | | | |
|---|-------------------|--------------|------------------------|-----------------|-------------------|--------------|---------------------|-----------------|
| | No. of Farmers | % Farmers | Land (Ac. acres) | % Total Land | No. of Farmers | % Farmers | Land (Ac. acres) | % Total Land |
| Marginal | 28 | 29.44 | 46 | 13.82 | 31 | 44.44 | 41.04 | 6.82 |
| Small | 16 | 22.51 | 32.8 | 10.54 | 6 | 20.00 | 16.25 | 6.68 |
| Semi medium | 10 | 25.26 | 14.4 | 7.68 | 17 | 22.22 | 16.58 | 11.28 |
| Medium | 2 | 3.80 | 10.12 | 20.22 | 5 | 16.67 | 10.10 | 11.28 |
| Large | 2 | 2.80 | 79 | 6.58 | 2 | 7.78 | 16.67 | 6.68 |
| Total | 78 | 100 | 342.5 | 100 | 79 | 100 | 172.99 | 100 |

Table 4.7: Distribution of PC member and non-member farmers by Operated Land

| Category | Members | | | | Non-Members | | | |
|-------------|----------------|-----------|-----------------|--------------|----------------|-----------|-----------------|--------------|
| | No. of Farmers | % Farmers | Land (in acres) | % Total Land | No. of Farmers | % Farmers | Land (in acres) | % Total Land |
| Marginal | 21 | 29.8 | 303 | 3.0 | 17 | 23.0 | 610 | 6.0 |
| Small | 21 | 29.8 | 71 | 0.7 | 30 | 40.0 | 540 | 5.4 |
| Semi medium | 20 | 28.0 | 125.5 | 1.3 | 15 | 20.0 | 1025 | 10.2 |
| Medium | 4 | 5.6 | 363 | 3.6 | 4 | 5.3 | 305 | 3.0 |
| Large | 1 | 1.4 | 10 | 0.1 | 1 | 1.3 | 5 | 0.05 |
| Total | 71 | 100 | 1125 | 100 | 75 | 100 | 1185 | 100 |

Table 4.8: Distribution of PC member and non-member farmers by livestock Owned

| Category | Members | | | | Non-Members | | | |
|----------|----------------|-----------|---------|-------------------|----------------|-----------|---------|-------------------|
| | No. of Farmers | % Farmers | Animals | % Total Livestock | No. of Farmers | % Farmers | Animals | % Total Livestock |
| Buffalo | 25 | 35.3 | 4 | 0.8 | 21 | 28.0 | 16 | 3.2 |
| Cow | 50 | 70.6 | 130 | 26.0 | 38 | 50.7 | 74 | 14.8 |
| Goat | 40 | 56.3 | 10 | 2.0 | 26 | 34.7 | 10 | 2.0 |
| Other | 57 | 80.3 | 11 | 2.2 | 45 | 60.0 | 15 | 3.0 |
| Total | 71 | 100 | 45 | 100 | 75 | 100 | 44 | 100 |

The non-member farmers on an average owned 4.5 acres of land and operated 3.4 acres each with almost 1/3rd of the land being irrigated. The minimum land ownership was 20 acres and minimum zero. The operated land ranged between 0.5 acres and 33 acres because of leasing in of land. The distribution of land was such that 48% of the total farmers were marginal or small but they operated only 27% of the total operated land. The medium and large farmers which were just 5 and 4 percent of the total had 18% and 21% of the total operated land (Table 4.6&4.7).

The major livestock type owned by members was bullocks/cows and goats with 51-53% owning them and buffaloes were owned by just 25% households. Goats were 20% all livestock and bullocks and cows 24% and 20% each and buffaloes only 9% of total (Table 4.8). Average holding per household was 2 cows or bullocks or buffaloes and 5 goats per household.

A significant proportion of non-members had cows, goats and bullocks with average ownership of 2 cows or bullocks and 5 goats each. Only 13% owned buffaloes with average ownership of 3. In terms of numbers, goats accounted for 42% of the total livestock followed by cows and bullocks at 20% and 20% each and the buffaloes accounting only for 14% of the total (Table 4.8).

54% member farmers reported well as the major source of irrigation and 7% tubewell with others reporting combination of well and canal, tubewell and canal, well and tubewell (4%, 4%

and 7% each respectively). Most of these tubewell owners had electric motors (73%) followed by diesel engine (14%). Only 6% didn't have a source for energy for extracting ground water. The average cropping intensity of member farmers was 1.9 (Table 4.9).

The major irrigation sources reported by non-members were wells (39%), tubewell (11%) and a combination of well or tubewell along with another source like canal or pond (9%) and both well and tubewell another 7%. 12% respondents were completely rain fed farmers. Further, of those who reported ownership of any well or tube well, it was mostly electric operated tubewells (65%) followed by diesel (24%) and a combination of the two (6%) (Table 4.9). The major sources of the information of the non-member farmers were friends, neighbours, relatives (32%) followed by only friends and the producer company along with other sources accounted for 9% and exclusively only for 25% of the total. This was as poor as agricultural department office or dealer.

Interestingly, a significant proportion of the members (44%) did not know the number of shares held or owned by them with others reporting 100 or lower no. of shares (62%). In only 37% cases, the share certificates were issued by the PC. A very large proportion of members were also members of self-help groups (SHGs) (46%) (only for the reason that many of the PCs specially women focused had their base in the SHGs). Only 11% farmers reported membership of cooperative society and 2% of another producer company. A significant proportion of them had been member of such collectives that 31% anytime between 1998 and 2015. 30% reported receiving information from the PC for their occupation whether agriculture or animal husbandry and infant 17% from both friends and PC and another 20% from their friends alone. The extension worker and agricultural development office figured only 1 to 2% cases each exclusively and in another few cases along with friends, PC and non-personal media like mobile and newspaper. 45% of the members knew that they own the company whereas 27% had no idea about the ownership of the PC. Others ended up reporting promoting agency, PC employees, board of directors or govt. as the owners of the PCs. The biggest influence in their becoming member of the PC was the PC promoter (73%) followed by friends and PC employees (18% and 5% respectively). In 94% cases, they had not received any dividend on their shares so far.

Surprisingly, very vast majority (73%) did not have any complaint about the services provided by the PC. On the other hand, 80% of them also stated that PC did not bring any information about the govt. schemes and subsidies and 91% did not report any special subsidy or other benefits due to the PC. Most members reported monthly, quarterly and annual frequency of meetings of the PC and a majority of them (52%) taking part every time and 23% sometimes and others (7%) occasionally. Only 15% never participated in any meeting. However, 86% wanted to continue being member of the PC with only 2% reporting intention to withdraw from membership. Further, 45% also stated that they will encourage others to become members. Only 9% stating they would not.

Major crops grown by the member farmer in kharif season were sorghum (41%), maize (17%), herbs (7%) and cotton (6%) with average size across most crops in 1 to 2 acres. In Rabi, the major crops grown were potato (29%), wheat (23%), pulses (15%) and spices (10%) besides

onion (4%) and other vegetables (11%). In the summer season, it was mostly maize with 53% (Table 9, 10 and 11). Overall, across seasons, it was soybean, potato, wheat, maize and cotton which were the major crops grown by the farmers.

The average cropping intensity of the non-member farmers was 1.68. Major crops grown by the non-member farmers in terms of the areas sown included: wheat (41%), potato and onion (15% each), grain (7%) and garlic (6%) besides combination of some of these crops as intercrops in Frelimo soybean (42%), maize (26%), yambo (6%) and cotton (11%) besides intercropping of cotton and soybean, and cotton and maize in 3% area each in Shire season and mostly onion (39%), ledringer and limogata (15 % each) followed by mango and cucumber (7% each) in summer season. In the total crop area for the entire year, wheat accounted for 17%, soybean 24%, maize 18% and cotton 4%. Other than soybean which was grown in 6 seasons on average, other crop mostly had 1-2 acres average area per farmer per year (Tables 4.10 to 4.11).

Table 4.9: Distribution of PC member and non-member farmers by Source of Irrigation

| Source of Irrigation | Members | | | | | | | | | | | | Non-Members | | | | | | | | | | | | | | | | | |
|----------------------|---------|---|---|---|---|---|----------|---|---|---|---|---|-------------|---|---|---|---|---|----------|---|---|---|---|---|---|---|---|---|---|---|
| | China | | | | | | Honduras | | | | | | China | | | | | | Honduras | | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 6 | | | | | | |
| All | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Canal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| On-farm | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Off-farm Canal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| On-farm | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Off-farm Canal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| From Other Source | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

1 members and 10 non-members are flood farmers with no source of irrigation.

Table 4.10: Kharif cropping pattern of PC member and non-member farmers

| Crops | Members | | | | | Non-Members | | | | |
|---------------------------|----------------|-----------|-----------|-----------|-----------|----------------|-----------|-----------|-----------|-----------|
| | No. of Farmers | Area (ha) | Area (ha) | Area (ha) | Area (ha) | No. of Farmers | Area (ha) | Area (ha) | Area (ha) | Area (ha) |
| Cotton | 22 | 38.91 | 54.2 | 6.4 | 40.7 | 0 | 22.07 | 42.4 | 50.8 | 5.8 |
| Maize | 16 | 50.70 | 7.1 | 6.9 | 6.8 | 44 | 54.60 | 101.23 | 26.35 | 15.0 |
| Soyabean | 10 | 40.48 | 0.4 | 4.0 | 20.20 | 22 | 30.20 | 8.8 | 40.27 | 22.0 |
| Paddy | 3 | 12.58 | 8 | 1.9 | 0.6 | 0 | 16.00 | 0.8 | 4.0 | 2.4 |
| Buar | 3 | 12.58 | 14.2 | 1.5 | 1.0 | 3 | 6.00 | 2.2 | 10.8 | 10.0 |
| Vegetables | 5 | 2.04 | 0.1 | 2.1 | 0 | 7 | 1.18 | 2.5 | 0.4 | 0.6 |
| Wheat/Must | 2 | 2.40 | 3 | 2.8 | 2.8 | 7 | 3.18 | 2.5 | 0.8 | 0.6 |
| Jowar | 6 | 6.45 | 6.0 | 1.4 | 0.6 | 1 | 1.18 | 2 | 0.4 | 0.25 |
| Cotton/ Maize | 5 | 2.04 | 1.5 | 2.2 | 0.7 | 4 | 8.00 | 6 | 4.0 | 2.0 |
| Soyabean/ Maize | 8 | 12.2 | 22.2 | 1.8 | 1.9 | 2 | 2.0 | 0.6 | 1.2 | 0.5 |
| Groundnut | 4 | 5.61 | 4.4 | 1.6 | 0.4 | 5 | 6.0 | 4 | 1.8 | 0.7 |
| Maize/soyabean cropping | 5 | 7.04 | 1.6 | 2.3 | 0.7 | 4 | 12.0 | 14.8 | 2.8 | 1.8 |
| Sesum | 3 | 4.0 | 3 | 0.7 | 0.5 | 0 | 0 | 0 | 0 | 0 |
| Soyabean intercropping | 4 | 5.61 | 1 | 1.0 | 0.8 | 1 | 1.0 | 1.5 | 0.8 | 0.8 |
| Grain | 4 | 5.61 | 3 | 2.4 | 1.0 | 3 | 4.0 | 1.1 | 0.6 | 0.8 |
| Grain/maize intercropping | 6 | 6 | 6 | 6 | 6 | 4 | 5.0 | 1.9 | 0.8 | 0.2 |
| Others | 6 | 6.45 | 1.5 | 1.2 | 0.8 | 7 | 5.0 | 1.2 | 1.4 | 1.0 |
| Total | 71 | 108 | 491.7 | 104.40 | 91.2 | 75 | 198 | 251.50 | 104.40 | 128 |

Most of the members reported an improvement in the quality of inputs compared to the pre-membership days when it was 45% reporting very good or excellent and 70% post-PC membership reporting it as. Similarly, in input cost and availability, very significant gains were reported by more than 45% saying very good and excellent from the pre-PC phase moving to 45% saying so for input cost in the post-PC phase and 70% as against 47% in the availability of inputs after and before the PC membership respectively. The input accessibility and quantity had also improved significantly after the intervention of PC.

Table 4.11: Rabi cropping pattern of PC member and non-member farmers

| Category | Members | | | | | No-Members | | | | |
|----------------|----------------|-----------|-----------|-----------|----------|----------------|-----------|-----------|-----------|----------|
| | No. of Farmers | % Farmers | Area (ha) | Area (ha) | Area (%) | No. of Farmers | % Farmers | Area (ha) | Area (ha) | Area (%) |
| Grain | 36 | 50.70 | 415 | 1630 | 5.01 | 20 | 40.00 | 2424 | 876 | 1.52 |
| Wheat | 50 | 70.42 | 957 | 2529 | 33.25 | 47 | 92.00 | 8528 | 2973 | 51.08 |
| Cereals | 7 | 9.86 | 201 | 335 | 4.49 | 4 | 8.00 | 309 | 84 | 1.49 |
| Pulses | 9 | 12.68 | 101 | 2159 | 28.73 | 8 | 16.00 | 425 | 6.07 | 0.65 |
| Vegetables | 10 | 14.09 | 254 | 1020 | 13.65 | 4 | 8.00 | 27 | 1.07 | 0.19 |
| Misc | 4 | 5.63 | 19 | 54 | 0.72 | 1 | 2.00 | 15 | 0.29 | 0.05 |
| Orchard | 2 | 2.81 | 14 | 180 | 2.41 | 5 | 10.00 | 448 | 16.07 | 0.43 |
| Wheat | 5 | 7.04 | 11 | 14 | 0.18 | 4 | 8.00 | 265 | 2.07 | 0.36 |
| Inter-cropping | 0 | 0 | 0 | 0 | 0 | 2 | 4.00 | 105 | 3.88 | 0.68 |
| Corn, Green | 4 | 5.63 | 11 | 10 | 0.14 | 2 | 4.00 | 24 | 0.94 | 0.16 |
| Others | 4 | 5.63 | 11 | 10 | 0.14 | 2 | 4.00 | 24 | 0.94 | 0.16 |
| Total | 71 | 100 | 395.4 | 10000 | 14.24 | 75 | 100 | 27107 | 10000 | 45.49 |

Table 4.12: Summer cropping pattern of PC member and non-member farmers

| Category | Members | | | | | No-Members | | | | |
|-------------|----------------|-----------|-----------|-----------|----------|----------------|-----------|-----------|-----------|----------|
| | No. of Farmers | % Farmers | Area (ha) | Area (ha) | Area (%) | No. of Farmers | % Farmers | Area (ha) | Area (ha) | Area (%) |
| Grain | 2 | 4.75 | 11 | 1488 | 1.85 | 2 | 2.47 | 42 | 10.09 | 0.49 |
| Wheat | 3 | 4.75 | 4 | 248 | 0.36 | 0 | 0 | 0 | 0 | 0 |
| Grain | 2 | 2.87 | 7 | 252 | 0.36 | 0 | 0 | 0 | 0 | 0 |
| Lower | 1 | 1.43 | 1.4 | 630 | 0.29 | 0 | 0 | 0 | 0 | 0 |
| Vegetables | 1 | 1.43 | 4 | 112 | 0.16 | 1 | 1.23 | 1.7 | 1.02 | 0.02 |
| Green/Green | 0 | 0 | 0 | 0 | 0 | 1 | 1.23 | 1 | 0.05 | 0.01 |
| Total | 71 | 100 | 24.4 | 10000 | 4.20 | 75 | 100 | 11 | 10000 | 1.60 |

However, from the output side, there was not much improvement as most PCs did not deal with output in a significant way and 90% of the members did not report any output transaction before or after the PC. The price of output was better only in case of 30-35% members as against all earlier mainly in crops of soyabean, maize and cotton by 10-25%. Similarly, the market availability for output of the members was also better for only 7% members. Only wheat and maize experienced area expansion over the last few years, and yields had improved significantly in cotton, gram, and soyabean (13,41 and even more than 100% respectively) after PC interventions.

Before the intervention of the PC, 59% farmers sold directly to traders and 31% through the AFMC with only 11% reporting selling through PC. Of the farmer member selling through the PC now, only 40% in wheat, 36% in sorghum, 53% in maize, 25% in gram and 44% in cotton had sold through the PC. Then the PC and the wholesale channels were getting almost equal patronage by farmer members in these crops. This proportion of AFMC and direct sales reduced to 25% and 44% and the PC channel accounting for 26%. There was also improvement in the payment mode with 61% more farmers reporting bank payment though the mode still accounted for only 25% for all the farmers. So far as the diversification of crop area due to the PC intervention is concerned the area increased marginally (2%) under maize and sorghum (2%) and decreased under cotton by 3%. Not only the area, but also the number of farmers growing these crops increased due to the PC intervention by a small percentage.

Similarly, significant increase in yield was reported only in cotton, sorghum, wheat and gram. The marketed surplus went up in cotton (2%) and sorghum (2%) and wheat (4%) and the price realized improved in maize, cotton, sorghum and wheat besides gram (4-12%). However, the time taken to receive payments became longer for maize and gram. The average transaction cost increased in potato and maize significantly.

Most of the member farmers still bought their various inputs from dealers which were high in seeds (Table 4.13) and chemical pesticides (Table 4.14) but PC accounted for 42%, 44% and 34% of farmers in their source of seeds, chemical fertilizers and chemical pesticides respectively. The farmer mostly bought from the PC for the reason of better quality, easy accessibility and lower price (Table 4.13A). On the other hand, dealers were preferred for similar reasons by other farmers. Biopesticides (biofertilizers and biopesticides) were not used by most of the members (91% and 97%) and non-members (87% and 87%) and only 1-3% members bought them from the PC (Table 4.14).

So far as the purchase of farm inputs was concerned, most of the non-member farmers depended on dealers mainly for seeds, fertilizers and chemical pesticides. Some of them did purchase seeds from the PC and a very small percentage also chemical and biofertilizer and cattlefeed. The major reasons for buying seeds from dealers included: easy access and lower cost or a combination of such factors. On the other hand, PC or other cooperatives were used due to lower cost and easy access besides lack of any alternative. The chemical pesticides were bought from dealers for easy availability.

Table 413: Distribution of PC member and non-member farmers by Source of Seeds

| Category Provisional Source | Members | | Non-Members | |
|-----------------------------------|---------------|------------|---------------|------------|
| | Farmers (No.) | % of total | Farmers (No.) | % of total |
| PC, Agri. Inn | 1 | 14 | 0 | 0 |
| PC | 32 | 65.2 | 0 | 0.0 |
| PMCS | 1 | 14 | 0 | 0 |
| Dealers, PMCS | 1 | 14 | 2 | 2.0 |
| Dealers, Local Farmers | 1 | 14 | 1 | 1.0 |
| Dealers | 16 | 32.54 | 46 | 52.0 |
| Exotic, PC | 0 | 0.0 | 2 | 4.0 |
| Agriculture Department | 3 | 4.3 | 1 | 1.0 |
| Agri. Days, PMCS | 0 | 0 | 2 | 2.0 |
| Dealers, Agri. Dept. | 0 | 0 | 1 | 1.0 |
| Local Farmers | 0 | 0 | 1 | 1.0 |
| PC, Ditar, FPO | 0 | 0 | 1 | 1.0 |
| None | 1 | 14 | 47 | 52.0 |
| Total | 71 | 100 | 75 | 100 |

Table 414: Distribution of PC member and non-member farmers by Source of Agrochemicals

| Chemical Input Category | Producers | | | | Non-Producers | | | |
|------------------------------|---------------|------------|---------------|------------|---------------|------------|---------------|------------|
| | Members | | Non-Members | | Members | | Non-Members | |
| | Farmers (No.) | % of total | Farmers (No.) | % of total | Farmers (No.) | % of total | Farmers (No.) | % of total |
| Dealers | 7 | 100 | 28 | 63.0 | 22 | 30.0 | 46 | 52.0 |
| PMCS | 16 | 22.5 | 13 | 30.0 | 0 | 0 | 2 | 2.0 |
| PC | 24 | 33.8 | 14 | 33.0 | 24 | 30.0 | 2 | 2.0 |
| PC, PMCS | 1 | 14 | | | 0 | 0 | 0 | 0 |
| Agriculture Department | 0 | 0 | 3 | 7.0 | 1 | 1.0 | 0 | 0 |
| Dealers, Local farmers, PMCS | 0 | 0 | 1 | 2.0 | 0 | 0 | 0 | 0 |
| Dealers, PC | 0 | 0 | 1 | 2.0 | 0 | 0 | 0 | 0 |
| Local farmers | 0 | 0 | 1 | 2.0 | 0 | 0 | 1 | 1.0 |
| None | 14 | 19.7 | 21 | 47.0 | 24 | 30.0 | 35 | 40.0 |
| Total | 71 | 100 | 75 | 100 | 71 | 100 | 75 | 100 |

Table 4.16: Distribution of member and non-member farmers by Source of the inputs

| Input type | Members | | | | Non-Members | | | |
|--------------|------------|------------|-------------|------------|-------------|------------|-------------|------------|
| | Members | | Non-Members | | Members | | Non-Members | |
| | Farmer (%) | % to total | Farmer (%) | % to total | Farmer (%) | % to total | Farmer (%) | % to total |
| Local farmer | 0 | 0 | 1 | 1.5 | 0 | 0 | 0 | 0 |
| Dealer | 0 | 0 | 7 | 10.5 | 0 | 0 | 6 | 10.5 |
| FACS | 1 | 1.5 | 2 | 3.0 | 2 | 3.0 | 0 | 0 |
| PC | 3 | 4.5 | 3 | 4.5 | 3 | 4.5 | 2 | 3.0 |
| None | 17 | 25.5 | 12 | 18.0 | 60 | 94.5 | 55 | 94.5 |
| Total | 21 | 100 | 25 | 100 | 71 | 100 | 75 | 100 |

45% of the non-members were in-ride of the PC and 15% of them were member of a cooperative, FACS or a SHG. Only 20% of them were interested in becoming members of the PC. However, 65% of them did not know who owned the PC with only 3% seeing it as family/ company and 13% as of the promoting agency or the NGO. Most of them had become members of the non-PC group or collective after 2001. 60% did not receive any information about the PC from anyone, with another 10% receiving it from the promoters and PC employees, and promoters each and 15% receiving it from the PC meetings. They really didn't have much to say about the services provided by the PC and 15% of them had attended some meeting convened by the PC. 60% of them had no idea of any activities undertaken by the PC in the local area. Only 4% respondents had some negative experience with the PC or heard about it as 97% had not dealt with it.

There was no major change in the cropping pattern after the organization of the PC in case of non-members. Only in potato, they reported lower transaction cost as well as transport cost. They also reported some improvement in time taken to receive payment in cotton and maize besides wheat and soyabean. Most of them still reported cash transactions.

So far as the sale of produce by non-members was concerned, of the total transactions, it was mostly direct sales which accounted for 70% of the transactions followed by wholesale market transactions (30%). The PC transactions were less than 10% of the total (Table 4.16 and 4.17).

Table 4.15A: Input-wise reasons for buying inputs from PC by members

| Reason | Input | | Chemical/fertilizer | | Crop protection | | Water | | Irrigation | |
|---|----------------|------------|---------------------|------------|-----------------|------------|----------------|------------|----------------|------------|
| | No. of members | % of total | No. of members | % of total | No. of members | % of total | No. of members | % of total | No. of members | % of total |
| Better Quality | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% | 1 | 10% |
| Better Quality/Easy Accessibility, Lower Cost | 3 | 12% | | | | | 0 | 0% | 0 | 0% |
| Better Quality/Easy Accessibility, Lower Cost, Lower Price | 1 | 12% | 1 | 33% | 1 | 33% | 1 | 100% | 0 | 0% |
| Better Quality/Easy Accessibility, Lower Cost, Lower Price, Timely Availability | 1 | 12% | 2 | 67% | 1 | 33% | 0 | 0% | 0 | 0% |
| Better Quality/Easy Accessibility, Lower Cost, Timely Availability | 0 | 0% | | | 0 | 0% | 0 | 0% | 0 | 0% |
| Better Quality, Lower Price | 1 | 12% | 3 | 9% | 4 | 33% | 2 | 22% | 0 | 0% |
| Better Quality, Lower Price, Timely Availability | 2 | 33% | 1 | 33% | 1 | 33% | 0 | 0% | 0 | 0% |
| Better Quality, Timely Availability, Lower Price | 1 | 12% | 1 | 33% | 0 | 0% | 0 | 0% | 0 | 0% |
| Easy Accessibility, Lower Cost | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 44% | 0 | 0% |
| Easy Accessibility, Lower Cost, Lower Price | 1 | 12% | 0 | 0% | 2 | 67% | 1 | 11% | 0 | 0% |
| Easy Accessibility, Lower Cost, Lower Price, Timely Availability | 1 | 12% | 3 | 9% | 1 | 9% | 0 | 0% | 0 | 0% |
| Fair Deal/ More Reliable | 1 | 12% | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| Lower Price | 0 | 0% | 4 | 10% | 4 | 10% | 1 | 11% | 1 | 10% |
| Timely availability | 0 | 0% | 1 | 33% | 0 | 0% | 0 | 0% | 0 | 0% |
| No other source | 0 | 0% | 0 | 0% | 1 | 33% | 0 | 0% | 0 | 0% |
| Timely Availability, Lower Price | 1 | 12% | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| Total | 57 | 100.00% | 32 | 56% | 30 | 53% | 0 | 0% | 2 | 3% |

4.3 Women PC Member and Non-member profile and impact

Of the 41 all-female members of five PCs across these promoters 23% of the members were illiterate and rest with various school level literacy level (Table 4.12). 53% reported agriculture as the primary occupation followed by goatry and labour respectively. Average age of members was 41 years and that of non-members 45 years. The major secondary occupation was animal husbandry and farming besides labour. Majority of the members had wells as source of irrigation with 9% having tube wells while others depended on stress, lakes and rainfall. The well and tube well owners had mostly electric source of energy and in some other cases diesel engines.

75% of the non-members in case of four women PCs were female and 67% of the total members were illiterate and 13% middle standard literate. There was only one member who was graduate. 51% of the farmers reported farming as primary occupation, 12% animal husbandry and 7% labour. On the other hand, 65% reported no secondary occupation with 12% being into farming and poultry and 7% reporting wage labour as the main secondary occupation (Tables 4.19 and 4.20). There was not much difference in occupational patterns of non-members and even their literacy levels but 34% had labour engagement as secondary occupation and only 4% labour.

Table 4.19: Distribution of Woman PC Members and Non-member farmers by education

| Category Primary Level of Education | Members | | Non-Members | |
|---|-------------|------------|-------------|------------|
| | Count (No.) | % of total | Count (No.) | % of total |
| Illiterate | 27 | 67.5 | 26 | 65.0 |
| Primary | 4 | 10 | 2 | 4.9 |
| Middle School | 6 | 15.0 | 6 | 15.0 |
| High School | 3 | 7.5 | 2 | 4.9 |
| Higher Secondary | 0 | 0 | 0 | 0 |
| Ungraded | 1 | 2.5 | 0 | 0 |
| Graduate | 0 | 0 | 1 | 2.5 |
| Grand Total | 40 | 100 | 40 | 100 |

Table 4.20: Distribution of Women PC Members and Non-member farmers by Primary Occupation

| Category Primary Occupation | Members | | Non-Members | |
|-----------------------------------|-------------|------------|-------------|------------|
| | Count (No.) | % of total | Count (No.) | % of total |
| Agriculture | 21 | 52.5 | 16 | 40.0 |
| Animal Husbandry | 5 | 12.5 | 1 | 2.5 |
| Labour | 3 | 7.5 | 2 | 5.0 |
| Grand Total | 40 | 100.0 | 40 | 100.0 |

Table 4.20: Distribution of Women PC Members and Non-member farmers by Secondary Occupation

| Category Secondary Occupation | Members | | Non-Members | |
|-------------------------------------|-------------|------------|-------------|------------|
| | Count (No.) | % of total | Count (No.) | % of total |
| Agriculture | 3 | 7.5 | 2 | 4.9 |
| Skilled Labour | 2 | 4.9 | 1 | 2.5 |
| Labour | 3 | 7.5 | 6 | 15.0 |
| Animal Husbandry | 15 | 37.5 | 7 | 17.5 |
| Business | 1 | 2.5 | 1 | 2.5 |
| None | 26 | 65.0 | 21 | 52.5 |
| Total | 40 | 100.0 | 40 | 100.0 |

The average operated land holding of members was 2.71 acres and owned land 2.55 acres (Table 4.21). 53% of the members were marginal farmers and 32% small with the rest 15% being semi-medium farmers. However, this 15% accounted for 36% of the cultivated area and marginal category only 16% of the total area. 1.7th to 2.4th of the farmer members owned buffaloes, goats, cow and bullocks each with goats accounting for 55% of the total livestock followed by cows and oxen. On an average, each household has two cows or buffaloes and six goats (Table 4.22).

Table 4.21: Average owned and operated land holding of Women PC Members and Non-members

| Category | Members | Non-Members |
|------------------|---------|-------------|
| Average (acres) | | |
| Owned Land | 2.55 | 1.0 |
| Operational Land | 2.71 | 2.0 |

Table 4.22: Distribution of Woman PC Members and Non-member Farmers by Livestock owned

| Category | Members | Members | | | | | Non-Members | | | | |
|----------|---------|---------|-----|------|-----|-----|-------------|-----|-----|-----|---|
| | | None | 1 | 2 | 3 | 4 | None | 1 | 2 | 3 | 4 |
| Buffalo | 11 | 2927 | 0 | 102 | 125 | 0 | 2000 | 11 | 150 | 28 | |
| Cow | 26 | 5241 | 61 | 2040 | 225 | 11 | 2325 | 28 | 120 | 175 | |
| Goat | 30 | 7017 | 15 | 1823 | 500 | 72 | 6125 | 62 | 500 | 500 | |
| Oxen | 25 | 5050 | 0 | 505 | 100 | 20 | 4400 | 0 | 200 | 200 | |
| Total | 92 | 190 | 219 | 308 | 950 | 103 | 150 | 200 | 500 | 900 | |

The average operated land of non-members was 3.7 acres and average owned land 3.7 acres. 79% of the non-member farmers were marginal or small and only 21% were medium category farmers. However, small and marginal farmers had only 53% of the cultivated area and medium farmers had 47% of total. The non-member farmers had mostly goats which was 55% of the total livestock followed by buffaloes at 20%, cows 14%, and bullocks 7%. 49% of the farmers had goats with average of 5 goats per household and 43%, 33% and 12% each had two buffaloes, cows or buffaloes (Table 4.22).

67% of the non-member farmers reported well as the source of irrigation and another 67% were rainfed farmers. Only 3% had tube wells (Table 4.23). 44% received information of agricultural activities from friends and neighbours with only 7% accessing it from the PC. 43% did not know about the PC and 46% did not know who owned it with others reporting panchayat agency or the farmers as the owners of the same. 40% of them had not received any information about the PC and the other source for 22% of the farmers was the meetings of the PC and in some cases promoters (18%). Only 15% of them had aspiration to become a member of the PC as they had some awareness about the activities of the PC.

54% bought seeds from PC while 33% non-members bought it from dealers and majority also bought chemical fertilisers (including 20% from PACS) and pesticides from PCs among member and mostly dealers among non-members. Bio inputs were not bought by 53-100% of members and 95% of non-members with only 15% members buying biofertilisers from PCs and 9% from PACS (table 4.23-4.25).

Table 4.23: Distribution of Women PC Members and Non-member farmers by Source of Irrigation

| Category Producer Source | Members | | Non-Members | |
|--------------------------------|---------------|------------|---------------|------------|
| | Farmers (No.) | % in total | Farmers (No.) | % in total |
| Total | 41 | 244 | 45 | 222 |
| Lake | 5 | 12.0 | 1 | 2.2 |
| Hand tubewell | 0 | 0 | 1 | 2.2 |
| River | 4 | 9.8 | 6 | 13.5 |
| Tubewell | 3 | 7.3 | 1 | 2.2 |
| Well | 10 | 24.3 | 8 | 18.0 |
| Dam | 1 | 2.4 | 0 | 0 |
| Rainfed | 8 | 19.5 | 10 | 22.3 |
| Total | 41 | 100.0 | 45 | 100.0 |

Table 4.24: Distribution of Women Members and Non-members by Source of Seeds

| Category Producer Source | Members | | Non-Members | |
|--------------------------------|---------------|------------|---------------|------------|
| | Farmers (No.) | % in total | Farmers (No.) | % in total |
| Dealers | 4 | 9.8 | 26 | 57.8 |
| PC | 22 | 53.7 | 7 | 15.6 |
| Other PC | 5 | 12.2 | 2 | 4.4 |
| Dealer PC | 6 | 14.6 | 0 | 0 |
| None | 4 | 9.8 | 10 | 22.2 |

Table 4.25: Distribution of Women Members and Non-member farmers by source of Chemical Inputs

| Type of Agricultural Category | Fertilizer | | | | Pesticide | | | |
|-------------------------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|
| | Members | | Non-Members | | Members | | Non-Members | |
| | Women (No.) | % to total | Women (No.) | % to total | Women (No.) | % to total | Women (No.) | % to total |
| PC | 21 | 55.3 | 2 | 4.4 | 21 | 52.7 | 1 | 2.2 |
| PMS | 8 | 20.5 | 2 | 5.0 | 8 | 20 | 1 | 2.2 |
| Other PC | 1 | 2.6 | 0 | 0 | 1 | 2.6 | 0 | 0 |
| Dealers | 2 | 5.3 | 24 | 53.3 | 6 | 15.0 | 22 | 48.8 |
| Agri Dept. | 0 | 0.0 | 1 | 2.2 | 0 | 0 | 0 | 0 |
| None | 6 | 15.3 | 15 | 33.3 | 6 | 15.0 | 24 | 50.8 |

Table 4.26: Distribution of Women Members and Non-member farmers by source of bio inputs

| Type of Bio-inputs Category | Fertilizer | | | | Pesticide | | | |
|-----------------------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|
| | Members | | Non-Members | | Members | | Non-Members | |
| | Women (No.) | % to total | Women (No.) | % to total | Women (No.) | % to total | Women (No.) | % to total |
| Dealers | 6 | 3 | 2 | 4.4 | 6 | 6 | 2 | 6.7 |
| PC | 6 | 14.3 | 0 | 0 | 6 | 6 | 0 | 0 |
| PMS | 1 | 2.1 | 1 | 2.2 | 0 | 0 | 1 | 3 |
| None | 24 | 62.6 | 47 | 93.3 | 4 | 10.0 | 4 | 13.3 |

Major kharif crops grown by a significant part of machine farmers included maize, soybean, pulses and cotton accounting for 33%, 19%, 13% and 11% of the cropped area respectively. In the Rabi season, major crops grown included wheat and pulses which accounted for 50% and 26% of the crop area (Table 4.27 and 4.28). Only one member farmer grew jowar in summer. Overall, it was maize and wheat accounting for 30% of the gross cropped area each followed by pulses at 19%, soybean at 11% and cotton at 6%. The cropping intensity of these farmers was 1.58.

Overall, 62% of the kharif area of non-members was under maize, 20% under soybean and 18% under cotton. Similarly, in Rabi season wheat had 52% area and wheat and gram together another 25%, with another 23% being under gram. Thus, maize, soybean, cotton and gram were the crop which accounted more than 10% of the gross cropped area. The average cropping intensity was 2.0.

Only 29% of the all-women PC members had received share certificates and 57% also were members of SHGs with some being members of other PCs. Most of the members had joined the PC in the last 10 years. They obtained agriculture information from PC in 62% and from a combination of friends and PC in 30% and only friends in another 22% cases. Interestingly,

a majority of the members 55% knew that PC belongs to farmers, the others seeing it as employee owned, promoting agency own, government owned. 90% of them had no dislike about the services being offered by the PC and 30% even reported the PC helping them in availing of government schemes and subsidies and in some cases 10% it was mainly for PC members. 73% reported attending meeting frequency to be monthly and 17% annual and 10% quarterly. 56% participated in all the meetings and 20% sometimes and another 20% had never participated in any meeting.

All of them wanted to continue as members and also wanted others to join the PC. The only crop in which the area had expanded after the PC intervention was cotton as most of them were focused on cotton. The price realization in cotton had also gone up at 25% after the PC intervention as was the case in fruits and goat meat. There was also reduced cost of transportation in the case of goats, maize and pulses besides wheat. However, the payment term had gone up substantially in cotton and pulses. The farmer member also appreciated the improvement in input quality which move from poor and good to very good and excellent after the intervention of PC. Similarly, the cost rating as well as availability and accessibility besides quantity of inputs had also improved in a similar manner.

On the output side also, there was movement from good to very good in majority of the cases especially on market availability. The number of members selling to the PCs had almost doubled over the three years which had declined in the other channel i.e. direct wholesalers. Similar was the change in mode of payment which moved to bank and cheque instead of cash (Table 4.28).

There is no effect of the presence of PC on the non-member farmers in terms of the sale of their produce of the crops grown (Table 4.29).

4.3.1: Kani Rahim PPC: member and non-member profile and impact

77% of the members of the all women PC were illiterate and others high school or middle school literate. All the members were into farming with no one reporting any other occupation. All of them had wells as source of irrigation and mostly electric motor based. None of them knew the number of shares they had owned and none of them reported that share certificates were issued. They were all members of the SHGs of women which had been aggregated into PC. 63% of them had joined the PC during 2008-2011 and 11% were before that and others after 2014. 30% of them knew that PC is owned by the farmers and they had become members due to the influence of promoters and friends.

Of the eleven women non-member farmers, 73% were illiterate, 15% middle standard literate and all of them reported farming as primary occupation with 50% reporting some secondary occupation. It happened to be wage labour. 40% had well based irrigation with others depending on canals or rivers for access to irrigation water. 60% of these farmers knew about the existence of the PC but none of the them knew who owned it as most of them had not been informed about it. Only 22% wanted to become its members as 27% knew about some of the initiatives of the PC.

Table 4.27: Kharif cropping pattern of Women PC Members and Non-members

| Crop/Category | Members | | | | | | Non-Members | | | | | |
|-----------------|---------|-----------|------------------|-----------------|-------|------------|-------------|-----------|------------------|-----------------|-------|------------|
| | Area | % of Area | Total Production | % of Production | Value | % of Value | Area | % of Area | Total Production | % of Production | Value | % of Value |
| Dates | 33 | 32.71 | 152 | 32.8 | 158 | 17 | 33 | 2222 | 54 | 400 | 1641 | 154 |
| Fruit | 2 | 1.98 | 2 | 0.4 | 0.9 | 100 | 0 | 0 | 0 | 0 | 0 | 0 |
| Groundnut | 1 | 2.44 | 0.4 | 0.24 | 0.9 | 0.40 | 1 | 607 | 14 | 324 | 2.04 | 0.27 |
| Wheat | 3 | 2.92 | 2.4 | 2.08 | 0.5 | 0.05 | 0 | 0 | 0 | 0 | 0 | 0 |
| Maize | 20 | 5680 | 46.7 | 38.71 | 70.37 | 2.01 | 28 | 3222 | 46.9 | 40.5 | 7404 | 179 |
| Paddy | 5 | 1220 | 4 | 3.5 | 1.4 | 0.05 | 4 | 820 | 1.95 | 3.24 | 2.04 | 0.25 |
| Pulses | 4 | 7135 | 15.3 | 13.3 | 2.9 | 1.77 | 2 | 444 | 1.7 | 1.58 | 0.52 | 0.05 |
| Sesame | 3 | 207 | 1 | 2.9 | 1.45 | 100 | 7 | 232 | 0.56 | 1.5 | 1.08 | 2.60 |
| Soyabean | 0 | 4634 | 30.6 | 25.3 | 44.5 | 1.58 | 10 | 2220 | 22.52 | 19.5 | 100 | 2.25 |
| Orchard | 1 | 2.44 | 0.2 | 10.7 | 0.0 | 0.0 | 1 | 227 | 0.4 | 0.5 | 0.22 | 0.40 |
| Cotton, Male | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 222 | 1.29 | 1.5 | 0.65 | 1.05 |
| Dates, Soyabean | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 444 | 4.0 | 3.2 | 1.0 | 2.00 |
| Cotton, Tree | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 227 | 1.57 | 1.0 | 0.07 | 0.0 |
| Maize, Soyabean | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 220 | 0.4 | 2.9 | 1.4 | 2.5 |
| Maize, Tree | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 222 | 2.25 | 0.8 | 1.0 | 2.25 |
| Grand Total | | | 453.8 | | 578 | | | 4033 | | 61.28 | | |

Table 4.28: Rabi cropping pattern of Women PC Members and Non-members

| Crop/Category | Members | | | | | | Non-Members | | | | | |
|---------------|---------|-----------|------------------|-----------------|-------|------------|-------------|-----------|------------------|-----------------|-------|------------|
| | Area | % of Area | Total Production | % of Production | Value | % of Value | Area | % of Area | Total Production | % of Production | Value | % of Value |
| Maize | 5 | 12.20 | 12 | 2.7 | 18 | 0.88 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mustard | 7 | 3.49 | 7 | 1.6 | 0.48 | 100 | 4 | 0 | 0 | 0 | 0 | 0 |
| Pulses | 18 | 43.54 | 25 | 7.07 | 8.37 | 43 | 4 | 0 | 0 | 0 | 0 | 0 |
| Vegetables | 2 | 4.98 | 17 | 3.7 | 0.5 | 1.60 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wheat | 33 | 81.79 | 50.8 | 66.0 | 26.13 | 1.6 | 25 | 1514 | 22.5 | 52.4 | 20.5 | 1.4 |
| Gram | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4020 | 5.87 | 25.9 | 0.57 | 0.0 |
| Wheat, Gram | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 11.5 | 0.15 | 2.47 | 0.07 | 0.0 |
| Grand Total | | | 84.8 | | 46.8 | | | 22.4 | | 38.78 | | |

A majority of the members received agricultural information from other farmers with 13% each receiving it from the PC or the promoting NGO. Others used a combination of various sources. Most of them did not receive any benefit or government scheme or subsidy due to the

PC. The only special subsidy they reported was availability of loan for maize crop @ 1% which was reported by 25% of the members. They reported the frequency of meeting to be monthly, quarterly or twice a year and 50% participated in every meeting with others never (27%) or occasionally. They all wanted to continue the membership of PC and also wanted others to join.

63% of the member farmers were small and 25% marginal operating 7% of the land. There was only one semi-medium farmer operating 27% of land. The average size of owned land was 2.9 acres and operated land 3 acres per farmer which was one of the lowest among 247 PC members. Almost all the members had buffaloes, cows, bullocks with goats accounting for 39% of the total livestock, cows 24%, bullocks 20% and buffaloes 17%. On an average there was one cow or buffalo or bullock per household and three goats per household. All of the farmers had received the seeds from the PC and fertilizers from the PAFS.

All of the non-member farmers were either marginal (54%) or small (36%) operating 6% and 56% of the total area. The average land ownership was 2.5 acres and operated land 2.71 acres, because of some leasing in. But this was half of member average land holding size. Further, cultivated land was much lower at 1.7 acres and irrigated only 0.9 acres. Wheat and maize were the major crops grown by most of the farmers with a few also taking up gram cultivation. 73% farms had goats and 61% bullocks and 54% cows with only 36% having buffaloes but goats were 38% of all livestock, heads and bullocks 20% and cows and buffaloes 21% each.

30% of the Kharif area of members was under maize and 30% under pulses and remaining 17% under soybean. In Rabi season it was 57% area under wheat and 42% under pulses. Overall, pulses took 58% of area, maize 31%, soybean 10%, and wheat 24%. The cropping intensity of member farming was 2.49. The members reported 4% increase in wheat yield and 8% increase in wheat output. The time taken to receive payment had gone down substantially in maize and pulses.

Major kharif crops for non-members was maize which accounted for 72% of the area followed by maize and soybean (21%), maize and tur 3% with 7% being under tur alone. In Rabi, wheat took 64% of the cropped area, gram 22%, and wheat and gram 12%. There were no crops grown in summer season. During the year, maize accounted for 39% of the gross cropped area, wheat 38%, gram 11% and wheat and gram 6% besides maize and soybean taking up 6% and maize and tur 3% of the GCA. The cropping intensity of these farmers was 1.91.

4.4 All other (rural-women) PC members

Of the 40 members of 4 different PCs across four panchayats, 75% members were male and 25% were illiterate. Most others had school level or undergraduate level of literacy. All of the members reported agriculture as a primary occupation and 27% wage work and another 40% petty business.

2/3rd of the farmers had ground water-based irrigation with others have access to a combination of wells, tube wells, canals and none of them reported completely rainfed farming. Almost everyone had pump sets with electric and diesel energy.

Only 1.9% of the members reported having received share certificates and 58% were member of SHGs and another 41% of other cooperatives in the area. They had received the information about agriculture activities from PC in 25% cases, friends and PC in 15%, promoting agency in 10% and from friends in 37% cases. Only 30% knew at farmers are owners of the PC with others thinking it is owned by the Bard, promoting agency or PC employees and 28% had no idea about it. Only 15% reported PC providing information about various government schemes and subsidies and 55% reported monthly meeting being held with over 15% and 13% reporting quarterly and annual meeting respectively. However, only 45% attended regularly and 35% sometimes, 10% never attended any meeting. 95% members wanted to continue as members and 50% also wanted others to join.

The average operated land was 5.42 acres and owned land 7.27 acres with significant leasing in of land. However, marginal and small farmers who were 60% of the total cultivated only 42% of the area and large farmers being only 3% of the total cultivated 42% of the operated area. Most farmers (71-85%) had cows and bullocks and 23% buffaloes and 53% had goats. But goats accounted for 30% of all livestock heads and cows and bullocks another 25% each. Average holding was 2 cows, buffaloes or bullocks and 4 goats per household.

Major kharif crops were soybean at 50%, maize at 10% and cotton at 8% of the season area. Surprisingly, both crops accounted for 10% of the seasons area and soybean had another 8% area as inter or mixed crop with other crops. In the Rabi season, potato was the largest crop occupying 37% of the area followed by wheat at 20% and spices and onion at 10% and 8% respectively. Overall, it was soybean which accounted 25% of the gross crop area followed by wheat at 10% and potato at 19%. The other significant crops in terms of area were cotton, maize, onion and pulses, and spices accounting for 4%-6% of the gross crop area. Average cropping intensity of the farmers was 1.36.

There was increase in area reported under wheat due to the PC presence and higher yields in cotton besides higher price realization in groundnut, pulses and soybean to some extent. There is also significant decline reported in transport cost. In terms of quality of input services, there was a movement from good and very good to very good and excellent in terms of cost, quality, availability and adequacy besides accessibility which moved from good, very good to very good and excellent. On the output services, similarly there was improvement from good to very good in price and market availability. In terms of change of channels for sales of farm produce, there was a growth of more than 200 members selling through the PC within three years and direct sales had come down after the PC intervention. The bank payment channel had extended considerably after PC intervention.

4.4.1 All other (non-women) PC non-members

Of the 42 non-members across 4 PCs, 71% were male and 48% illiterate with 20% each being higher secondary and middle standard literate. All of them had agriculture as a primary occupation with 54% non-reporting any secondary occupation, 17% had daily wage labour and 12% each animal husbandry and casual labour besides petty business in the case of some others.

91% of the farmers reporting irrigation and electric motors and others diesel engine-based wells and tube-wells which were owned or shared in case of 19% farmers. The farmers mostly relied on friends and other farmers for access to agriculture information (62%).

63% of the farmers had not heard about the PC and 62% did not know who owned it with others mostly suggesting promoting agency as the owner (70%). In 60% cases, nobody had given the information about the PC and others had mostly picked it up from PC promoter and employees besides PC meetings. Only 18% wanted to become members of the PC and 15% had some awareness about the initiatives of the PC, with 25% even having attended some meeting of the same.

32% each of the farmers were marginal and semi-medium and 22% were small farmers. There were 7% large farmers and medium farmers each and they operated 50% and 17% of the total area respectively. Of the rest, 35% area was with semi-medium category of farmers and marginal and small farmers depth being 54% of the total operated only 13% of the total land. The average size of operated land holding was 4.4 acres and owned land 4.57 acres which was half of that of the PC member average landholding size. Majority of farmers (60-70%) had cows and bullocks and 36% buffaloes and 46% had goats. But goats accounted for 34% of all livestock heads and cows another 23% each. Buffaloes were only 14% of all livestock. Average holding was 2 cows, buffaloes or bullocks and 4 goats per household.

15% of the farmers grew wheat and maize each and 14% cotton. Other major crops like sorghum and potato that are grown by 19% and 7% of the total farmers. In the Kharif season, sorghum is accounted for 15% of the crop area and maize 17% followed by cotton at 9% and cereals and maize together 5%. Onion was the major summer crop grown by two farmers accounting for 39% of the area with another three farmers growing vegetables which accounted for 42% of the total summer area. Only 20% of the farmers undertook summer crops. In Rabi season, it was wheat which were grown by 16 farmers with 36% area, potato and onion by 44% farmers with 19% of the total area each and garlic by 12% farmers devoting 9% of the gross crop area of the season. The other significant crops in Rabi were garlic and gram grown by 10% farmers being 4% of the total area of the season each. Therefore, across the year, it was 28% under sorghum, 16% area under wheat, 11% under maize, 9% under onion and 8% under potato. The cropping intensity of these farmers worked out to be 1.2.

There was literally no change in the asset channel of these farmers after the coming into existence of the PC.

Table 4.30: Distribution of median PC non-member farmers by crop and channel wise products sales

| Province | Crop | Market | | | Direct | | | Total |
|----------|-------|--------|---------|--------|--------|---------|--------|-------|
| | | Income | Product | Volume | Income | Product | Volume | |
| Sichuan | Wheat | 100 | 1000 | 100 | 100 | 1000 | 100 | 1000 |
| | Rice | 100 | 1000 | 100 | 100 | 1000 | 100 | 1000 |
| | Other | 100 | 1000 | 100 | 100 | 1000 | 100 | 1000 |
| | Mixed | 100 | 1000 | 100 | 100 | 1000 | 100 | 1000 |
| Guangxi | Wheat | 100 | 1000 | 100 | 100 | 1000 | 100 | 1000 |
| | Rice | 100 | 1000 | 100 | 100 | 1000 | 100 | 1000 |
| Henan | Wheat | 100 | 1000 | 100 | 100 | 1000 | 100 | 1000 |
| | Rice | 100 | 1000 | 100 | 100 | 1000 | 100 | 1000 |
| Anhui | Wheat | 100 | 1000 | 100 | 100 | 1000 | 100 | 1000 |
| | Rice | 100 | 1000 | 100 | 100 | 1000 | 100 | 1000 |

4.5.1 ASA and AKRSP promoted PCs: Members and non-member profile and impact

ASA which had 53 PCs across four states of MP, Jharkhand, Bihar and Chhattisgarh including 37 PC in MP has an organisational structure which includes seven managers at the headquarter, 15 Area and Hub managers and 42 business facilitators. ASA had promoted 37 PCs in different parts of Madhya Pradesh with membership of more than 1000 farmers, with nine of them in Shahdol hub. On the other hand, in Simdehahand and Betul hubs, there were only one or two PCs promoted by it. In western MP, there were 4 PCs each in Nimnrad and Saffan and two to three each in Pottayad, Ranajpur and Jobat hubs. Some of these PCs had BCI cotton and organic cotton projects supported by global buyers like C&A Foundation. ASA promoted PCs have also worked with BioRa India limited, Carrefour and Welapuri. ASA has 22 PCs engaged in organic cotton cultivation involving 12,000 farmers.

The major crops grown in the area included wheat and gram in rabi season and sorghum, maize, urad and cotton in Kharif season besides vegetable in summer.

In case of AKRSP PC members, major crops grown were maize, cotton, urad, soya bean, groundnut, moong, and chana. It had promoted 8 PCs in MP, besides its presence with many PCs in Gujarat earlier and in Bihar later.

4.5.1.1 ASA PC

95% of the members of these two PCs were women and 77% illiterate with all of them reporting agriculture as a primary occupation. 47% were dependent on well and another 14% on tube wells for irrigation with the rest using lakes and canals for irrigation. 28% of the well owners had electric or diesel operated pump sets. ASA PC members were on an average 35 years old compared with AKRSP promoted PC which had average member age of 40 years. In both Promoter PCs, primary occupation of all members was farming.

70% of the non-member farmers interviewed in the two PC areas were female and 68% of them did not report any secondary occupation whereas all of them reported agriculture as a primary occupation. 74% of them were illiterate and 7% were engaged in labour as threshold work. 32% of them had heard about the PC and 10% wanted to become members. The farmers were dependent for irrigation mainly on wells (28%), lakes and canals (11%) each and tube well (6%). A very large proportion were also rain fed. Their major source of information were friends and other farmers besides the government office and the dealer in few cases (10%). A majority of them (54%) did not know who owned the PC with 12% reporting it as promoting agency. They had hardly any knowledge about the initiatives undertaken by the PC and 81% had never attended any meeting. In 71% cases, no one had given any information to them about the PC and others had picked it from PC meetings and promoters.

The average size of land holding of member farmers was 3.4 in terms of operated area and 3.0 in terms of owned land. However, marginal farmers which was 46% of the total, operated only 24% land and semi-marginal farmers being 23% had 41% of the operated area. In terms of livestock, 82% of the farmer owned goats, 85% cows, 50% buffaloes and 77% bullocks with

goats accounting 57% of the total livestock heads followed by cows 22% and buffaloes and pigs at 15% and 15% each.

The average size of non-member owned land was 4.53 acres and that of operated land 4.01 acres. 44% each of the farmers were marginal and semi-medium farmers with remaining being small farmers. However, in terms of land operated semi-medium farmers had 72% of the area and marginal farmers only 16%. The largest ownership was of bullocks (74%) followed by cows and goats (61% each) and only 35% who had any livestock had buffaloes. In fact, 47% of the livestock was goats, 25% bullocks and 17% cows with buffaloes accounting for 10% of the total livestock. The tube wells were mostly run with an electricity (66%) and diesel engine (25%) with 69% of the electric connections owned or shared.

The major crops cultivated by the member farmers included cotton (25% of the GCA), soyabean (16%), soyabean with intercrop (14%) and with mixed cropping (9%) and cotton with intercrop (11%) of the kharif area. Other significant area occupying crops were maize and pulses at 6% and 7% each. In the rabi season, it was wheat accounting for 54% of the area followed by pulses at 22% and wheat and other crops 13% and maize 4% of the rabi area. Over the year, it was wheat with 10%, GCA followed by cotton at 17% and pulses at 14% besides soyabean at 10% of the area. The cropping intensity of the two postmodern PCs did not differ much being 1.5 for AKFSP and 1.1 for ASA PC members.

Cotton was the crop grown by largest number of non-member farmers (62%) followed by soyabean (21%) and groundnut (11%). Other crops grown by some other farmers included gram, wheat, maize and urad. Major kharif crops were cotton (27%), soyabean (17%), maize (11%) and cotton and maize together (10%). On the other hand, wheat accounted for 58% of the Rabi area followed by gram (28%) with the other crops being jowar, beta and vegetables. In general, during the year, cotton took up 20% of the GCA, maize 17% and soyabean and wheat 13% each. The cropping intensity of these farmers was 1.1 which was much lower than that of the member farmers.

The members perceived the input service of the PC improving its quality from poor, average or good to very good, good and even excellent mainly in terms of cost availability, accessibility and adequate quantity. All the women wanted to continue as members and wanted to bring other farmers as new members. There were significant price gains reported in cotton, paddy and groundnut due to PC intervention and higher time to receive payment in case of cotton and pulses. Although transaction cost in cotton, pulses and wheat had come down. On the other hand, output price realisation also moved from good to very good as well as in the availability of market. The number of members selling through the PC had tripled over the three years and bank payment became more common.

There was no change in the sales channel used by non-member farmers before and after the intervention of the PC where most of them sold in wholesale with only one reporting sales through the PC. There was also no change in area yield, output or cost of marketing and sales price realisation before and after the introduction of PC.

45% of the members had received their certificates and 23% of the members were also members of the SHGs. All of the members had joined these PC during the last 10 years. 25% reported receiving agricultural information from the PC with another 27% each from friends and friends and PC each.

Only 18% members knew that PC was owned by members with 50% having no idea about the ownership of the PC. Rest of the members mentioned promoting agency, SHG or PC employees as the owners. 16% acknowledged PC providing information about government schemes and subsidies and 50% reported the frequency of meeting to be monthly and 20% each quarterly and annual. 55% participated in the meetings every time and the rest only sometimes or never.

4.3.1.2 AKRSP PC members and non-members

The members of the AKRSP promoted PC were mostly men with only one being a woman, 45% illiterate and another 27% only primary literate (Table 4.27). All of them reported farming as a primary occupation. For 45% of them who had a secondary livelihood, 36% it was labour and for 9% carpentry as the secondary source of livelihood (Table 4.28). All of them had well or tubewell based irrigation. All of the tube well owners had electric motors.

Of the 21 non-members interviewed across two PCs, 13% were men and the rest women with 57% being illiterate and 24% middle standard literate (Table 4.27). There was only 5% who were graduate. 76% reported their primary occupation as farming and 5% allied activities like dairy, poultry, and goatery besides 14% being primarily casual labour. The major secondary occupation reported by 21% of the total was daily wage labour followed by farming and goatery by 10% each. Interestingly, 42% did not report any secondary occupation (Table 4.28).

Average operated land for member farmers was 5.31 acres and owned land 3.61 acres (Table 4.29). 65% of the members were marginal or small but they operated only 35% of the area compared with semi-medium and medium farmers (15% each) accounted for 24 and 30% of the operated area (Tables 4.30 and 4.31). The livestock ownership varied from 100% in goat and cow to 22% in buffalo and 85% in case of cow and buffalo (Table 4.32). The share of goat was the highest in the total number of livestock, which was almost 44% followed by cow and buffalo at 22% and 15% respectively. In general, there were two cows or buffalo per household and six goats per household.

The average operated land by non-member farmers was 3 acres of which 2.56 acres was owned (Table 4.29). 47% of the farmers were marginal land owners and 29% small farmers with another 12% each being semi-medium and medium farmers each. There were no large farmers among them (Table 4.30). In terms of area, marginal and small had 46% and medium farmers 30% leasing 34% for the semi-medium category. There was some amount of leasing-in of land and very nominal leasing out reported (Table 4.31). The livestock owned by farmers included 60% goat, 10% cows and 18% buffalo by members with 40% of the farmers owning goat, 54% buffalo and 21% cows (Table 4.32). Buffaloes were owned by only 12% of the farmers with average ownership of one buffalo, two cows or buffalo and seven goats per household.

45% members had received state certificates and 73% were members of SHGs and 26% of other FPOs mainly PCs. All 66 the members had joined PC in the last 10 years.

45% of the members received their agriculture related information from the PC, 17% from the promoting agency and friends each with the rest using multiple sources for receiving. 38% of the members knew that the PC owned by the farmer members with other 35% feeling it was owned by promoting agency, PC employees, or Board of Directors. The members generally had no problem with the services offered by the PC and 45% also acknowledged PC bringing government schemes and subsidies.

52% of the non-member farmers who had access to irrigation (66%) relied on wells and tube-wells with only 7% reporting access to canal water. 82% of the tube well and well owners had electric motor and the rest diesel based pump sets.

Major kharif crops grown by members included cotton with 25% share, soybean with 21% share, maize 14% and jowar 7% of the season's cropped area. There were many cases of inter- and mixed- cropping especially in maize, soybean and cotton. In Rabi, it was mainly wheat which accounted for 2/3rd of the season's area followed by vegetables (11%) and pulses (10%). There were no crops grown in the summer season. Overall, it was mainly wheat, soybean and cotton which accounted for 16% of the GCA with other significant crops being maize and leafy vegetables besides jowar which accounted for another 17% of the GCA. There were many cases of intercropping in maize, cotton, potato, soybean and soya besides wheat and also cases of mixed cropping in cotton, groundnut, maize, potato and wheat. The average cropping intensity of the farmer members is 1.65. Only one farmer each (10% of 66) reported growing spices in case of AKISIP promoted PCs in 4% of GCA of all members and in ASA PCs jowar which took only 2% of GCA of all of its PC members.

In terms of cropping pattern of non-member farmers, soybean emerged as the largest crop grown by 23% of the farmers followed by cotton (17%) and wheat (16%). The next important crop was maize. It was grown by 14% farmers and 12% farmers reported goat rearing. In terms of area, soybean accounted for 44%, cotton 15% and cotton and soybean together as intercrop 8% of the total area with the other major crop being groundnut with 6% area as was the case with maize. The rest of the area was under intercrop in Kharif season. On the other hand, in Rabi, grown by 25% of the farmers, it was wheat mainly which took 72% of the area followed by wheat and gram together at 21%. There were hardly any crops grown in summer season. Overall, wheat accounted for 30%, soybean 21% and wheat and gram 3% besides cotton accounting for 6% of the total area cultivated during the year. The cropping intensity turned out to be 1.4%. The sales price had increased by 11% in the case of only goat.

21% of the non-members did not have any problem with the services of the PC but 37% also had no knowledge of it with 34% being aware of the initiative of the PC. None of them reported any negative experience with the PC or some of them had transacted with the PC. For the access to information about agriculture and allied activities, majority of them relied on friends and relatives and other farmers besides the agricultural department office. Only 10% reported receiving this information from the PC directly and 5% each indirectly through the promote-

or as a combination of friends, neighbouring farmers and the PC. 79% knew about the existence of the PC in their area but 99% did not know who owned it with only 11% being aware that it is owned by farmers. 18% thought it is owned by the promoting agency and other 9% seeing it as owned by Board of Directors and employees of the PC. This was so because in 99% cases, nobody had provided them any information with the rest picking it up from PC meetings and from their interaction with the promoters. Only 19% desired to become a member of the PC.

57% members reported monthly meetings of the PC members and 24% and 19% with annual and quarterly meeting respectively. Majority of them (52%) attended every meeting. Another 30% sometimes only. 9% members had never attended the meeting.

The quality of inputs delivered by the PC and other channels had improved from good to very good and excellent and the cost had also moved in the same direction as was availability and to some extent quality. On the output side, in general there was an improvement in price and availability of the market for the output in terms of sales channels there was tripling of sell transaction through the PC and some reduction in the APMC channel sales.

The members did not report any major changes in the cropping pattern, yields or output due to the intervention of the PC other than the fact that the cotton and soybean prices were appreciate significantly during the last three years. The transaction cost had also come down in both cotton and goat marketing. All of the members wanted to continue with the PC and 19% of them also wanted to encourage other non-members to join the PC.

Only two non-member farmers reported selling through the PC compared to the pre-PC situation of one farmer selling to it. On the other hand, there was 12% increase in selling through the APMC Mandi and this was the sixth year since wholesale selling to traders.

Table 4.31: Distribution ATRSP and ASA PC members by Education

| PC Member Education Category | ATRSP | | ASA | |
|------------------------------------|-------------|----------|-------------|----------|
| | Members (%) | ₹ Crores | Members (%) | ₹ Crores |
| High School | 1 | 5.0 | 1 | 4.0 |
| Higher Secondary | 1 | 5.0 | 2 | 8.0 |
| General | 5 | 45.0 | 6 | 72.0 |
| Middle School | 1 | 5.0 | 3 | 30.0 |
| Primary | 1 | 10.0 | 3 | 30.0 |
| Uneducated | 1 | 5.0 | 1 | 4.0 |
| Total | 11 | 100.0 | 22 | 160.0 |

Table 4.32: Distribution of AKRSP and ASA PC members by Secondary Occupation

| PC Primary Secondary Occupation | AKRSP | | ASA | |
|------------------------------------|---------------|------------|---------------|------------|
| | Members (No.) | % of Total | Members (No.) | % of Total |
| Carpenter | 1 | 20% | 0 | 0 |
| Labour | 4 | 20% | 0 | 0 |
| Agreement Worker | 0 | 0 | 2 | 100% |
| Physician | 0 | 0 | 1 | 50% |
| None | 4 | 54.5% | 0 | 0% |
| Total | 9 | 100% | 22 | 100% |

Table 4.33: Average Owned and Operational Land of AKRSP and ASA PC member farmers

| PC Member Average Land (Hect.) | AKRSP | ASA |
|-----------------------------------|-------|-----|
| Owned | 5.9 | 3.8 |
| Operated | 5.6 | 3.6 |

Table 4.34: Distribution of AKRSP and ASA PC member farmers by Owned Land

| PC Primary Farmer Category | AKRSP | | | | ASA | | | |
|-------------------------------|--------|----------|------|--------------|--------|----------|------|--------------|
| | Farmer | % Farmer | Land | % Total Land | Farmer | % Farmer | Land | % Total Land |
| Marginal | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| Small | 4 | 20% | 0 | 0% | 4 | 18% | 0 | 0% |
| Semi-Medium | 2 | 10% | 0 | 0% | 5 | 23% | 0 | 0% |
| Medium | 2 | 10% | 0 | 0% | 0 | 0% | 0 | 0% |
| Large | 0 | 0% | 0 | 0% | 22 | 100% | 0 | 0% |

Table 4.35: Distribution AKRSP and ASA PC member farmers by Operated Land

| PC Primary Farmer Category | AKRSP | | | | ASA | | | |
|-------------------------------|--------|----------|------|--------------|--------|----------|------|--------------|
| | Farmer | % Farmer | Land | % Total Land | Farmer | % Farmer | Land | % Total Land |
| Marginal | 2 | 10% | 0 | 0% | 0 | 0% | 0 | 0% |
| Small | 5 | 25% | 0 | 0% | 4 | 18% | 0 | 0% |
| Semi-Medium | 2 | 10% | 0 | 0% | 0 | 0% | 0 | 0% |
| Medium | 2 | 10% | 0 | 0% | 0 | 0% | 0 | 0% |
| Total | 0 | 0% | 0 | 0% | 22 | 100% | 0 | 0% |

Table 4.36: Distribution of AKRSP and ASA PC member farmers by Livestock Owned

| PC members Frequency Type of Livestock | AKRSP | | | | ASA | | | |
|--|---------|-----------|---------|----------------|---------|-----------|---------|----------------|
| | Farmers | % Farmers | Animals | % Male animals | Farmers | % Farmers | Animals | % Male animals |
| Buffalo | 1 | 20.0 | 5 | 5.0 | 0 | 0.00 | 25 | 14.9 |
| Goat | 8 | 100.0 | 40 | 43.4 | 8 | 80.0 | 72 | 60.0 |
| Oxen | 8 | 100.0 | 20 | 28.2 | 17 | 72.2 | 34 | 22.0 |
| Cow | 2 | 66.7 | 21 | 22.0 | 5 | 20.8 | 20 | 13.0 |

Table 4.37: Distribution of AKRSP and ASA PC member farmers by Source of Irrigation

| Ownership | Source | Energy | AKRSP | | ASA | |
|-----------|----------|----------------|---------|-----------|---------|-----------|
| | | | Farmers | % Farmers | Farmers | % Farmers |
| Shared | Well | Electric Motor | 1 | 33.3 | 0 | 0 |
| Owned | Well | Electric Motor | 3 | 60.0 | 8 | 50.0 |
| Owned | Tubewell | Electric Motor | 1 | 33.3 | 2 | 33.3 |
| Shared | Tubewell | Electric Motor | 0 | 0 | 1 | 4.5 |
| Shared | Lake | Diesel Engine | 0 | 0 | 3 | 33.3 |
| Owned | Lake | Diesel Engine | 0 | 0 | 2 | 12.5 |
| Owned | Lake | Electric Motor | 0 | 0 | 1 | 4.5 |
| Owned | Well | Diesel Engine | 0 | 0 | 1 | 4.5 |
| | None | | 0 | 0 | 3 | 33.3 |

Table 4.38: Kharif cropping pattern of AKRSP and ASA PC members

| PC members Frequency Crop | AKRSP | | | | | ASA | | | | |
|--|---------|-----------|-----------|---------|------------|---------|-----------|-----------|---------|------------|
| | Farmers | % Farmers | Area (ha) | Area/ha | Total Area | Farmers | % Farmers | Area (ha) | Area/ha | Total Area |
| Wheat | 1 | 100 | 15 | 2.0 | 148 | 0 | | | | |
| Maize/Wheat | 1 | 100 | 2 | 2.4 | 3.2 | | | | | |
| Cotton | 3 | 66.7 | 65 | 25.2 | 140 | 8 | 66.7 | 262 | 228 | 65.0 |
| Onion/Wheat | 3 | 100 | 2 | 2.4 | 3.2 | 7 | 43.8 | 84 | 65 | 12.0 |
| Onion/Wheat/ French Beans/ Wheat | 1 | 100 | 2 | 2.4 | 3.2 | 0 | 0.0 | | | |
| Wheat | 3 | 22.2 | 45 | 5.0 | 45 | 1 | 4.5 | 68 | 65 | 12.0 |
| Maize | 7 | 63.4 | 65 | 8.8 | 52 | 5 | 72.7 | 49 | 3.0 | 1.0 |

| PC Product | PC Type | 2017 | | | | 2018 | | | | |
|-------------------------------|---------|--------|----------|-------------|--------------|-------------|----------|-------------|-----------------|--------------|
| | | Volume | % Volume | Prod. Cost | % Prod. Cost | Volume | % Volume | Prod. Cost | Prod. Cost/Unit | % Prod. Cost |
| Organic Cotton | 1 | 100 | 0.5 | 0.52 | 0.55 | 0 | 100 | | | |
| Soybeans | 4 | 26.26 | 55 | 0.76 | 0.58 | 13 | 65.45 | 3.4 | 0.52 | 0.52 |
| Soybeans, Dotti | 1 | 100 | 2.5 | 4.57 | 2.76 | 0 | 100 | | | |
| Soybeans, Jover | 1 | 100 | 0.5 | 0.52 | 0.55 | 0 | 100 | | | |
| Soybeans, Mula, Jover | 1 | 100 | 15 | 2.88 | 1.81 | 0 | 100 | | | |
| Wheat | 1 | 100 | 3 | 1.07 | 1.01 | 0 | 100 | | | |
| Wheat, Jover | 1 | 100 | 4 | 2.18 | 4.42 | 0 | 100 | | | |
| Cotton, Mula | | | | | | 4 | 100 | 26 | 0.58 | 0.26 |
| Cotton, Mula, Misong | 0 | | | | | 1 | 100 | 1 | 2.76 | 1.01 |
| Mula, Jover | 0 | | | | | 1 | 100 | 54 | 0.55 | 0.28 |
| Paddy | 0 | | | | | 4 | 100 | 3 | 4.01 | 2.42 |
| Soybeans, Mula | 0 | | | | | 3 | 100 | 12 | 0.94 | 0.32 |
| Soybeans, Mula, Cotton, Jover | 0 | | | | | 1 | 100 | 43 | 0.63 | 1.38 |
| Soybeans, Mula, groundnut | 0 | | | | | 1 | 100 | 18 | 2.76 | 1.01 |
| Soybeans, Jover | 0 | | | | | 2 | 100 | 3 | 4.01 | 2.42 |
| Sugarcane | 0 | | | | | 1 | 100 | 1 | 1.38 | 0.91 |
| Wheat | 0 | | | | | 1 | 100 | 1 | 2.76 | 1.01 |
| Wheat | 0 | | | | | 2 | 100 | 3 | 4.01 | 2.42 |
| Wheat, Mula, Dura | 0 | | | | | 1 | 100 | 12 | 0.94 | 0.32 |
| Total | | | | 53.8 | | 20.2 | | 72.4 | 100.02 | 40.03 |

Table 4.39: Rabi cropping pattern of AGRSP and ASA FC members

| FC members | AGRSP | | | | | ASA | | | | |
|--------------|---------|------------|-------|---------------|--------------|---------|------------|-------|---------------|--------------|
| | Farmers | N. Farmers | Total | N. Total (ha) | % Total (ha) | Farmers | N. Farmers | Total | N. Total (ha) | % Total (ha) |
| Corn | 8 | 5455 | 45 | 1364 | 4.87 | 11 | 55.00 | 113 | 2457 | 3.57 |
| Maize, Wheat | 1 | 505 | 2 | 525 | 2.21 | 0 | 0.00 | | 0.00 | |
| Vegetables | 3 | 2272 | 7 | 506 | 2.23 | 2 | 325 | 17 | 2.52 | 1.19 |
| Wheat | 8 | 10000 | 245 | 7624 | 23.97 | 79 | 1025 | 245 | 12.49 | 20.20 |
| Wheat, Soyab | 0 | 0.00 | | | | 2 | 525 | 5 | 225 | 4.54 |
| Maize | 0 | 0.00 | | | | 4 | 1000 | 15 | 3.53 | 1.45 |
| Soyabean | 0 | 0.00 | | | | 1 | 425 | 1 | 225 | 0.83 |
| Total | 16 | 100 | 33 | 100.00 | 26.46 | 22 | 100 | 43.8 | 100.00 | 27.98 |

Further, only 18% of AGRSP and 5% of ASA FC members used Insecticides which was bought from the FC. Only 18% of AGRSP members used Herbicides and had bought from the FC.

Table 4.40: Distribution of AGRSP and ASA FC member farmers by Source of Seeds

| FC members | AGRSP | | ASA | |
|---------------------|---------------|--------|---------------|--------|
| | Farmers (No.) | N. (%) | Farmers (No.) | N. (%) |
| Agri University, FC | 1 | 5.00 | 0 | 0 |
| Dealers | 3 | 22.72 | 5 | 22.72 |
| Dealers, FC | 2 | 15.38 | 8 | 35.29 |
| FC | 3 | 22.72 | 3 | 13.64 |

Table 4.41: Distribution of AGRSP and ASA FC members by Source of Chemical inputs

| FC members | Fertiliser | | | | Pesticides | | | |
|------------|---------------|--------|---------------|--------|---------------|--------|---------------|--------|
| | AGRSP | | ASA | | AGRSP | | ASA | |
| | Farmers (No.) | N. (%) | Farmers (No.) | N. (%) | Farmers (No.) | N. (%) | Farmers (No.) | N. (%) |
| FC | 2 | 15.38 | 11 | 50.00 | 0 | 0 | 0 | 0.00 |
| RMC | 2 | 15.38 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dealers | 1 | 7.69 | 4 | 18.18 | 2 | 15.38 | 4 | 18.18 |
| Direct use | 6 | 46.92 | 5 | 22.72 | 5 | 38.46 | 6 | 27.27 |

4.32: Vrutti, PRADAN and IGS Promoted PCs- A comparison

All respondent members of Vrutti promoted PC Bafal Krishna (7) and 305 promoted PC Nihou (12) were male while all of the Pradan promoted Chitraya Women PC members (11) were female.

4.32.1 Chitraya Women PC members and non-members

All the 11 members of the PC were women and 45% of them being literate. 56% had tillied school literacy and 9% each were primary and high school literate (Table 4.35). 91% of them reported farming as a primary occupation and 9% labour. Farming, animal husbandry and labour were three equally important secondary occupation reported by one member each (Table 4.36). 44% of the members depended on river for irrigation and 21% each on wells and tube wells with 75% of the tube wells being electric operated (Table 4.44).

All the non-members were women farmers with 52% being literate and 42% reporting daily wage labour as secondary occupation besides agriculture being reported as primary occupation by all of them. Most of the farmers reported dependence on can and river for irrigation and only a few had electric or diesel operated wells. They mostly learnt about agricultural issues from their neighbouring farmers or friends.

64% members had received share certificates and 100% of them were members of SHGs. 82% of the members had joined only in the last 5 years. 1.9% of them did not know the name of the PC and 34% reported farmers as the owners with 9% each mentioning government, protecting agency or the employees as the owners. They had mostly learnt about the PC from promoters (44%), friends (38%) and employees (18%). None of them had received any information or availed of any subsidy or scheme because of the PC. However, 25% of them reported PC as a source of agricultural information with 27% mentioning a combination of PC and friends and another 9% various other sources including PC. The meetings were reported to be monthly by 52% members and annual by the rest. 23% of them reported attending it every time, 27% sometimes and 9% never. All of them wanted to remain members as well as encourage others to become members of the PC.

64% of the members were marginal and 9% small with rest 27% being semi medium farmers. But, marginal farmers had only 37% of the area and semi medium farmers had 34% of the total operated area of the members (Table 4.41 and 4.42). Average owned land was 2.35 acres and operated land 3.2 acres per farmer (Table 4.40). 91% of them had bullocks and 45% and 17% each had cows and goats. Cows accounted for 42% of the livestock with average ownership of 6 cows per household followed by goats accounting for 31% with average ownership of 5 goats per household. The rest of the livestock were bullocks with average ownership of two bullocks per household.

In terms of landholding, all of the non-member farmers were either marginal (82%) or small (16%) and all of the land was operated equally between these two categories with 18% small farmers accounting for 31% of operated area. Accordingly, operated land was 1.6 acres on an average which was not very different from owned land (1.5) acres. This was in fact the lowest average farm size among all PC non-members and was half of the member average land holding size. Only 10% farmers each owned any livestock and this was mostly bullocks in case

of 86% households and accounted for 53% of all livelihood with cows only 27% owned by just 10% of households.

54% of the khadd area of members was under maize and another 18% maize inter-cropped with other crops. Fruits, jowar and sesame accounted for 8% each of the khadd area and pulses and paddy 4% and 3% respectively. In the Rabi season, it was mostly wheat (50%), followed by pulses (23%), vegetables (12%) and mustard (4%). During the year, members had 42% of the GCA, wheat 20%, pulses 12% and vegetables 2% of the GCA. The average cropping intensity of the farmer was 1.43.

The cropping intensity of IGS and Pradhan PC member farmer was high (1.38 and 1.39) and low for PRADAN PC member (1.45).

58% non-member farmers grew maize and 5% each wheat or gram. In Khadd, 58% area was under maize and the rest under sesame and other such crops and in Rabi, it was only wheat (32%), gram (22%) and wheat and gram (44%). There was no summer crop reported by any farmer. On an average, during the year, maize accounted for 48% of the area, gram 12%, wheat 16% and gram and wheat together 22% (tables 4.45-4.46 and 4.47). The cropping intensity turned out to be 1.27 which was higher than that of the members.

All the member farmers bought seeds as well as fertilizer from the PC (Table 4.48). The members reported significant increase in area under pulses and maize due to the intervention of the PC and improvement in yields of pulses as well besides wheat. There was also price benefit in pulses, maize and wheat ranging from 10%-400% before and after the PC intervention.

70% of non-member had not even heard of the existence of the PC and 59% did not know who owned it with another 1.27 each thinking that it is government owned or promoting agency owned. This information was reported by only three farmers. 23% of the farmers also reported nobody making them aware of the activities of PC more of them (35%) had no desire to become member of such an entity though they had knowledge about the initiatives of the PC.

Table 4.42: Distribution of VNRIL, IGS and PRADAN PC member farmers by Education

| PC member | IGS | | VNRIL | | PRADAN | |
|------------------|------------|-----------|------------|-----------|------------|-----------|
| | Farmer (%) | N/A total | Farmer (%) | N/A total | Farmer (%) | N/A total |
| Illiterate | 0 | 0 | 1 | 8.33 | 1 | 45.45 |
| Primary | 0 | 0 | 0 | 0 | 1 | 22.73 |
| Middle School | 1 | 16.25 | 1 | 8.33 | 1 | 22.73 |
| High School | 3 | 43.75 | 4 | 33.33 | 1 | 54.55 |
| Higher Secondary | 1 | 16.25 | 2 | 16.67 | 0 | 0 |
| Undergrad | 1 | 16.25 | 1 | 8.33 | 0 | 0 |
| Graduate | 1 | 16.25 | 1 | 8.33 | 0 | 0 |
| Grand Total | 7 | 100 | 12 | 100 | 5 | 100 |

Except one member of Pradhan PC who reported labour as main occupation, all members of all three PCs had farming as primary occupation.

Table 4.43: Distribution of Vrutli, IGS and PRADAN PC member farmers by Secondary Occupation

| PC Member | Vrutli | | IGS | | PRADAN | |
|-------------------|-------------|------------|-------------|------------|-------------|------------|
| | Farmers (%) | % to total | Farmers (%) | % to total | Farmers (%) | % to total |
| Skilled Labour | 2 | 40.0 | 1 | 20 | 0 | 0 |
| Labour | 0 | 0 | 0 | 0 | 1 | 50 |
| Animal Husbandary | 0 | 0 | 2 | 40 | 1 | 50 |
| Business | 0 | 0 | 4 | 80 | 0 | 0 |
| Agriculture | 0 | 0 | 0 | 0 | 1 | 50 |
| None | 4 | 80 | 5 | 100 | 0 | 0 |

Table 4.44: Average owned and operated land holding of Vrutli, IGS and PRADAN PC member farmers

| PC Member | Average land (acres) | Owned | IGS | Pradana |
|---------------|----------------------|-------|-----|---------|
| Owned Land | 85 | 165 | 25 | |
| Operated Land | 115 | 151 | 22 | |

Table 4.45: Category wise Distribution of Vrutli, IGS and PRADAN PC members by owned land

| PC Member | Number (%) | Vrutli | | | IGS | | | | Pradana | | | |
|-------------|------------|------------|------|------------|------------|------------|------|------------|------------|------------|------|------------|
| | | Number (%) | Area | % to total | Number (%) | % to total | Area | % to total | Number (%) | % to total | Area | % to total |
| Marginal | 1 | 16.7 | 2 | 4.0 | 0 | 0 | 0 | 0 | 0 | 37.7 | 0.2 | 2.4 |
| Small | 1 | 16.7 | 2 | 4.0 | 2 | 25.0 | 12 | 28 | 0 | 0 | 0 | 0 |
| Semi Medium | 4 | 50.0 | 25 | 54.9 | 3 | 25.0 | 18 | 45 | 3 | 22.2 | 26 | 63.4 |
| Medium | 1 | 16.7 | 15 | 32.0 | 4 | 25.0 | 21 | 50 | 0 | 0 | 0 | 0 |
| Large | 0 | 0 | 0 | 0.0 | 2 | 25.0 | 10 | 44.2 | 0 | 0 | 0 | 0 |
| Total | 7 | 10 | 46.5 | 0 | 12 | 0 | 58.2 | 0 | 0 | 0 | 26.5 | 0 |

Table 4.48: Category-wise Distribution of Vrutti, IGS and PRADAN PC members by Operated Land

| PC Parameters/ Category | Vrutti | | | | IGS | | | | PRADAN | | | |
|-------------------------------|------------------|---------------|--------------|---------------|------------------|---------------|--------------|---------------|------------------|---------------|--------------|---------------|
| | Members (No.) | % of Total | Area (Ha) | % of Total | Members (No.) | % of Total | Area (Ha) | % of Total | Members (No.) | % of Total | Area (Ha) | % of Total |
| Marginal | 1 | 14.3 | 2 | 5.88 | 1 | 8.33 | 0 | 0.00 | 2 | 65.6 | 15 | 36.0 |
| Small | 1 | 14.3 | 2 | 6.00 | 3 | 25.00 | 87 | 21.4 | 1 | 3.0 | 15 | 36.0 |
| Semi Medium | 5 | 71.43 | 25 | 62.5 | 3 | 25.00 | 83 | 20.8 | 2 | 6.0 | 25 | 62.5 |
| Medium | 0 | 0 | 0 | 0 | 2 | 16.67 | 33 | 8.25 | 0 | 0 | 0 | 0 |
| Large | 0 | 0 | 0 | 0 | 3 | 25.00 | 75 | 18.75 | 0 | 0 | 0 | 0 |
| Total | 7 | 100 | 34 | 100 | 12 | 100 | 283 | 100 | 5 | 100 | 35 | 100 |

Table 4.49: Distribution of Vrutti, IGS and PRADAN PC member farmers by livestock ownership

| PC Parameters/ Type of Livestock | Vrutti | | | | IGS | | | | PRADAN | | | |
|---|--------|---------------|-----|---------------|-----|---------------|-----|---------------|--------|---------------|-----|---------------|
| | No. | % of Total | No. | % of Total | No. | % of Total | No. | % of Total | No. | % of Total | No. | % of Total |
| Buffalo | 4 | 57.14 | 5 | 62.5 | 1 | 8.33 | 1 | 7 | 0 | 0 | 0 | 0 |
| Cow | 2 | 28.57 | 10 | 25.0 | 5 | 41.67 | 26 | 27 | 6 | 60.0 | 20 | 40.0 |
| Goat | 1 | 14.29 | 2 | 5.0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 24 | 38.7 |
| Donk | 0 | 0.00 | 14 | 35.0 | 6 | 50.00 | 0 | 0 | 0 | 0.00 | 21 | 33.3 |

Table 4.50: Distribution of Vrutti, IGS and PRADAN PC member farmers by Source of Irrigation

| Ownership | Source | Energy | Vrutti | | IGS | | PRADAN | |
|-----------|---------------|----------------|------------------|---------------|------------------|---------------|------------------|---------------|
| | | | Members (No.) | % of Total | Members (No.) | % of Total | Members (No.) | % of Total |
| Owned | Canal | Diesel Engine | 0 | 0 | 0 | 0 | 1 | 100 |
| Owned | Well | Diesel Engine | 1 | 14.29 | 0 | 0 | 0 | 0 |
| Owned | Well | Diesel Engine | 0 | 0 | 0 | 0 | 1 | 100 |
| Owned | Well | Electric Motor | 0 | 0 | 0 | 0 | 1 | 100 |
| Shared | Well | Electric Motor | 0 | 0 | 0 | 0 | 2 | 100 |
| Shared | Subwell | Electric Motor | 0 | 0 | 0 | 0 | 1 | 100 |
| Owned | Subwell | Electric Motor | 0 | 0 | 0 | 0 | 1 | 100 |
| Shared | Well | Electric Motor | 0 | 0 | 1 | 62.5 | 1 | 100 |
| Owned | Well | Electric Motor | 5 | 71.43 | 2 | 16.67 | 1 | 100 |
| Owned | Well | Diesel Engine | 1 | 14.29 | 0 | 0 | 0 | 0 |
| Owned | Well, Subwell | Electric Motor | 0 | 0 | 0 | 0.00 | 0 | 0 |
| Unowned | | | 0 | 0 | 0 | 0 | 2 | 100 |

Table 4.50: Padi cropping pattern of vottu, ISS and PRADAN PC members

| Kategori | vottu | | | ISS | | | PRADAN | | |
|----------|----------------|-----------|---------------|----------------|-----------|---------------|----------------|-----------|---------------|
| | Number Farmers | Area (ha) | Yield (kg/ha) | Number Farmers | Area (ha) | Yield (kg/ha) | Number Farmers | Area (ha) | Yield (kg/ha) |
| Sum | 12027 | 75 | 3028 | 7 | 328 | 335 | 3 | 335 | 347 |
| Male | 6377 | 33.5 | 1438 | 5 | 199 | 320 | 1 | 338 | 328 |
| Female | 0 | 0 | 0 | 2 | 135 | 308 | 2 | 0 | 0 |
| Sub-C | 0 | 0 | 0 | 2 | 31.8 | 309 | 3 | 0 | 0 |
| Sub-B | 0 | 0 | 0 | 3 | 34 | 328 | 3 | 35 | 330 |
| Others | 5 | 0 | 0 | 0 | 0 | 1878 | 4 | 312 | 1707 |
| Total | 12027 | 75.5 | 3028 | 12 | 373.3 | 3010 | 11 | 373.3 | 347 |

Table 4.51: Semester cropping pattern of Nutti, GG and PRADAN PC members

| PC Members | Yield | | | | GG | | | | PRADAN | | | |
|------------|------------------|---------------|----------------------|---------------------|------------------|---------------|----------------------|---------------------|------------------|---------------|----------------------|---------------------|
| | Wheat Revenue | Wheat Cost | % Summer Yield | % Total Yield | Wheat Revenue | Wheat Cost | % Summer Yield | % Total Yield | Wheat Revenue | Wheat Cost | % Summer Yield | % Total Yield |
| Food/Date | 1429 | 9 | 10000 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other | 0 | 0 | 0 | 000 | 0 | 0 | 0 | 000 | 0 | 0 | 0 | 0 |
| Sum | 0 | 0 | 0 | 000 | 0 | 0 | 0 | 000 | 0 | 0 | 0 | 0 |
| Wheat | 0 | 0 | 0 | 000 | 0 | 0 | 0 | 000 | 0 | 0 | 0 | 000 |
| Wheat/Date | 0 | 0 | 0 | 000 | 0 | 0 | 0 | 000 | 0 | 0 | 0 | 000 |
| Total | 100 | 9 | 10000 | 00 | 0 | 0 | 0 | 000 | 0 | 0 | 0 | 000 |

Table 4.52: Distribution of Vivta, IGS and PRADAN PC members by Source of Seeds

| PC Primary Source | Vivta | | IGS | | PRADAN | |
|-------------------------|------------------|------------|------------------|------------|------------------|------------|
| | Members (No.) | % of total | Members (No.) | % of total | Members (No.) | % of total |
| Agriculture Department | 3 | 42.9 | 0 | 0 | 0 | 0 |
| Dealers | 1 | 14.3 | 7 | 87.5 | 0 | 0 |
| Dealers, Local Farmers | 1 | 14.3 | 0 | 0 | 0 | 0 |
| Dealers, PMS | 1 | 14.3 | 0 | 0 | 0 | 0 |
| PMS | 1 | 14.3 | 0 | 0 | 0 | 0 |
| FC, Dealers | 0 | 0 | 0 | 0 | 0 | 0 |
| IC | 0 | 0 | 0 | 0 | 0 | 0 |
| All | 7 | 100 | 7 | 100 | 0 | 0 |

Table 4.53: Distribution of Vivta, IGS and PRADAN PC members by Source of Chemical Inputs

| PC | Vivta | | | | | | IGS | | | | | |
|----------------|------------------|---------------|------------------|---------------|------------------|---------------|------------------|---------------|------------------|---------------|------------------|---------------|
| | Inoc | | Fertil | | Pestic | | Inoc | | Fertil | | Pestic | |
| | Members (No.) | % of total | Members (No.) | % of total | Members (No.) | % of total | Members (No.) | % of total | Members (No.) | % of total | Members (No.) | % of total |
| IC | 0 | 0 | 4 | 100 | 0 | 0 | 0 | 0 | 1 | 100 | 0 | 0 |
| PMS | 0 | 0 | 3 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dealers | 0 | 0 | 1 | 100 | 0 | 0 | 4 | 100 | 1 | 100 | 0 | 0 |
| Agr Dept | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 100 | 0 | 0 | 0 | 0 |
| FC, PMS | 0 | 0 | 1 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dealers etc | 1 | 100 | 1 | 100 | 1 | 100 | 1 | 100 | 1 | 100 | 1 | 100 |
| Total | 1 | 100 | 9 | 100 | 0 | 0 | 7 | 100 | 3 | 100 | 0 | 0 |

4.3.12) Beral Kotahik PC members and non-members

All the 7 members of the PC were high school literate (HPL) or higher secondary, middle school, undergraduates or graduate each (14%) each. All of them were into farming as primary activity and a few into small petty business or skilled occupation like tailoring. 71% of them had well as the source of irrigation with others using a combination of canal and well and just river. All the farmers had sources of energy for pumping water.

82% of the interviewed non-member farmers in the case of this PC were men. 17% of them were illiterate, 27% middle standard pass, and 11% primary literate. All of them reported agriculture as the main occupation and 25% daily casual labour as the secondary occupation. The main source of irrigation was tubewell in case of 40% and well in case of another 27% and one farmer reporting both well and tubewell. Canal only and along with well was reported as source of irrigation by 27% of farmers. Most of the tubewell and well owners had electric

major connection. 73% had no knowledge of the PC and 33% did not know who owned it with others reporting promoting agency and employees as its owners. 57% did not get any information about the PC from anywhere and 29% reported receiving it from PC promoters and 40% from PC employees. Only one farmer expressed interest in becoming member as he had knowledge of its initiatives.

57% of the members had not received share certificates and 67% of them were not member of any other group or collective. PC was one of the sources only in the case of one farmer exclusively and another one along with other sources like mobile and agricultural essential staff. One farmer also mentioned promoting agency as the source of information.

57% of the member farmers were aware that farmers own the PC with others mentioning Board of Directors (29%) and the promoting agency as the owner. Most of them were encouraged to become members by the promoters. None of them received any information about various government schemes or subsidies with one farmer reporting availing of agricultural equipment subsidy. All the members reported monthly meetings and 71% participating in them every time. All of them wanted to continue members and encourage others to become members.

71% of the members were marginal or small farmers and the rest semi-medium farmers but 29% (semi medium farmers) operated 41% of total land. The average operated was 6.5 acres and operated land 4.56 acres. This gap is due to the large amount of uncultivated land which was of the order of 1.6 acres on an average. This was a semi-medium size of holding and one of the largest among all MF PCs. All of the farmers had cows and bullocks with 27% having buffalo and 15% goat and poultry each. Of the total livestock owned, 41% were bullocks, 29% cows and 15% buffaloes. On an average, a household had 2 bullocks and one buffalo and/or cow each and 2 goats per household.

46% of the non-member farmers were small and 15% each marginal, semi-medium and medium category each. However, 18% (medium) farmers operated 50% of the land and marginal farmers (13%) only 9% of land. Marginal and small farmers accounting for 63% of the total operated 31% of total land. The average farm size was high at 6.3 acres which was lower than owned land because some of the land was reported to be uncultivated. Only 27% to 56% farmers had livestock and bullocks were the most prevalent with 54% of the total livestock followed by 25% being goats and cows each and 20% buffaloes.

In Kharif season, maize accounted for 58% of the cropped area of members and soybean 15% followed by paddy and pulses 2% each. In Rabi, it was just two crops of wheat and pulses accounting for 58% and 42% respectively. Wheat emerged as the largest crop for these farmers (27%) closely followed by pulses (15%) and maize (13%) including inter-crops. Soybean took 12% of the GCA and paddy 6%. The average cropping intensity was 1.95.

50% non-member farmers grew maize, 13% wheat and 18% soybean with only 10% reporting paddy cultivation. In terms of Kharif cropping pattern, maize accounted 58% of the area, paddy 22% and soybean 20%. In summer, only small area was put largely under labranga (44%) and Moong (33%). On the other hand, in Rabi season, wheat took 58% of the area, gram 13% and

wheat and gram together 26%. Overall cropping pattern across the year was stabilised by maize 34%, wheat 26%, paddy 14%, soybean 12% and gram 8%. The average cropping intensity for the farmer was 1.58 similar to that among the members.

None of the farmers bought any inputs from the PC and depended on dealers and PACS for the same and bought fertilisers from the PACS. There was no change in any crop area or yield or output or even sales price realisation as the PC had not intervened in the output market.

4.2.3 Show PC Members and non-members

Of the 12 male members 42% were graduates and only 8% literate with the rest being high or higher secondary (literate 17%) each or middle school or under grad literate (8%) each. All of them were engaged in farming with 25% reporting business as secondary occupation and 15% off-farm vending. 50% of the members had wells or tube wells and other 25% also canal irrigation. All of them had electric operated tube wells.

50% had not received share certificates and 53% were not aware. Most of them were member of the PACs. 30% of the farmers knew the PC is owned by members with other 8% each mentioning government, IFSCO or promoting agency as the owner. 23% did not know who owned the PC. 23% had become members due to the persuasion by the promoters and others by PC employee and friends.

58% reported that meetings were held only once in a year and only 25% participated in them regularly with others occasionally 33%, sometimes 23% and never 17%. 72% of them wanted to sustain as members and 55% wanted to encourage others to become members.

Of all the nine non-member male farmers interviewed, 44% were high school literate, 33% middle standard literate and 11% being graduate. All of them reported agriculture as a main occupation with 22% reported animal husbandry as a secondary occupation. 60% did not report any secondary occupation. The irrigation access was mainly from wells and tubewells (44%), wells (22%), canal and well (22%) and only canal (11%). All of the well owners had electric connections. These farmers mostly relied on friends and dealers for information about agricultural inputs. 17% of them did not know about the PC and 73% did not know who owned it. In fact, in these cases, nobody had provided them any information. 44% of them wanted to become members of the PC and 33% of all were aware of the initiatives undertaken by the PC.

13% of the member farmers were small and 17% each semi medium or medium with 25% being large farmers who operated 94% of the total land with small and marginal farmers operating only 6%. The average owned land was 15 acres and operated land 16.9 acres. This was a PC which had mostly large and semi-medium and medium farmer as member and this was the largest average farm size of any PC membership. 73% of the farmers had cows and 30% bullocks with cows accounting for 72% of the total livestock and bullocks another 28%. There were 4 cows and 2 bullocks per household.

Average operated land for non-members turned out to be 37.2 acres with 5.8 acres being leased in hand. In terms of landholding, all of the farmers were semi-medium (56%), medium (11%) or large farmers (33%). Further, in terms of area operated, large farmers had 59% of the total cultivated premium 25% and medium farmers 15%. Major livestock was cows owned by 67% households and buffaloes by 33% households with cows and buffaloes accounting for 45-46% of the total livestock with average 3 cows and 3 buffaloes per household. 42% of the total livestock owned was buffaloes and 44% cows with the rest being bullocks and goats.

Soybean was the predominant kharif crop for member farmers occupying 71% of the area followed by herbs, maize and vegetables. In Rabi, it was potato accounting for 40% of the area followed by spices at 15% and vegetables at 6%. Therefore, soybean and potato took away 35% each of the gross crop area during the year and spices another 10% followed by vegetables at 6%. The cropping intensity of the farmers was 2.05.

15% of the non-member farmers grew potato, 11% each onion and wheat, 22% soybean and 14% garlic. In terms of Kharif area, 74% was under soybean, 9% each under cotton and maize whereas in Rabi, potato and onion accounted for 20% each, wheat 25% and garlic 12%. In general, during the year, soybean accounted for 36% of the area, onion 15%, potato 14% and wheat 12% of the GCA. The other important crops were cotton and maize at 5% each and garlic exclusively and along with gram 9% of the GCA. The average cropping density is 2.1 and similar to that of the PC members.

Most of the farmers bought seeds from dealers and majority of them buying chemical fertiliser from PC and the rest from SACs. The chemical pesticides were mostly bought from PC and some other bought from dealers. Farmers reported very significant increase in vegetable area during the last three years (four times) and significant increase in potato yields besides vegetables. The sales price had also significantly improved in vegetables and spices.

4.6 Summary

A comparative analysis of the various PCs in MP by various promoters shows that AEA PCs had small size of membership, but their turnover was significant enough given the small size of membership. AISEP promoted PCs had really small authorised capital and small mobilised equity (only 25-34% of authorised). But they were able to achieve good level of revenue turnover and remained in profit almost throughout the period. The performance of goat PC was even more impressive as it was all women member PC and was in an unusual and unorganised sector of meat and animal trade.

Average size of owned land of members was 3.5 acres and operated land was of the order of 6 acres. The non-member farmers on an average owned 4.5 acres of land and operated 5.4 acres, each with almost 1/3rd of the land being irrigated.

In only 27% cases, the share certificates were issued by the PCs. A very large proportion of members were also members of self help groups (SHGs) (49%), simply for the reason that many of the PCs specially women focused had their base in the SHGs. Only 11% farmers reported

membership of cooperative society and 5% of another PC. Only 48% of the members knew that they owned the PC. The biggest influence in their becoming members of the PC were the PC promoters (75%). In 84% cases, they had not received any dividend on their shares so far.

Surprisingly, very vast majority (73%) did not have any complaint about the services provided by the PC. 85% wanted to continue being member of the PC. Further 88% also stated that they would encourage others to become members.

Before the intervention of the PC, 88% farmers sold directly to traders and 31% through the APDC with only 12% reporting selling through PC. This proportion of APDC and direct sales reduced to 28% and 44% and the PC share increased accounting for 28%. So far as the diversification of crop area due to the PC intervention is concerned the area increased marginally (2%) under maize and sorghum (2%) and decreased under cotton by 2%. Not only the area, but also the number of farmers growing these crops increased due to the PC intervention by a small percentage.

Most of the member farmers still bought their various inputs from dealers which were high in seeds and chemical pesticides. The farmer mostly bought from the PC for the reason of better quality, easy accessibility and lower price. On the other hand, dealers were preferred for similar reasons by other farmers.

Women PC member, on the other hand, on an average, operated land holding of 2.71 acres and owned 2.35 acres.

Only 37% of the all -women PC members had received share certificates and 5% also were members of SHGs with some being members of other PCs. 82% knew that PC belonged to farmers which was higher than those among all PC members. 90% of them had no skills about the services being offered by the PC and 20% even reported the PC helping them in availing of government schemes and subsidies. 72% reported attending meetings, 55% participated in all the meetings and 20% sometimes, and another 20% had never participated in any meeting.

All of them wanted to continue as members and also wanted others to join the PC. The only crop in which the area had expanded after the PC intervention was cotton as most of the PCs were focused on cotton. The price realization in cotton had also gone up by 22% after the PC intervention.

On the output side also, there was movement from good to very good in majority of the cases especially on market availability. The number of members selling to the PCs had almost doubled over the three years. There was no effect of the presence of PC on the non-member farmers in terms of the sale of their produce or the crops grown.

65% of the non-woman PC non-member farmers had not heard about the PC and 61% did not know who owned it. Only 25% wanted to become members of the PC and 25% has some awareness about the initiatives of the PC with 28% even having attended some meeting of the same. The ASA/PC members provided the input service of the PC reporting its quality

from poor, average or good to very good, good and even excellent mainly in terms of cost, availability, accessibility and adequate quantity. There was no change in the sales channel used by non-member farmers before and after the intervention of the PC where most of them sold in wholesale with only one reporting sales through the PC. 45% of the members have received share certificates and 23% of the members were members of the SHGs. Only 15% members knew that PC was owned by members with 60% having no idea about the ownership of the PC.

91% of the AKRSFI PC non-members did not have any problem with the services of the PC but 57% also had no knowledge of it with 38% being aware of the initiative of the PC. None of them reported any negative experience with the PC as none of them had transacted with the PC. Only 10% reported receiving this information from the PC directly and 50% each indirectly through the promoter or as a combination of various sources including the PC. 79% knew about the existence of the PC in their area but 59% did not know who owned it with only 12% being aware that it is owned by farmers. This was so because in 39% cases, nobody had provided them any information with the rest picking it up from PC meetings and from their interaction with the promoters. Only 5% desired to become a member of the PC.

The quality of inputs delivered by the PC and other channels had improved from good to very good and excellent and the cost had also moved to the same direction as was availability and to some extent quality. On the output side, in general, there was an improvement in prices and availability of the market for the output in terms of sales channels there was tripling of sale transaction through the PC and some reduction in the APMC channel sales.

The members did not report any major changes in the cropping pattern yields or output due to the intervention of the PC other than the fact that the cotton and soybean prices were appreciate significantly during the last three years. The transaction cost had also come down in both cotton and goat marketing. All of the members wanted to continue with the PC and 19% of them also wanted to encourage other non-members to join the PC. Only two non-member farmers reported selling through the PC compared to the pre-PC situation of one farmer selling to it.

The cropping intensity of IG8 and Vrutti PC member farmers was high (2.05 and 1.99) and low for Pradhan PC members (1.53) as some Pradhan PC farmers were rainfed and other dependent on rivers and shared wells. But IG8 PC farmers were medium land operators with average being 15 acres compared with only 5 acres for Vrutti promoted PC members and 3 acres for Pradhan PC. This was also one of the reasons for failure of the IG8 promoted PC.

The Vrutti promoted Satol Krishna was almost default & it had neither mobilised enough equity nor undertaken any business so far despite being there for 4 years. None of the farmers bought any inputs from the PC and depended on dealers and PACS for the same and bought fertilisers from the PACS. There was no change in any crop area or yield or output or even sales price realisation as the PC had not interacted at all.

Pradhan promoted PC had good interface with women members for input supply who all bought from the PC. The PC mobilised Rs. 10 lakh/yield up capital within three years. The PC has been undertaking seed contract farming in soya bean and wheat with 150 farmers and selling it to the seed corporation or back to the farmer members for growing crops. It also sells maize, cotton seeds at lower than market price and claims that 75% of the members buy exclusively from the PC. Major innovations of the PC included seed contract farming, distant market trading, and introduction of mechanical grading. On the external front it faced problems of lack of finance and high cost of loans. It also perceived competition from PAFS and cutting of fertilizers through this mechanism by the Govt. as external competition.

On the output side, it aggregated crops like soya bean, maize, wheat and gram and had its own brand - Dharti Natural. In terms of livelihood diversification, it introduced soya bean as a cash crop and a new variety of wheat in the last few years. In 2015-16 it bought gram on behalf of SAFC at MSP for 1% commission. It also facilitates sale of its members produce to wholesale traders in various markets in MP, and Gujarat.

The best case was that of Ram Rajan Pragas - an all women PC - which had very large capital base and large revenue running in a few hundred million rupees annually besides being in profit all the time and creating some assets including a warehouse with imported technology and a processing facility. On the output side it aggregated various crops like wheat, gram and maize from 1000 members. It also makes use of warehouse receipt based loans for storing its produce in its own warehouses. It is mainly into NPSH products and link and sell 90% wheat and gram procurement to Fate Harvest Pvt. Ltd which has equity in this PC. The farmers members have been into NPSH practices for the last 10 years. It has also done job work for private players like Big Bazaar. The PC has promoted red gram in the area and also reverse selling of pulses to the member farmers by processing it into dal. It is the one of the very few PCs which have participated in futures markets and made profits in maize but lost money in soya in 2016-17. It plans to continue futures trading NCDEX in maize, out of the more 600 members, 200 sell some produce to the PC. It has been able to get loans and grants from APF, Axis bank and NABARD through promoting NGO though working capital and interest rates are still a constraint.

Appendix 4I

ASA PCs

Ranapur Mahila Tribal PC

The Ranapur PC promoted by ASA in Debraj district was registered in 2011 and originated from 125 SHGs existing since 2000 with 300 members who all became members of the PC. Presently, the PC operates across 79 villages with 142 members. The PC allows only land owners to become members and average land holding was reported to be 1.25 acres. The shares held by members range from 50 - 100 and all the members had been issued share certificates. All the members are reported to be marginal and small landowners and women of whom 70% were active members. The PC had authorised capital of Rs. 20 lakh and paid up capital of Rs. 14.12 lakh (Table 4I). It also had reserves of Rs. 41,000. The PC had an APMC license and most input sale licenses.

The BoD had five members (all women) to begin with and in 2017-18 had nine members of which six are women. It paid its CEO and the PC provided seeds of various crops to members and also fertilizers and pesticides and mainly farmers bought from it because of lower price. The PC has a warehouse since 2014-15 which is used for aggregating and storing the produce. It has a wholesale brand of its products called Dharti Natural. The PC has promoted large cultivation of soyabean and a new variety of wheat during the last five years. It undertook seed contract farming in soya and wheat for the state seed corporation which involves 125 hectares and 500 tons of seeds. It had also been procuring gram for the SEAC at MSP (50 tonnes) for which it received one percent commission. It also sold some of the soyabean, chana and wheat produce procured from members in wholesale markets in MP and Gujarat directly to traders.

Table 4I: Profile and performance of Ranapur Mahila Tribal PC

| Key Parameter | 2014 | 2017 | 2018 | 2019 |
|--------------------------------|------------|------------|------------|------------|
| Authorised Capital (Rs. Lakh) | 20 | 20 | 20 | 20 |
| Paid up Capital | 14.12(69%) | 14.12(69%) | 14.12(69%) | 14.12(69%) |
| Revenue (Rs. lakh) | 2154 | 2802 | 6451 | 6523 |
| Profit (Rs. Lakh) | -236 | 2.57 | -48 | 41 |
| Reserve and Surplus (Rs. lakh) | - | 4.29 | 4.38 | 397 |
| Members (Nos) | 70 | 90 | 100 | 120 |

Whereas all of the members transacted with PC for input purchases, only about 70% of members transacted with PC on the output side. 60% of its revenues come from output and 40% from input sales. It agreed that 30% of members were not aware of the fact that they owned the PC. The Company has had business plans since 2012 which are prepared by ASA and INO.

together. The PC had been able to receive the grants of the order of Rs. 7 lakhs in 3 instalments in 2013-14 and has availed loans from NABARD, FVTB, Amara Finance and even ASA. The BoD and SHGs had been provided training and exposure twice a year and the PC believed that its seed production intervention was very successful. Its other interventions included scaling up and branding of produce. The PC faced shortage of working capital and therefore was not able to meet all the demand for inputs from the members. It planned to focus on scaling up and tie-ups with government agencies for enhancing its revenues.



PHOTO 4.1: SHG's activities in MP

Alirajpur Tribal PC

This PC was registered in 2012 from the existing self-help groups (SHGs) of farmers and had five board members. The PC had 805 members across 25 villages. Its membership included multiple members from the same household in some cases, and most of the members were marginal or small landowners. 90% members were women, 70% members were active. A member needed to be a member self-help group, a farmer and not holding any Panchayat position to become a member of BoD. The PC had no CEO.

It had authorized capital of Rs.18 lakh and paid up capital of Rs. 7.22 lakh (Table 4.2). It had licenses for sale of seed, fertilizers and agrochemicals besides an APJAC licence. The total area of the members was 3600 hectares and these farmers were organized into groups of 25 to 500 for organic group certification. There were 5 Internal Control System (ICS) teams for this project being carried out for Coka Foundation. Besides input sales, it also ran a farm machinery rental service for the last 1-2 years, which had been set up with 40% subsidy, but it had mainly a thresher for various crops. It engaged in seed contract farming besides trading of agricultural produce.

Table 4.2: Profile and performance of Alirajpur PC

| Year Terminating (in Lakhs) | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|--------------------------------|---------|---------|---------|---------|---------|---------|
| Authorized Capital | 18 | 18 | 18 | 18 | 18 | 18 |
| Share capital | 11(61%) | 44(25%) | 22(12%) | 22(12%) | 22(12%) | 22(12%) |
| Total Revenue | 2.85 | 2.45 | 9.4 | 7.25 | 11.8 | 8.2 |
| Profit | 0.25 | 41 | 0.25 | 1.85 | 0.30 | 0.1 |

The PC sold various inputs to members of which 25 to 40% bought these products mainly due to lower price. Only about 25% input business came from non-members. However, no members exclusively bought any input from PC despite lower price, better quality, and easier availability.

The PC aggregated various crop produce and has rented a warehouse. 35% of its output purchase came from non-members. The PC claimed that it had brought organic cotton to the area. The PC had done only institutional sales specially selling of 50 tons of Urad to SFAC at MSP in 2014-15. It had also sold its produce to ITC once and even to the APMC. Its members produce (cotton and wheat) under Shiksha Shakti Scheme (SSS) once. 40% of the members participated in input purchase as well as output sale to the PC. The PC received matching equity grants from SEAC and loan of Rs 20 lakh from NABARD in 2017-18. It had also been able to receive financial assistance for the first few years under UPP and Mahila Kisan Sashaktikaran Yojna (MKSY) projects. The SCD was trained every six months. It was planning to limit input business and expand output purchase for larger impact on the members. It is also planning getting of cotton. The major problems faced by the PC internally included low awareness and literacy among the members, poor agricultural infrastructure like irrigation and lack of roads. On the external front, competition from the private sector traders who bought from mandi was an issue as PC incurred an additional cost of farmer doorstep procurement.

AKRSPI PCs

Neeti PC

This was the oldest PC in the state promoted by AKRSPI. This PC was registered in 2014 and is a block level PC covering 28 villages. It originated from 75 farmer interest groups organised in 2013, 57 of whom are part of the PC. There were 1178 FIC-members and 347 as their work shareholders in the PC. Each group has 10 to 20 with average of 15 members. Originally, 14 promoters registered the PC. All the shareholders were landowners owning 130 shares valued at Rs. 10 each (holding Rs. 1000 per member). 150 of the shareholders had been given their certificates and others are still pending. Of the total members, 250 are women who were in most cases spouses of ex-members. The company has accumulated capital of Rs. 10 lakh, paid up capital of Rs. 3.25 lakh in 2015-16 and reserves of about Rs. 7 lakh (Table 4.3). The paid capital was Rs. 6.46 lakh. The PC had direct dealership only in bio-fertiliser from one company and had APMC licence as a commission agent in the fruit and vegetable market, as there were no commission agents in the grain markets in MP.

The PC had 8 Board members elected for two terms of three years each right from the beginning including one women member. The shareholders who intended to become directors needed to be motivators, and local influencers with no political background. The PC paid for its CEO who was a Master's degree holder but there was no other staff. The promoting NGO helped the PC in its operations and office premises were also rented. The average land holding of the shareholder was 2.5 acres.



Photo 4.2: Office cum retail outlet of Naxal FPO

The FPO was involved in the supply of various inputs like seed, fertiliser, spray pumps and irrigation equipment besides animal feed to member as well as non-member farmers. The inputs business accounted for 45% of FPO turnover and 35% of the input business came from the non-members. About 150 farmers bought inputs from the FPO and 150 members buy their inputs exclusively from the FPO. Most of the cotton seed sold was non-BT and only a small percentage of BT cotton seeds are sold to cater to the needs of farmers. 140 out of FPO farmers members were also part of the organic cotton farming project which has 1500 farmers who are supplied organic cotton seed. On the output side, FPO outsourced processing of groundnut and cotton don job work basis which accounted for 40% of total turnover. Cotton accounted for 40% of the output transactions and organic cotton 22% of it, with the rest being BT cotton. Some of the farm inputs which were produced by the FPO like bio-organic account for 11% of the local input sales. 30% of the total turnover of the FPO came from the non-members. It was involved in certification of organic farms on behalf of farmer groups. Even non-members contributed to organic cotton procurement.

The FPO had sold organic produce to global players like CARREFOUR and Non-Pesticidal Management (NPM) groups to domestic players like Tata Harvest India Pvt. Ltd., and BT cotton to local players like Pratibha Semya. The FPO had promoted organic cotton cultivation among both members and non-members and jivas and saag (millet) among 150 farmers by not only encouraging them to grow it but also buying this produce from the farmers. It had tried contract farming of pulses with Green Gold Agri Biotech two years ago engaging 40 members. The company did not buy as the produce did not meet the quality standards. But, most of the organic cotton and organic millets for Pratibha Semya were under contract farming arrangements as farms required conversion and certification over a number of years. The seed from organic cotton was sold to local oil millers. The FPO received a facilitation fee of Rs. 30 per quintal after meeting 40 expenses. 77 farmers produced and supplied organic

cotton to CARPEFOUR. Similarly, NPM grassroots produced from 40 members was sold to Safe Harvest India at 5% premium over market price and all the costs of purchase were met by the buyer. The PC had also been selling organic produce of member farmers in retail in local markets. The PC received a premium of 10% on organic lint price compared with conventional lint price. In the retail market, it had been selling sweet potato, beetroot and organic product.

The PC was registered as NCDEN but had never traded. It had received managerial support of two staff for three years, but not matching equity grant as of now. However, it had been able to receive a Corporate Social Responsibility (CSR) grant through the promoting agencies from Arim Pramp Foundation. The business plan of PC was prepared by another professional NGO-BASIX. In 2015-16, the PC also availed a short term loan from Cotton Federation for Rs. 6 lakhs for cotton procurement and also similar loans from other PCs promoted by ASREIF. One staff of the PC was handed by the promoter who looked after another two PCs as well. The promoter had also given training to SoD on leadership, business management and to CEO and the staff on accounts related matters. It also organized exposure visits to other PC in MP and Gujarat. It saw its own brand in bio-inputs and focus on output marketing as best practices which other PCs should follow. The other innovations included: decentralized procurement and quality seed production. On the process innovations, organic farming practices in cotton and other crops in the same farms including facilitation of market with private market linkage for 7000 of its 12000 farmers in MP, out of whom 3000 are fully organic across PCs was an important innovation. It was also planning to move from NPM to organic gradually as there is overlap between NPM and organic farmers.

In terms of challenges faced by PC major ones included: lack of availability of adequate organic seeds and low risk capability of the PC besides unsold stocks of various inputs. On the output side, limited market and poor bargaining power besides poor govt. linkage is also problematic. The local resource persons (LRPs) provided extension to the farmers on behalf of the promoting NGO. It believed, in having multiple channels for farmer produce in the local area, it was also planning to open a retail outlets for selling input and output products.

Table 4.3: Profile and performance of Nevali PC

| Key Parameter | 2014-15 | 2015-16 | 2017-18 | 2018-19 |
|-------------------------------|---------|---------|-----------|-----------|
| Authorized Equity (Rs. Lakh) | 0 | 0 | 0 | 0 |
| Paid up capital (Rs. Lakh) | 1.00% | 1.00% | 1.38 (6%) | 1.38 (6%) |
| Revenue (Rs. Lakh) | 5.26 | 10.56 | 45.4 | 100 |
| Profit (Rs.) | -204 | 2677 | 209 | 6029 |
| Reserves and Surplus (Rs.) | 1668 | 432 | - | 6478 |
| N of shares held by Promoters | 80 | 80 | 80 | - |
| N of shares held by Farmers | 30 | 10 | 15 | - |
| Total Assets (Rs. Lakh) | 5.6 | 6.79 | - | - |

Pandhiana PC

Pandhiana Pasbu Paksi PC in Mandera district was registered in 2016. The NGO AGRSP had organised women SHGs across 26 villages. Now these are 470 shareholders of the company each contributing Rs. 1000. The authorized capital of the PC was Rs. 3 Lakh and paid up capital Rs. 2.99 lakh in 2018-19 (Table 4-4). The PC had membership across 48 villages and 40% of the members have livestock. The members had been given only receipt of their money and not a share certificate. Most of the members (450) reared goats of local breed for the purpose of meat, 200 also do poultry and others did both. Each member had 5-6 goats and in the case of poultry 15- 20 birds. 400 members were active. The animals were sold in the Pasbu Bazaar organised by the village panchayats.

In 2016, it had 290 SHGs of which 46 groups became members of the PC. The local area is known for Bakhti breed of goat. 50% of the households also have some land ownership. The Pasbu Pakhis kept an account of animals which could be sold to PC and brought in the buyers. 30% of the goats and 50% chickens were sold through the PC. A shed cost Rs. 3000 to 4000, the major cost being the cost of the jali (fence). The member farmers also grow crops like soy, bean, maize, cotton, tur, chickpea, wheat, and green peas.

The PC had five Directors in the Board 15 of whom were original promoters of the PC. All of them were also working as Pasbu Pakhis. The PC had one CEO paid by it who was helped by Pasbu Pakhis.

The PC provided poultry birds, goats and feed. The day-old chicks were sold @ Rs. 20 each. 15% of the poultry birds and 30% of the goats were bought from or through the PC. 30% of the input business of the PC came from the non-members. There was no animal insurance for the members. However, vaccination and deworming of the goats was done at regular intervals. The PC did not directly buy output or animals but facilitated the sale while working with traders after making an assessment of the supplies. A trader then either physically inspected the animals or saw a photo before agreeing to buy. PC received 1% commission on sales. The members also received 40 goats under the fight hunger food project. The meat was sold in wholesale @ Rs. 130 per kg. The PC also started selling fresh meat at weekly haats where two goats meat is sold @ Rs. 400 per kg. The cost of rearing was about Rs. 30 per kg. The goats were mostly fed cheaped (wheat husk and bean) and mineral mixture-UMR. The Nutrilac Brand of Urea Molasses Block (UMB) as well as mineral mixture and poultry feed were produced by the members who were organized into Pasbu Pakhi (livestock rear) groups of 20 to 25 each.

The PC bought only 10% of the output from non-members. During Eid, 30% of the total sales were realised. Earlier, the animals were being sold by assessing their weight visually. An average animal of 30 kg was sold @ Rs. 250 per kg giving Rs. 7500 on weight basis compared with only Rs. 6000 on visual assessment. 70% of the revenue of the PC came from commission received on wholesale transaction with the traders and 30% from the animals bought from the members and sold by PC in retail as meat.

An average goat had two cycles of delivery with 2 to 3 kids in each cycle of pregnancy and a kid took 8 months to become adult. A goat had an average age of 11 years. The cost of a kid of

4 to 5 months is Rs. 2000 to 4000 and Rs. 5000 to 6000 after 3 months. The cost of rearing a kid for sale on the occasion of Eid was Rs. 1500 to 2000 compared with general cost of Rs. 500 to 700. However, a kid specially reared for Eid is sold for Rs. 10000 to 12000 each. Major disease of a goat included foot and mouth and dact and Jamilhat in poultry. The non-members were offered Rs. 10 to 30 lower prices in the case of goat and Rs. 5 per kg lower in case of poultry bird compared to those offered to members.

The major components of its turnover included sale of goats, mineral mixture, UMB, poultry feed and chicken. In 2017-18, the company operated across 23 villages with 800 shareholders and Rs. 2.9 lakh share capital. In 2018-19, its shareholders had gone upto 664 and share capital to Rs. 3.45 lakh. In 2018-19, the PC also added new source of revenue which includes buffaloes, mince, soya Decided Cake (DoC) but sale of goats still remains the most significant activity in terms of revenue.

The PC had not made profit until last year (2019-20) because the goats bought for Eid could not be sold locally and were in Indore which led to loss of Rs. 2 lakh. The PC had availed of a bank loan of Rs. 1 lakh for revolving fund and a grant of Rs. 1 lakh from a Foundation. The company aims to reach a membership of 1000. Its Board has been given a five-day training and 100 members were taken for exposure trip once. The PC claimed that 50% of the members were aware that the PC belonged to them. The PC buys own production and markets of some of the inputs as best practices. Besides that, it also considered weight based purchase as innovation and thinks that it can survive even after producer support is withdrawn. The farmers sold to PC on advance payment basis or a week's credit. The major constraint faced by the PC was lack of financial resources. The PC planned to scale up to achieve viability of its operations. The PC had never given any dividend to members.

Table 4.4: Profile and performance of Pandhara PC

| Key Performance | 2016-17 | 2017-18 | 2018-19 |
|------------------------------|----------|---------|----------|
| Authorized Equity (Rs. Lakh) | 5 | 5 | 5 |
| Paid up capital (Rs. Lakh) | 100% | 100% | 1,95,00% |
| Revenue (Rs. Lakh) | 2.28 | 147 | 213 |
| Profit (Rs. lakh) | 1,02,078 | 173 | 189 |
| Reserves and Surplus (Rs.) | 179 | 2028 | 2041 |

Chirayu Women Crop PC

This PC registered in 2013 has its origins in the self-help groups (SHGs) of women operating since 2005 dealing with water sheds, poultry and other farm inputs. It operated across 21 villages of five blocks in Betul district and had 1000 members. Most of the members were from marginalised categories like SC, ST, BC, and small or marginal land owners. The Board of Directors had 10 women members and they were representatives of farmer groups. The members of the PC also had membership of Primary Agricultural Co-op Societies (PACS) in 100% cases as most of the members are landowners. 70% women members were active. The

authorized capital of the PC had been raised from Rs. 10 lakh in 2017-18 (Table 4.5) to Rs. 25 lakh. The PC paid up capital was Rs. 20 lakh including 50% of it contributed by Small Farmer Agribusiness Consortium (SFAC) as matching equity contribution. The PC also had reserves of the order of Rs. 25 lakh. It had various business for sale of farm inputs and purchase of farm output though it has no warehouse facility. The PC mobilized Rs. 10 lakh paid up capital within three years. The PC had seven field staff besides the CEO and their salaries are paid by the PFC for the last two years though initially for three years paid by SFAC and before that by the promoting agency. The PC had been undertaking seed contract farming in sorghum and wheat with 150 farmers and selling it to the seed co-operative or back to the farmer members for growing crops. It also sold maize, cotton seed at lower than market price and claimed that 75% of the members bought exclusively from the PC.

On the output side, it aggregated crops like sorghum, maize, wheat and gram and had its own brand – Dharti Natural which was used to promote its wholesale business. In terms of livelihood diversification, it had introduced sorghum as a cash crop and a new variety of wheat in the last few years. 7% of its input sale and 20% of output turnover came from non-members. In 2015-16 it bought gram on behalf of RaPC at MSP at 1% commission. It also facilitated sale of its members produce to wholesale traders in various markets in MP and Gujarat. Inputs supplies which were bought by all the members account for 60% of turnover while 60% of this turnover comes from 70% of the membership. The PC had received loans from NABARD and Andhra Finance and ASADAS and most of the previous loans have been repaid. The promoting agency still provided technical and financial support to the PC. The promoter has trained BoD twice every year on issues of membership, ownership, legal aspects and business plan, and members have been taken to other PCs in Maharashtra for exposure. It claimed that the introduction of high-quality maize seeds has led to quadrupling of the yields. It was of the view that the innovations of the PC include seed contract farming, distant market trading and introduction of mechanical grading. Major problems faced by the PC include lack of warehouse and market orientation among the shareholders of whom only 7% think it is their company. On the external front, it faced the problems of lack of finance and high cost of loans. It also perceived competition from RAFC and routing of fertilizers through this mechanism by the Govt. as external competition. The PC had not yet engaged in NPM and organic production, but it planned to expand seed contract farming and build government linkage for sale of its seed besides expanding the membership to 300.

Table 4.5: Profile and performance of Chirayu Women Crop PC

| Key Parameter | 2014-15 | 2017-18 | 2019-20 |
|---------------------------------|----------|----------|----------|
| Authorized Equity (Rs. Lakh) | 10 | 25 | 25 |
| Paid up capital (Rs. Lakh) | 12 (75%) | 20 (80%) | 20 (80%) |
| Revenue (Rs. Lakh) | 6100 | 6750 | 11120 |
| Profit (Rs.) | 2850 | 3800 | 5500 |
| Reserves and Surplus (Rs. Lakh) | 0 | 12 | 20 |
| No. of shareholders | 551 | 600 | 700 |

The PC planned to provide inputs for various cereal and vegetable crops during 2015-20. However, it was doing so only in wheat, maize, gram, onion and cauliflower. On the output side it did not plan to increase its purchase of wheat and gram due to existing of the MSP based procurement in the area and lack of storage facility with the PC. The PC planned to buy about 100 tons of each of the paddy wheat and maize crop and 500 tons of gram and half ton of onion in the first year of the plan. Overall, the PC planned to handle Rs. 217.75 lakh of produce and earn a profit of Rs. 10.57 lakh. The PC would require Rs. 38 lakh as working capital and could provide for 25% from its own sources. It had budgeted for 11% income decline and still hoped to earn profit every year. The business plan had profits of Rs. 7.8 lakh in the first year going upto Rs. 25.7 lakh at the end of the five-year plan and the membership increasing from 1000 to 1500 over five years. It also planned to collect a service fee Rs. 200 per farmer per year giving it Rs. 2 lakh in the first year and Rs. 3 lakhs by the fifth year totalling to Rs. 13.8 lakh over five years. It planned to capture 50-70% of the input supply of the major crops like tomato, chilly, brinjal, onion, maize and wheat. An equivalent amount of its revenues were expected to come from output trading and from input supply each.



Photo 4.5: Maize being dried in MP after harvesting and threshing

Mhow Agri PC

The PC registered in 2014 emerged from SHGs and covers 10 villages. In 2017, the share money was withdrawn by the members and 7 out of 10 board members resigned. There are 400 members with share capital of Rs. 6.8 lakh and authorized capital of Rs. 10 lakh but only Rs. one lakh worth of shares had been raised (Table 4.8). By the time it was made cooperative, it had a turnover of Rs. 4.8 lakh in 2016-17. The PC was struck off by the MCA as it did not file returns.

As per Grant Thompson report, 1000 farmers across 18 villages were organized into 30 FPGs with 20 members each and an executive committee of FPG leaders selected first five directors and promoters for the registration of the PC. The catchment area of the PC is 530 households and 13 859 hectares of farm land in a radius of 30 kilometres. The average land holding of the members was 4.37 hectares.

It was revived in 2019-20 with 15% old and rest being new members. 75% of the members are vegetable growers. Only 100 members were allotted share certificates of the 600 farmers. Most were medium and large farmers and only 50% are active. 20% members are women. The PC had AFMC trading and machinery agency (CHC) license. The Board members were politically affiliated and become members depending on how many members they bring in. There were three women members of the Board out of 10 in 2019 which were only two in 2018. The PC had a CEO and a marketing officer. On the input side, it mostly dealt in seeds, fertilizers and pesticides and the 75% of its sales were to the members. On the output side only in 2015-17 it undertook procurement for the SFAC worth Rs. 20 lakhs. Earlier in 2017 it had also dealt in potato and onions while facilitating their sale to the SFAC and and in 2018, it facilitated sale of garlic to 34 rural traders and earned a commission of 2%. A PC can be struck off if there is no transaction continuously for two years. The SFAC which had given land for godowns, had appointed Grant Thompson as consultants, to the PC to develop market linkages. This agency had prepared and submitted a report in 2019 which had details of the profile of the PC. The authorized capital of the PC was Rs. one lakh and as of 2018, the PC had collected Rs. 5.55 lakh share money from farmers. It had proposed to increase the authorized capital to Rs. 10 lakh and was planning to apply for matching equity grant from the SFAC. In 2017, PC had 686 farmers from 14 villages with an average land holding of 4 hectares each. Major crops of interest of the PC include: soybean in kharif and rabi, potato and garlic and rabi season. The engagement of Grant Thompson (GT) India LLP was for a period of two years from July 2016 to May 2018 through an agribusiness promotion unit (ABPU). The GT India analysed 332 PCs under SFAC in the states of MP, West Bengal and Karnataka and shortlisted 149 of them based on turnover and current operations beyond 31 request. Finally, 12 promising PCs in each state were taken up for support under ABPU.



Photo 4A: Office cum farm input sales outlet of Midsize FPC

Mhow Agri farmers PC was one of the 11 shortlisted for support in M.P. The report stated that PC was operational only for one year and into input and output trading. The 14 villages which had 100 to 500 producers in the cluster had those to as many as 100 stakeholders in the village where PC was registered and an area of minimum of 1-4.5 hectares per share holder, going upto 7 hectares in another village. The BoD had five members of whom one was a woman in 2018-19. Had landholdings ranging from 2 to 6 hectares. Each Board member had different role ranging from overall responsibility of maintenance of PC and legal responsibility and executive responsibility and maintaining day-to-day operations besides community mobilization.

Business Plan

GT made a five-year plan for the PC which included interventions on the input as well as output side of the major crops identified for intervention. It was projected that by the end of 5 years the PC would have 169 members of whom 40 would be active members and PC would also deal with 150 non-members starting with 107 active members and 34 non-members in the first year of the plan. Based on the average land holding and seed rate and other inputs used for various identified crops the projected revenue for different crop input over 5 years was generated on the output side, with similar assumptions of active members and non-members procurement led to revenues from procurement and sale of the agriculture produce. It was stated the PC was aggregating only 8% of the marketable surplus of the targeted farmers. 85% of the produced produce was targeted in the business plan to be sold to processing units and traders in terminal markets. The PC plan assumed employment of CEO and three supporting staff. It came out with working capital requirement of Rs. 14.73 lakh in the first year going upto Rs. 103.66 lakh by the fifth year, most of which (80%) was to be met by loans. It had planned to generate revenue of the order of Rs. 176.2 lakh in the first year going upto Rs. 1142.7 lakh by the fifth year and this would generate profits of the order of Rs. 5.3 lakh in the first year and Rs. 37.2 lakh in the fifth year.

The equity of the PC was estimated to be Rs. 12.38 lakh in the first year of the plan and Rs. 146.2 lakh by the end of fifth year. The BoDs of the PC were given training by the promoter on the management and governance of the PC only once. The major problem identified by the JGS representative was that since the farmers are medium and large land owners, they only need market linkage and not many other services. This has become a hurdle in the progress of the PC, but the idea was picked up because of the production of the vegetables in the area under the vegetable cluster programme of the SFAC.

Table 4.8: Profile and Performance of Mhow Agri PC

| Year / Parameter | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 (estimated) |
|------------------------------|---------|---------|----------------|----------------|----------------|---------------------|
| Authorized Equity (Rs. Lakh) | | | 0 | 70 | 0 | |
| Paid up capital (Rs. Lakh) | | | (100%) 0.70 | (100%) 1.00 | (100%) 3.00 | |
| Revenue (Rs. Lakh) | 40 | 14 | 204 | 42 | - | |
| Profit (Rs.) | 525 | 200 | 150 | 320 | - | |
| Reserves and Surplus (Rs.) | 525 | 200 | 754 | 1480 | | |

Betul KUPCL

BKUPCL promoted by Vrutti with the help of an international NGO - SACS - which was funded by BFED during 2004-6. This NGO learnt about the PC concept in 2002 and roped in Vrutti to promote the PC in the area which covered 23 villages across 7 panchayats. Originally the Grameen Vikas Samithan (GVS) which worked with UNICEF and Govt. of India on women and children was handling the project.

In the case of Betul PC promoted by Vrutti, there were 306 members with authorized capital of Rs. 10 lakh and paid up to capital of Rs. one lakh (Table 4.7). All the members of the PC are landowners and have minimum share of Rs. 500 with the Special members having between 100 to 10000 shares out of the 306 members, 18 were women and all of them were inactive. It had 9 Board members including three women. It had never undertaken any transaction on the input side and had only bought produce from 77 non-members only once. The PC has also had an APMC licence. The procurement was for the SEAC and had to be met by procuring from non-members from other mandals as none of the members were active. It also facilitated once 197 farmers under ESI in 2013-14 to sell their grains under this scheme. The PC had only the CEO who is a graduate and had a week-long training from BFED in 2019. It had not received any grants ever and had not paid any dividends though it had a business plan which was prepared by Vrutti. It had received financial assistance of Rs. 2.04 lakh from NABARD through its PUFF (Vrutti). The 300 members were provided training by the PUFF and members were taken to other PC, MNK and to Dahod for exposure visit. The PC is a member of MP consortium of POCs.

Major problems faced by the PC from within included: lack of capital and farmer mindset whereas on the external front it was still being not treated as a cooperative and a procurement centre under MSP policy was not being allowed. The CEO was not sure about the survival of PC until a resolution policy environment is created. The CEO could not name any Vrutti PC in Madhya Pradesh which was working well and ended up naming ASA POCs in eastern MP and was of the view of that they were working well because the farmer landholdings are larger there. He was not aware of any other POCs which were doing well. The area grows mainly wheat, soy, bean, maize and chick which were planned to be targeted by PC but continuous drought during the last few years led to decline in the production of these crops.

The authorized capital of the PC was Rs. one lakh and paid up capital of Rs. 5000. The PC was a member MP Consortium of POCs. The PC intervened to purchase various pulses at MSP from the farmers in the SEAC which gave working capital advance for the same. However, since local farmers did not produce this crops the PC bought it from the market and supplied it to the SEAC. It was given a loan by the NABARD of Rs. 5 lakh and the promoter agency had taken the board members and other farmer members on exposure visit to other POCs and Krishi Ujwal Kendra (KUKA).

Table 4.7: Profile and Performance of Satul PC

| Key Parameters | 2016-17 | 2017-18 | 2018 | 2019 |
|-------------------------------|---------|---------|-------|-------|
| Authorized Equity (Rs. Lakh) | 10 | 10 | 10 | 10 |
| Paid up capital (Rs. Lakh) | (10%) | (10%) | (10%) | (10%) |
| Revenue (Rs. Lakh) | 11 | 12 | 1232 | 4 |
| Profit and Loss (Rs.) | -6.02 | -6.02 | 6.65 | -1.56 |
| Reserves and Surplus (Rs.) | -4.28 | -4.45 | 12 | -1.56 |
| % of shares held by Promoters | | | 100 | 100 |

In 2016-17 it had purchase stock worth Rs. 17.52 lakh and received commission of Rs. 1.82 lakh for the same. Besides reimbursement of expenses from F&AC of the order of Rs. 3.3 lakh besides NABARD loan it has also received a grant of Rs. 1.74 lakh from Vroti. In 2018-19 it once again received a grant of Rs. 1 lakh from Vroti. It had an APMC license as a wholesale trader for which it had paid 10000 and the license was valid for five years.

The promoter made one year business plan for the PC which was mainly about sale of seeds, fertilizers and pesticides besides spray pumps and the procurement of crops of standing grain, soybean and wheat. It had projected monthly cash flows and capital costs of shop rent and working capital cost for sale of various input for three months. By handling Rs. 13.19 lakh of purchases, it was to sell for Rs. 1572.8 lakh earning very meagre profit of Rs. 53 lakh.

Ram Rahim Pragati PC

This PC promoted by SPP was registered in 2012. It had its origin in the 40 women self-help groups which is 20-year-old which used to aggregate its produce and sell together. The PC had 304 groups across 400 villages who were members of the PC with each paying Rs. 500 per member. All the members are land owners and average land holding is 4 acres. 50 to 60% of the members were tribal households. The authorized capital of the PC was Rs. one crore and paid up capital Rs. 5952 lakh (Table 4.8). The share certificates are in the names of SHGs and directors of the Board who had contributed Rs. 10000 each. The PC made losses for the first four years and now has been profits for three years. It had licenses for sale of seed and trading of output. The Board had 7 members including one male the members were elected by the share holders. Besides the CEO there were 4 support staff. The PC had its own warehouse and processing facility. The members and non-members were given the same price on input purchase. On the input side, it sold seed to about 250 members on advanced booking and payment of 30% of the price. On the output side it aggregated various crops like wheat gram and maize from 2006 members. It also made use of warehouse receipt based loans for storing its produce in its own warehouses. It was mainly into NPM produce and lentil and sold 90% wheat and gram procurement to Safe Harvest Pvt. Ltd. The farmer members had been into NPM practices for the last 10 years and so far, only wheat had been rejected once by safe harvest based on sample tests for which the bonus paid.



PHOTO 4.5: Newly constructed modern warehouse of RRPFC

The PC promoted crop of red gram in the area and also vice versa selling pulses to the member farmers by procuring it into dal. It also dealt with non-members in maize procurement upto 10% of total procurement. It is the one of the very PCs which has participated in futures markets and made profits in maize but lost money in soy in 2016-17. It planned to continue future trading NCDEX in maize, out of the more 4000 members, 2000 sells some produce to the PC. It had also received match equity grant to Rs. 825 lakh in 2014 dealt from the SFAC because it has been able to receive loans and grants from SFY, Axis bank and NABARD through promoting NGO. The promoting agency had never given any exposure to the board of directors and its promoters in the past. 250 groups purchase inputs from the PC and sale of seeds to non-members is less than 5%. The PC had also dealt in 8000 quintals of sorghum to private buyers. It also undertook grading of gram last year for Big Bazaar. It was exploring supply of wheat flour to local restaurants. The major problem it faced was availability of working capital loan at very high rate of interest.

It also had Rs. 2.8 lakh equity investment from State Harvest India Pvt Ltd which is a unique arrangement as SHI is a private-civil society promoted company and buys from RRPFC.

Table 4.8: Profile and Performance of RRP Pragati PC

| Key Parameters | 2014 | 2015 | 2016 | 2017 |
|------------------------------|--------|----------|---------|---------|
| Authorized Equity (Rs. Lakh) | 41 | 41 | 60 | 60 |
| Paid up capital (Rs. Lakh) | 205094 | 21472894 | 2425094 | 2425094 |
| Revenue (Rs. Lakh) | 9164 | 1771 | 28821 | 19117 |
| Profit and Loss (Rs.) | 624 | 235 | 120 | 121 |
| Reserve and Surplus (Rs.) | 353 | 183 | 248 | 305 |
| Net Assets (Rs. Lakh) | 659 | 67 | 5.6 | 178 |

Performance and Impact of PCs in West Bengal

Introduction

West Bengal is one of the major agricultural states of India with the agricultural sector accounting for 18% of its GDP and 45% of workforce. It is largest producer of paddy, jute, pineapple and brinjal and cabbage. W.B. accounts for 37% of India's paddy production and 23% of potato being the second largest producer (Rao et al. 2018). It is also the second largest producer of tea and has the second largest cold storage capacity. It also has 14% of India's fish production and ranks second in its production in India (Mondal et al. 2017).

70% of its foodgrains area is under rice of four different seasons of *aman*, *kharif* and *aus* with wheat and pulses taking only 4% and 3% of GCA. The major non-food crops include oilseeds, rice and potato (9%, 7% and 5% share in GCA each respectively) and vegetables account for 14% of India's total production. In fact, its rice production is 18% of India's total and oilseeds 7% of total and jute and mesta as high as 73% of India's total production. Potato production of the state makes almost 37% of India's total production. Rice and wheat have grown at a very high rate during the last three decades and higher than that in UP and Punjab respectively. Potato too grew higher than that in Bihar and as high as in MP. The area under fruits and vegetables increased from 12% in the late 1980s to 14.7% in 2014-15. It has irrigation intensity of 39% (Mondal et al. 2017) and mostly farmers use tubewells for irrigation in kharif and rabi (32% and 45% of GCA respectively) followed by canals (10% in each season) and tanks, rivers and wells (3-6%, 3-5% and 2-3% each) respectively. It has cropping intensity of 143 much above the national average of 142. It has six agroclimatic zones.

As many as 77% holdings are marginal or small mostly marginal (90%) and there are no large farmers with only 2% farmers being semi-medium and only 0.2% medium. The size operated by S&M farmers is 69% and those by other categories only 15%. Therefore, land inequality compared with India average is only half and very low (0.31 versus 0.56 Gini in India). More farmers lease to land than in India (14% compared with 10% in India) (GoI. 2013). The average operated land size is 0.77 ha and farmer income is one of the lowest (17th rank) in India, below national average and above only that of Bihar. The farmers have rarely received MSP and harvest prices of paddy have been even lower than the cost of production during the last 10 years (Mondal et al. 2017). It had 68 FPOs majority of which were promoted by NABARD (29) and 182 by SEAC. Only 40% of all FPOs were farm produce based FPOs (21) (Rao et al. 2018).

In this context, it is crucial to examine the role and potential of farmer PCs in enhancing farmer income or reducing production and marketing risk. The first section of this chapter profiles and analyses the physical and financial performance of the case study PCs in a comparative manner. Section 2 examines member and non-member profile and the member impact from PC intervention. Section three compares the profile and performance of PCs organised by different promoters. Section four concludes the chapter.

5.1 Profile and Performance of PCs in West Bengal

It can be seen from Table 5.1 that in WB, most of the PCs had mobilised high %age of subscribed capital except Shamshikata, though authorised capital itself was small or modest in most cases (Rs. 10 lakh) except one PC (Hooghly) which had Rs. 25 lakh authorised capital. Further, their revenue remained low (< Rs. 50 lakh) except in one case (Chhokra) which was mainly due to the fact it had a franchise of Bural Bangla and, therefore, its turnover could go up to Rs. 5 crore per annum. Therefore, All PCs made negligible profit or net losses except the Chhokra PC which made a small profit after taking franchise of Bural Bangla. Except Hooghly PC, most of them had a small size of membership which is problematic given the small size of land holdings in the state. This kind of small membership can't generate large equity capital and large volumes of business for viability.

5.2 Analysis of PC Member and Non-member Profile and Impact

88% of the members of the PCs in the state were male and the average age of the member farmers was 46 years with only 15% of them being illiterate. There was significant proportion (36%) which was middle standard literate followed by high school (27%). There were 5% under graduates and the similar proportion were graduates with only 9% primary literate (Table 5.1). 86% of the non-member farmers were men with an average age for all farmers including women farmers being 46 years. 29% of the farmers were middle school literate, 27% high school and 10% graduates. The others were either illiterate (11%) or higher secondary or primary level literate (9% and 10%) respectively.

64% of members reported farming as primary occupation followed by petty business and salaried job with 3% each with only 2% reporting animal husbandry as the primary occupation and another 2% casual labour being their main source of livelihood. On the other hand, 50% did not report any secondary occupation and 16% reported it as farming, 5% handicrafts and 8% skilled labour. Only 3% reported animal husbandry and 6% casual labour (Table 5.3 and 5.4). 77% of the non-members reported farming as primary occupation with 11% reporting business as the primary occupation and 10% casual labour. Amongst secondary occupation reported by only 37% farmers farming again emerged as a major secondary occupation reported by 19% followed by business and labour at 6% and 10%. Surprisingly, animal husbandry did not come in as either primary or secondary occupation.

Table 5.2: Distribution of PC member and non-member farmers by education

| Category (Level of Literate) | Members | | Non-members | |
|---------------------------------|---------|------------|-------------|------------|
| | N (%) | % of Total | N (%) | % of Total |
| Illiterate | 8 | 12.1 | 11 | 16.0 |
| Primary | 6 | 8.6 | 6 | 8.6 |
| Middle School | 23 | 33.4 | 18 | 26.0 |
| High School | 17 | 24.6 | 14 | 20.6 |
| Higher Secondary | 4 | 5.7 | 2 | 2.9 |
| Under Grad | 2 | 2.9 | 0 | 0 |
| Graduate | 1 | 1.4 | 0 | 0 |
| Total | 64 | 90 | 42 | 60 |

Table 5.3: Distribution of PC member and non-member farmers by Primary Occupation

| Category Members/ Primary Occupation | Members | | Non-members | |
|--|-------------------|---------|-------------------|---------|
| | No. of farmers | % of 26 | No. of farmers | % of 26 |
| Agriculture | 24 | 92.3 | 18 | 71.7 |
| Animal husbandry | 2 | 7.7 | 0 | 0 |
| Labourer | 0 | 0 | 4 | 15.4 |
| Skilled Worker | 0 | 0 | 2 | 7.7 |
| Business | 0 | 0 | 2 | 7.7 |
| Total | 24 | 100 | 26 | 100 |

Table 5.4: Distribution of PC member and non-member farmers by Secondary Occupation

| Category Members/ Secondary Occupation | Members | | Non-members | |
|--|-------------------|---------|-------------------|---------|
| | No. of farmers | % of 26 | No. of farmers | % of 26 |
| Agriculture | 20 | 76.9 | 0 | 0.0 |
| Animal husbandry | 2 | 7.7 | 0 | 0 |
| Handicraft | 0 | 0 | 0 | 0 |
| None | 10 | 38.5 | 18 | 69.2 |
| Service | 0 | 0 | 0 | 0 |
| Skilled labour | 0 | 0 | 0 | 0 |
| Labourer | 0 | 0 | 0 | 0.0 |
| Business | 0 | 0 | 0 | 0.0 |
| Total | 26 | 100 | 26 | 100 |

88% of the members had received shade certificates and 85% of them did not report membership of any other group or producer organisation except a few being members of the PACS. 48% of the members relied exclusively on PC for agricultural information with 27% depending on other farmers and friends. PC also figured along with friends and relatives and mobile groups besides KDO and dealer in another 19% cases.

The members were mostly marginal (73%) and small (24%) in their land ownership with average size of owned land being 1.39 acres and operated just 2.22 acres (Table 5.5) with only 8% being semi-medium landholders who accounted for 24% of land with the rest 72% being with the small and marginal category farmers (Table 5.6). The operated land was also distributed similarly with 51% farmers operating marginal or small farms accounting for 73% of the cultivated area and 9% semi-medium farmers operating 27% of the land (Table 5.7). But, members were larger than their non-member counterparts who had average owned land of 1.29 acres and operated farms of 1.25 acres (Table 5.8).

Table 5.5: Average Owned and Operated Land of PC Members and Non-Members

| Average Land (Acres) | Members | Non-Members |
|----------------------|---------|-------------|
| Owned | 1.59 | 1.29 |
| Operated | 2.37 | 1.91 |

Table 5.6: Distribution of PC member and non-member farmers by Owned Land

| Category | Members | | | | Non-Members | | | |
|-------------|----------------|----------|------------|----------|----------------|----------|------------|----------|
| | No. of Farmers | % of all | Owned Land | % of all | No. of Farmers | % of all | Owned Land | % of all |
| Marginal | 16 | 7.89 | 53.6 | 6.8 | 35 | 69.7 | 126 | 72.7 |
| Small | 0 | 0.00 | 0.7 | 0.0 | 4 | 7.8 | 10 | 2.0 |
| Semi-medium | 5 | 2.5 | 12.6 | 1.6 | 1 | 2.0 | 5 | 0.3 |
| Total | 21 | 100 | 769 | 100 | 40 | 100 | 141 | 100 |

Table 5.7: Distribution of PC member and non-member farmers by Operated Land

| Category | Members | | | | Non-Members | | | |
|-------------|----------------|----------|---------------|----------|----------------|----------|---------------|----------|
| | No. of Farmers | % of all | Operated Land | % of all | No. of Farmers | % of all | Operated Land | % of all |
| Marginal | 9 | 42.9 | 55.6 | 37 | 25 | 62.5 | 63.8 | 63.5 |
| Small | 0 | 0.0 | 0.0 | 0.0 | 9 | 22.5 | 33.4 | 33.6 |
| Semi-medium | 0 | 0.0 | 0.0 | 0.0 | 1 | 2.5 | 5 | 5 |
| Total | 9 | 100 | 55.6 | 100 | 35 | 100 | 102.2 | 100 |

Table 5.8: Distribution of PC member and non-member farmers by Livestock Owned

| Category | Members | | | | | Non-Members | | | | |
|----------|----------------|----------|----------------|----------|--------------------------|----------------|----------|----------------|----------|--------------------------|
| | No. of Farmers | % of all | No. of Animals | % of all | Value of Livestock (RMB) | No. of Farmers | % of all | No. of Animals | % of all | Value of Livestock (RMB) |
| Buffalo | 2 | 11.1 | 3 | 1.8 | 23 | 1 | 1.9 | 2 | 1.1 | 2 |
| Cow | 40 | 77.8 | 16 | 8.9 | 239 | 20 | 52.0 | 95 | 49.7 | 246 |
| Goat | 20 | 38.9 | 29 | 15.8 | 136 | 24 | 60.0 | 34 | 17.0 | 130 |
| Sheep | 1 | 4.8 | 4 | 2.2 | 4 | 0 | 0 | 0 | 0 | 0 |
| Pig | 0 | 0.0 | 0 | 0.0 | 0 | 3 | 7.5 | 4 | 2.0 | 29 |
| Total | 63 | 100 | 52 | 100 | 272 | 28 | 100 | 70 | 100 | 266 |

The land holdings of non-members were marginal with an average own land of 1.29 acres per farmer and operated land of 1.61 acres per household. There was significant leasing in land to the extent of 0.32 acres on an average. In terms of owned land, 39% of the farmers were

marginal (35%) or small (13%) with the rest also being only semi-medium owners. 34% of the owned land was with these marginal and small holders and another 4% with the semi-medium farmers. There was not much change in the operated land distribution as well as 99% farmers were in the category of marginal and small operating 75% of the land. Still there was only one farmer to the semi-medium category who operated 5% of the land or total operated of the sample farmers.

69% of the member farmers had tube-wells either owned or shared with electric connections or diesel engine based with another 9% reporting ownership of wells and 11% reported buying of water from other tube well owners. Only 6% had access to canal water and 3% to ponds. For non-members, there were various sources of irrigation including canal, river, submersible tube wells operated by electricity or diesel or fuel wells and steam, of them shared or rented in terms of farmers buying water for irrigation. Most of the livestock comprised of cows and goat accounting for 50% each of the total besides poultry being an important source of livelihood. Cows and goats were owned by 83% and 19% of the household on an average there were 3 cows and 4 goats per household.

In terms of livestock ownership, 71% of the members had cows and 41% goat with only 3% each having bullocks or buffaloes. Most of the livestock was equally divided with cows and goats in terms of numbers of livestock (Table 2.8). However, 25% farmers also had poultry birds with an average ownership of 10 birds. The average ownership of cows and goats per household was 3 and 5 each. Only one member reported owning 4 sheep.

The Kharif cropping pattern was mostly dominated by paddy and vegetables with 97% members growing paddy and 44% vegetables. These two crops accounted for 87% of the seasons area. The only other Kharif crop reported was jute grown by 2% farmers accounting for 2% of area. On the other hand, in Rabi season, it was mustard grown by 64% farmers and potato grown by 70% farmers besides onion by 30% and vegetables by 45%. Mustard and potato accounted for 26% each of the season's area, followed by vegetables at 25% and onion at 10%. Wheat grown by only 2% farmers accounted for 2% of the area and green and red gram by another 6% farmers accounted for 2% of the area (Table 5.9 and 5.10).

The major summer crops grown by significant number of member farmers included paddy on 63% of the season's area by 44% farmers, vegetables on 20% of the area by 40% of the farmers. The other significant crops in the season are sesame grown on 5% of the area by 7% of the farmers. Fruits and jute each were grown by 5% farmers accounted for 2% and 7% of the cropped area in summer (Table 5.11). Overall, paddy accounted for 63% of the GCA followed by vegetables in 15% of the area excluding potato and onion which accounted for another 7% and 4% of the gross cropped area. The GCA was almost equally divided across three seasons with Kharif accounting for 44%, summer 23%, and rabi 23%.

The average cropping intensity of non-member was 1.09 which was slightly lower than in the case of members (2.2). The Kharif cropping pattern of non-members was equally dominated with paddy with 53% of the area being this crop grown by 94% farmers. Another major crop was vegetables accounting for 15% of the Kharif area. In Rabi, it was potato which took 20%

of the seasons area followed by vegetables at 31% and mustard at 5% of the total area. 40-50% of the farmers had grown potato, vegetables or mustard crop. The major summer crops were paddy which took 42% of the area, and vegetables another 38% of the total cropped area in summer season. The only other significant crop in this season was sesame accounting for 2% of the total cropped area of the season. Overall, it was paddy with 45% share, potato at 11% and vegetables at 22% of the gross cropped area. Interestingly, the gross cropped area was almost equally divided between three seasons with kharif at 47%, Rabi at 31% and summer 22% of the GCA.

Table 8.9: Khasi cropping pattern of PC Member and Non-Member Farmers

| Crop/Crop | District | | | | | | | | | |
|------------|----------|---------------|-------------|------------|-------|-----|-----|-----------|--------|----------------|
| | Barisal | Chandernagore | Chhatisgarh | Coimbatore | Daman | Diu | Goa | Karnataka | Kerala | Madhya Pradesh |
| Area | 3 | 101 | 4 | 146 | 63 | 2 | 650 | 107 | 246 | |
| Non-Member | 1 | 136 | 60 | 60 | 320 | 0 | 0 | 0 | 0 | |
| Member | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | |
| Party | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Income | 20 | 127 | 3 | 125 | 34 | 0 | 134 | 103 | 325 | |
| Production | 20 | 127 | 3 | 125 | 34 | 0 | 134 | 103 | 325 | |
| Total | 44 | 355 | 67 | 396 | 167 | 2 | 784 | 210 | 671 | |

Table 2.10: Field cropping pattern of PG Member and Non-Member Farmers

| Category | Member | | | | | Non-Member | | | | |
|------------|---------|------------|------------|-------------------|--------------|------------|------------|---------------------|-------------------|--------------|
| | Farmers | N. Farmers | MAN (cro.) | avg Area (sq.Mtr) | % Total Area | Farmers | N. Farmers | Total Area (sq.Mtr) | avg Area (sq.Mtr) | % Total Area |
| Rice | 2 | 449 | 14 | 644 | 144 | 9 | 5 | 6 | 6 | 6 |
| Soy | 0 | 130 | 33 | 340 | 243 | 0 | 0 | 0 | 0 | 0 |
| Sub | 1 | 104 | 82 | 60 | 628 | 1 | 101 | 628 | 628 | 628 |
| Mustard | 0 | 842 | 2248 | 349 | 249 | 23 | 823 | 137 | 137 | 823 |
| Other | 16 | 2408 | 879 | 107 | 1023 | 5 | 869 | 317 | 102 | 162 |
| Paddy | 1 | 104 | 1 | 10 | 78 | 1 | 44 | 44 | 10 | 233 |
| Other | 0 | 1027 | 2338 | 237 | 233 | 20 | 3238 | 1235 | 603 | 603 |
| Watermelon | 0 | 9 | 0 | 0 | 0 | 1 | 10 | 10 | 10 | 10 |
| Sauji | 1 | 108 | 1 | 100 | 10 | 0 | 9 | 6 | 6 | 6 |
| Soybean | 2 | 102 | 528 | 310 | 228 | 0 | 0 | 0 | 0 | 0 |
| Vegetable | 23 | 643 | 218 | 171 | 248 | 20 | 4838 | 1107 | 1175 | 1062 |
| Other | 2 | 103 | 1 | 20 | 11 | 4 | 843 | 151 | 240 | 876 |
| Total | 48 | 100 | 10000 | 138 | 100 | 65 | 100 | 8438 | 129 | 100 |

The member farmers reported buying seeds from dealers in 34% cases, from PC in 19% cases and dealer and PC both in 16% cases. Only 5% farmers bought seeds from PAOs and others reported various combinations of dealer and PAOs or dealer and local farmer or PAOs and local farmer (Table 5.13). Similarly, 45% of them bought chemical fertilizers from dealers and 26% from PC and only 2% from dealer and PAOs and 6% from both dealer and PC. Similarly, 42% bought chemical pesticides from dealer with 17% reported it from the PC. In fact, 42% reported buying no chemical pesticides (Table 5.14). Bio fertilizers were bought only by 25% farmers and mostly from dealers, other farmers and the PC. There were even lesser number of farmers buying biopesticides (23%) again mostly from dealers and PC (Table 5.15). The reasons for members buying from the PCs are given in Table 5.16A.

Most of the non-member farmers (60%) bought seeds from the dealers and local farmers (14%) with PAOs and PC accounting for only 3% and 2% of the total and in some cases being another source along with dealers and local farmers. 73% of them bought chemical fertilizers from dealers with PAOs accounting for 3% and the PC 1% of the total. 10% did not use chemical fertilizers and 3% bought it from the agriculture department outlet. In chemical pesticides, 44% farmers did not report using them with 48% buying it from the dealers and 5% from the PCs. The bio-pesticides were used by only 24% of the farmers which mostly bought from the dealers (18%) of the total and only 6% from the PCs.

59% members could not mention the name of the PC with the other either not knowing or not being able to mention it correctly. Most of them (59%) could not report the number of shares held and the value of shares owned. 62% of the members did not know the owner of the PC and another 38% reported PC employees as the owners and 1% BOD besides 3% reporting it as promoting agency and 6% government as being the owners of the PC. In 52% cases, it was PC employee who had influenced them to become members. In other 27% cases, it was other farmers and in 20% cases it was promoter of the PC who had persuaded them to become members.

54% of the members were not fully aware of the various activities being carried out by PCs with others mostly reporting about crop practices, input sales, and subsidies. 64% of them reported that the meetings of the PCs were held every month with another 11% reported it to be quarterly and 3% weekly. However, only 46% attended all the meetings and 37% only sometimes and 17% occasionally. 1% never attended any meeting. The major topic of discussion in these meetings were reported to be agricultural practices and technology in 61% cases and seeds and crop procurement in another 2% cases with other reporting various combinations of these another issues. 58% did not ask any questions and 14% mainly raised questions and inquiries about farming and 6% about farm inputs. They were all satisfied with the response received from the PC.

77% of the members had no complaint against the services provided by the PC with others reporting an adequate availability of inputs and not at right time as the major problems. 70% of them also did not report to have received any information about government schemes and subsidies with others reporting various schemes about seeds, crop insurance, credit, and agricultural machinery about which the information was provided. In only 4% cases, it was

only agricultural machinery and loans which were reported to be specific subsidies availed by PC members.

89% wanted to continue as members of the PC due to good services and facilities, subsidising inputs, availability and such other reasons with only 9% not being satisfied with the services and therefore, not sure they would continue as members.

So far as suggestions for improving the functioning of the PCs was concerned, farmers mostly suggested procurement of their farm produce (9%), timely availability of inputs (9%), irrigation (5%), and agriculture machinery and irrigation another 3%.

The farmers reported significant improvements in moving from good to very good in terms of quality, cost and availability of inputs after the membership of the PC. In terms of cropping pattern shift, there were significant increases in area under vegetables, and fruits and a decline in area under paddy and sesame. Farmers also reported yield increases in vegetables and fruit including chilies and potato besides gram. The output sold had increased significantly in vegetables especially pumpkin and even paddy due to yield increase especially Kharif paddy. However, they also reported higher transaction cost in the case of vegetables, and fruits. The sale price realisation had gone up in most of the vegetables and to some extent in fruits as well. Further, time taken to receive payment had come down across commodity with exception of only potato. So far as use of different marketing channels are concerned, there was higher use of PC channel in vegetables both in terms of number of farmers as well as volume of output sold. But still most of the farmers sold in wholesale ranging from 27% in wheat to as high as 100% in case of vegetables and fruits. This APMC channel was reported to be used only in case of paddy and wheat.

90% of the non-member farmers were not member of any other PO with only 2% reporting membership of PACS. 23% of them accessed agricultural information from friends, relatives and other farmers with only 1% availing it from the PC. In fact, 10% access it from the point of purchase i.e. dealers and 9% from the agricultural department office.

41% of the non-members had no knowledge about the PC and 78% did not know who owned it with only 6% thinking it was owned by farmers and the other 7% reporting postoffice or employees as the owners besides 4% thinking it was owned by promoting agency. In fact, 59% of them were not provided the information by any source with 21% receiving it from the employees of the PC, 11% from PC meetings and 9% from promoters. 50% of them were not aware of the activities carried by it with only 14% knowing about the supply of inputs including potato seeds. 67% of them had never participated in any meetings of the PC and 14% reported these meetings related to farming. 95% of them had no negative experience with the PC with others thinking that timing and quality of inputs was not appropriate and there were no subsidies given. 29% of them desired to become members and 71% wanted to become members because either they had no information or not enough land.

The farmers reported significant improvements in input quality, cost, and availability due to the presence of PCs.

Table 5.12: Distribution of PC member and non-member farmers by Source of general agricultural information

| Category (Farmer's Source) | Members | | Non-members | |
|---|----------------|------------|----------------|------------|
| | No. of Farmers | % of all | No. of Farmers | % of all |
| Friends/ Neighbours/ Relatives | 47 | 53.3 | 43 | 49.5 |
| Friends/ Neighbours/ Relatives, point of purchase | 1 | 1.1 | 0 | 0 |
| Friends/ Neighbours/ Relatives, PC | 5 | 5.7 | 0 | 0 |
| Friends/ Neighbours/ Relatives, ADO | 1 | 1.1 | 1 | 1.1 |
| Friends/ Neighbours/ Relatives, ADO, Krishi college | 1 | 1.1 | 0 | 0 |
| PC | 38 | 43.4 | 1 | 1.1 |
| PC, Mobile Groups | 2 | 2.3 | 0 | 0 |
| PC, ADO | 4 | 4.5 | 0 | 0 |
| ADO, Point of Purchase | 1 | 1.1 | 0 | 0 |
| PC, Point of Purchase | 1 | 1.1 | 0 | 0 |
| Point of Purchase | 0 | 0 | 4 | 4.5 |
| Other (PO) | 0 | 0 | 4 | 4.5 |
| Mobile/ Mobile Groups | 0 | 0 | 2 | 2.3 |
| ADO | 0 | 0 | 3 | 3.4 |
| ADO, Panchayat | 0 | 0 | 0 | 0 |
| Friends/ Neighbours/ Relatives, Other (PO) | 0 | 0 | 0 | 0 |
| Total | 88 | 100 | 87 | 100 |

Table 5.13: Distribution of PC member and non-member farmers by Source of Seeds

| Category (Farmer's Source) | Members | | Non-members | |
|-------------------------------|----------------|------------|----------------|------------|
| | No. of Farmers | % of all | No. of Farmers | % of all |
| Dealers | 23 | 26.1 | 27 | 31.0 |
| Local Farmer | 2 | 2.3 | 31 | 35.6 |
| PMCS | 3 | 3.4 | 2 | 2.3 |
| PC | 12 | 13.6 | 1 | 1.1 |
| Dealer Local Farmer | 2 | 2.3 | 2 | 2.3 |
| Dealer Local Farmer, ADO | 1 | 1.1 | 0 | 0 |
| Dealer, PMCS | 11 | 12.5 | 2 | 2.3 |
| Dealer, PC | 10 | 11.4 | 3 | 3.4 |
| Dealer, ADO | 5 | 5.7 | 1 | 1.1 |
| Local Farmer, PMCS | 6 | 6.8 | 0 | 0 |
| PC, ADO | 1 | 1.1 | 0 | 0 |
| Local Farmer, PC | 0 | 0 | 1 | 1.1 |
| ADO | 0 | 0 | 0 | 0 |
| Total | 88 | 100 | 87 | 100 |

Table S.14: Distribution of PC member and non-member farmers by Source of Chemical Inputs

| Type of Input Category | Inhibitors | | | | Activates | | | |
|------------------------|----------------|----------|----------------|----------|----------------|----------|----------------|----------|
| | Members | | Non-members | | Members | | Non-members | |
| | No. of Farmers | % of all | No. of Farmers | % of all | No. of Farmers | % of all | No. of Farmers | % of all |
| Dealer | 25 | 65.0 | 45 | 72.9 | 27 | 42.5 | 20 | 65.0 |
| PACS | 7 | 17.5 | 2 | 4.0 | 1 | 1.5 | 0 | 0.0 |
| PC | 11 | 27.5 | 5 | 8.0 | 8 | 12.5 | 5 | 15.0 |
| Agri Dept | 1 | 2.5 | 3 | 4.8 | 0 | 0.0 | 0 | 0.0 |
| Dealer/PACS | 1 | 2.5 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Dealer/PC | 4 | 10.0 | 0 | 0.0 | 1 | 1.5 | 0 | 0.0 |
| Doesn't buy | 0 | 0.0 | 0 | 0.0 | 27 | 42.5 | 27 | 85.0 |
| Total | 64 | 100 | 62 | 100 | 64 | 100 | 62 | 100 |

Table S.15: Distribution of PC member and non-member farmers by Source of Bio Inputs

| Type of Input Category | Inhibitors | | | | Activates | | | |
|------------------------|----------------|----------|----------------|----------|----------------|----------|----------------|----------|
| | Members | | Non-members | | Members | | Non-members | |
| | No. of Farmers | % of all | No. of Farmers | % of all | No. of Farmers | % of all | No. of Farmers | % of all |
| Dealers | 8 | 12.5 | 20 | 32.3 | 9 | 14.1 | 8 | 12.9 |
| Local Farmers | 3 | 4.7 | 2 | 3.2 | 1 | 1.6 | 0 | 0.0 |
| PACS | 1 | 1.6 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| PC | 5 | 7.8 | 1 | 1.6 | 3 | 4.7 | 4 | 6.3 |
| AOO | 1 | 1.6 | 0 | 0.0 | 1 | 1.6 | 2 | 3.1 |
| Doesn't Buy | 41 | 63.9 | 40 | 64.9 | 41 | 63.9 | 47 | 75.0 |
| Total | 64 | 100 | 62 | 100 | 64 | 100 | 62 | 100 |

Table 5.15A: Input-wise Reasons for purchase of inputs by member farmers from PCs

| Input | No. of farmers | | No. of farmers | | No. of farmers | | No. of farmers | | No. of farmers | |
|---|----------------|------------|----------------|------------|----------------|------------|----------------|------------|----------------|------------|
| | No. | % of total | No. | % of total | No. | % of total | No. | % of total | No. | % of total |
| Better Quality | 6 | 24.00 | 7 | 28.00 | 1 | 3.33 | 2 | 6.67 | 1 | 3.33 |
| Better Quality, Easy Accessibility, Lower Cost | 3 | 12.00 | 1 | 4.00 | 0 | 0.00 | 1 | 3.33 | 0 | 0.00 |
| Better Quality, Easy Accessibility, Lower Cost, No other source | 1 | 4.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| Better Quality, Lower Price | 2 | 8.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| Better Quality, Timely Availability | 5 | 20.00 | 1 | 4.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| Compulsory | 1 | 4.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| Easy Accessibility, Lower Cost | 2 | 8.00 | 3 | 12.00 | 2 | 6.67 | 1 | 3.33 | 1 | 3.33 |
| Easy Accessibility, Lower Cost, Lower Price | 1 | 4.00 | 1 | 4.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| Fair Deal, More Reliable | 1 | 4.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| Lower Price | 3 | 12.00 | 7 | 28.00 | 2 | 6.67 | 1 | 3.33 | 4 | 13.33 |
| Lower Price, No other source | 1 | 4.00 | 1 | 4.00 | 1 | 3.33 | 0 | 0.00 | 0 | 0.00 |
| Source | 1 | 4.00 | 1 | 4.00 | 1 | 3.33 | 0 | 0.00 | 0 | 0.00 |
| Timely Availability | 1 | 4.00 | 1 | 4.00 | 1 | 3.33 | 0 | 0.00 | 0 | 0.00 |
| Total | 25 | 100.00 | 22 | 100.00 | 10 | 100.00 | 5 | 100.00 | 3 | 100.00 |

Table 5.16: Distribution of PC member and non-member farmers by their knowledge of initiatives taken by PC

| Category | Members | | Non-members | |
|----------------------------|----------------|----------|----------------|----------|
| | No. of farmers | % of all | No. of farmers | % of all |
| Agricultural Techniques | 3 | 15.00 | 0 | 0.00 |
| Don't know | 1 | 5.00 | 2 | 10.00 |
| HYV seeds, Pesticide usage | 1 | 5.00 | 0 | 0.00 |
| Input sales | 1 | 5.00 | 0 | 0.00 |
| Mixed seeds | 1 | 5.00 | 0 | 0.00 |
| None | 3 | 15.00 | 1 | 5.00 |
| Seeds, Linkages with AGU | 1 | 5.00 | 0 | 0.00 |
| Subsidized inputs | 1 | 5.00 | 1 | 5.00 |
| Verticillium | 1 | 5.00 | 0 | 0.00 |
| Facility and accessibility | 1 | 5.00 | 0 | 0.00 |
| Increasing yield | 0 | 0.00 | 0 | 0.00 |
| Flood wall | 0 | 0.00 | 0 | 0.00 |
| Total | 10 | 50.00 | 2 | 10.00 |

Table 8.17: Distribution of PC members and non-member by knowledge of PC name

| Category Members Knowledge of PC Name | Member | | Non-Member | |
|---|----------------|------------|----------------|------------|
| | No. of Farmers | % of Total | No. of Farmers | % of Total |
| Correct Name | 28 | 70.0 | 26 | 50.0 |
| Wrong Name | 7 | 17.5 | 8 | 15.0 |
| Don't Know | 0 | 0.0 | 26 | 50.0 |
| Total | 35 | 100 | 50 | 100 |

Table 8.18: Distribution of PC members and non-members by knowledge of PC owner

| Category Members Knowledge of PC Owner | Member | | Non-Member | |
|--|----------------|------------|----------------|------------|
| | No. of Farmers | % of Total | No. of Farmers | % of Total |
| Don't Know | 28 | 80.0 | 45 | 90.0 |
| Self | 2 | 5.7 | 5 | 10.0 |
| PC Employees | 24 | 68.6 | 5 | 10.0 |
| Forming Agency | 7 | 20.0 | 3 | 6.0 |
| Government | 4 | 11.4 | 0 | 0.0 |
| NCO | 0 | 0.0 | 1 | 2.0 |
| Farmers | 0 | 0.0 | 2 | 4.0 |
| Total | 35 | 100 | 50 | 100 |

Output Impact of PCs

15 (25%) members had sold to PC vegetables and 2 paddy and 3 millets each respectively (3% each). Three years before, 11 out of 18 had sold in wholesale market and two did not sell at all. This had increased from just two farmers selling to PCs three years before (3%) to 20 (41%). Only one non-member had sold paddy and two potatoes in the past to the PCs.

After the PC intervention, the area under fruits and vegetables grew significantly (13 and 61% respectively) and that under paddy declined and farmer members even realized 30-75% higher prices in these crops including in paddy compared with pre-PC situation.

There was good improvement on output price being realized by the farmers. However, there were no cropping pattern change due to the presence of PCs although farmers reported significant improvement in yield of sesame and better price realization in vegetables.

So far as farmers channel preferences were concerned, there was not much change where a few farmers had used the PC to sell their paddy and potato crops but that was so even three years before.

Member perceptions

77% of PC members had no dislike of any of services offered by the PCs with 6% only mentioning inadequate quantity of supplies or purchases. 70% also said they did not receive any information from PCs about government schemes or subsidies but 17% also received information about subsidy schemes like farm equipment or seeds or crop insurance or other inputs. But there was no special subsidy for PC members in 94% cases. 94% members were not aware of any PC initiatives while others knew about input supplies, bio-inputs and new farming technologies and techniques.

About 30% farmers attended monthly meetings every time and another 27% sometimes only. 91% members wanted to continue as members of the PC for various reasons but mainly as it offered good services and lower cost inputs. Only 7% were not keen to continue as they did not use its services. 67% also were keen to encourage others to become members with 20% feeling that enough members had already joined the PC.

50% of them who suggested any improvements suggested better procurement, timely availability of inputs and services and even loans besides irrigation facilities support.

5.3 Promoter wise comparison

IGS promoted 4 PCs in Barhara, 3 each in Purulia and Midnapur districts of West Bengal. All were functional and were registered in 2015. The Midnapur (Eaton PC) was supposed to be the best as it had fertiliser business. The Damodar PC in Barhara also operated Sada Bangla supermarkets like its counterpart - Chhatra PC. Simlapal PC was not doing well whereas the other two in the district were doing well largely due to Sada Bangla. All four PCs in Barhara promoted by IGS had availed of matching equity grant partly (Rs 2 Lacs each) from SPAC.

5.3.1 Profile of IGS and BKSL PC members

39% of the member farmers of IGS promoted PC's were educated up to high school or beyond. 14% of those of BKSL PC's. The member farmers of IGS had an educational level up to 7th/8th level in case of 33% whereas it was 52.15 % for BKSL PC member farmers. BKSL member having education up to Higher secondary were 14 % but only 3% of IGS PC members has such education (Table 5.19).

Fairfarming was the primary occupation of almost all of IGS PC member farmers. But in case of IGS, 62% of members reported agriculture as a primary occupation. The remaining were engaged in skilled labour (14%), animal husbandry (31%), business (8 %), and labour (3 %) (Table 5.20).

Most of the member farmers reported no secondary occupation. Only 10% BKSL PC members has animal husbandry as secondary occupation. Farming was the secondary occupation of only 3% for IGS but as many as 38% for BKSL PC members (Table 5.21).

Table 5.19: Distribution of IGS and BKSL PC member farmers by education

| Category Farmer's Level of Education | IGS | | BKSL | |
|--|----------------|----------|----------------|----------|
| | No. of Farmers | % of All | No. of Farmers | % of All |
| Graduate | 2 | 100 | 1 | 50 |
| High School | 11 | 550 | 3 | 150 |
| Higher Secondary | 1 | 50 | 3 | 150 |
| Literate | 14 | 700 | 7 | 350 |
| Illiterate | 10 | 500 | 13 | 650 |
| Primary | 1 | 50 | 2 | 100 |
| Under Grad | 1 | 50 | 2 | 100 |
| Total | 22 | 1100 | 21 | 1050 |

Table 5.20: Distribution of IGS and BKSL PC member farmers by Primary Occupation

| Category Farmer's Primary Occupation | IGS | | BKSL | |
|--|----------------|----------|----------------|----------|
| | No. of Farmers | % of All | No. of Farmers | % of All |
| Agriculture | 12 | 600 | 11 | 550 |
| Animal Husbandry | 0 | 0 | 2 | 100 |
| Business | 0 | 0 | 2 | 100 |
| Skilled Labour | 0 | 0 | 4 | 200 |
| Labourer | 1 | 50 | 1 | 50 |
| Total | 22 | 1100 | 21 | 1050 |

Table 5.21: Distribution of IGS and BKSL PC member farmers by Secondary Occupation

| Category Farmer's Secondary Occupation | IGS | | BKSL | |
|--|-------------------|----------|-------------------|----------|
| | No. of Farmers | % of All | No. of Farmers | % of All |
| Animal Husbandry | 0 | 0 | 2 | 100 |
| Skilled Labour | 4 | 200 | 3 | 150 |
| Labourer | 1 | 50 | 1 | 50 |
| Agriculture | 1 | 50 | 0 | 0 |
| None | 16 | 800 | 16 | 800 |
| Total | 22 | 1100 | 21 | 1050 |

The average owned land and operational holding of IGS PC members was found to be 1.14 acre and 2.09 acre, respectively whereas it was 2.21 acre and 3.06 acre for BKSL farmers. This shows that BKSL PC member farmers were relatively large in both owned and operated land (Table 5.22). Most of the IGS member farmers fell in the category of marginal farmers (73%) as owners followed by small (21%) and semi-medium farmers (6%). However, in case of BKSL farmers (62% members farmer) were marginal farmers followed by small farmers (24%)

& semi-medium (14%) (Table 5.22). As far as actual farm size was concerned, small (47%) & semi-medium (39%) farmers for IGS & BKSL, respectively. Similarly, in the case of operated land holding, 73% were marginal farmers followed by small farmers (24%) and semi-medium farmers (6%) for IGS member farmers. Semi-medium farmers were the largest operated land category (45% of the total land), in case of BKSL member farmers (Table 5.23 and 5.24).

Table 5.22: Average owned and operated land holding of members of IGS and BKSL PCs

| Parameter | IGS | BKSL |
|----------------------|------|------|
| Average Land (acres) | | |
| Owned | 1.94 | 2.11 |
| Operated | 2.06 | 3.06 |

Table 5.23: Category wise distribution of IGS and BKSL PC members by land owned

| Category | IGS | | | | BKSL | | | |
|-------------|----------------|----------|------------|----------|----------------|----------|------------|----------|
| | No. of Farmers | % of all | Owned Land | % of all | No. of Farmers | % of all | Owned Land | % of all |
| Marginal | 28 | 77.73 | 26.49 | 35.52 | 0 | 0.00 | 0.00 | 0.00 |
| Small | 2 | 20.21 | 20.00 | 43.53 | 5 | 23.81 | 30.46 | 33.8 |
| Semi-Medium | 2 | 5.06 | 13.20 | 10.97 | 2 | 9.29 | 20.04 | 21.52 |
| Total | 32 | 100 | 69.75 | 100 | 21 | 100 | 52.79 | 100 |

Table 5.24: Category wise distribution of IGS and BKSL PC members by operated land

| Category | IGS | | | | BKSL | | | |
|-------------|----------------|----------|---------------|----------|----------------|----------|---------------|----------|
| | No. of Farmers | % of all | Operated Land | % of all | No. of Farmers | % of all | Operated Land | % of all |
| Marginal | 23 | 71.9 | 1.01 | 45.2 | 0 | 0.00 | 0 | 0.00 |
| Small | 8 | 25.24 | 25.49 | 37.4 | 7 | 33.33 | 11.20 | 21.07 |
| Semi-Medium | 2 | 6.06 | 34.6 | 100 | 4 | 19.05 | 29.00 | 54.93 |
| Total | 32 | 100 | 61.26 | 100 | 21 | 100 | 64.26 | 100 |

Table 5.25: Distribution of IGS and BKSL PC members by livestock ownership

| Category | IGS | | | | | BKSL | | | | |
|----------|----------------|----------|----------------|----------|----------------------------|----------------|----------|----------------|----------|----------------------------|
| | No. of Farmers | % of all | No. of Animals | % of all | Average Animals per farmer | No. of Farmers | % of all | No. of Animals | % of all | Average Animals per farmer |
| Cow | 28 | 84.85 | 72 | 63.73 | 2.57 | 11 | 52.4 | 49 | 56.36 | 4.45 |
| Poultry | 2 | 6.06 | 5 | 3.75 | 2.5 | 0 | 0 | 0 | 0 | 0 |
| Goat | 12 | 37.50 | 54 | 47.3 | 4.5 | 7 | 33.33 | 37 | 42.05 | 5.29 |
| Don | 2 | 6.06 | 1 | 0.88 | 0.5 | 0 | 0 | 0 | 0 | 0 |
| Total | 32 | 100 | 124 | 100 | | 21 | 100 | 86 | 100 | |

The highest share in the livestock population was of cattle followed by goat in both JGS and BKSL PC members. The average number of cows & goats owned by each farm was 2.07 and 4.5 respectively, for JGS members. For BKSL, average number of cow and goat per household was reported to be 4.08 and 5.29, respectively. It was observed that no members of BKSL PCs owned buffalo or oxen (Table 8.25).

Member farmers exhibited a pattern in which seed was purchased from a single source or through a combination of sources. The most trusted source was found to be dealers & PCs in both types of PCs (JGS and BKSL). Other major sources were dealers and PCs (15%) and dealer and PACS (11%) for JGS. In case of BKSL, major sources were dealers (23%), Product companies (25%) and Dealers and PCs (19%) (Table 8.26).

Table 8.26: Distribution of JGS and BKSL PC member farmers by Source of Seed

| Sources | JGS | | BKSL | |
|----------------------------|----------------|----------|----------------|-----------|
| | No. of Farmers | % of JGS | No. of Farmers | % of BKSL |
| Dealers | 10 | 36.7 | 5 | 23.8 |
| PC | 6 | 18.8 | 6 | 28.6 |
| Local Farmers | 2 | 6.9 | | 0 |
| PACS | 2 | 6.9 | 1 | 4.8 |
| Dealers, PACS | 4 | 13.2 | 1 | 4.8 |
| Dealers, PC | 2 | 6.9 | 4 | 18.8 |
| Local Farmers, PACS | 2 | 6.9 | 0 | 0 |
| Dealer, Other PG | 1 | 3.3 | 0 | 0 |
| Dealer, Local Farmers, DDA | 1 | 3.3 | 0 | 0 |
| Dealers, Local Farmers | 0 | 0 | 1 | 4.8 |
| Dealers, DDA | 0 | 0 | 2 | 9.5 |
| PC, DDA | 0 | 0 | 1 | 4.8 |
| Total | 27 | 100 | 21 | 100 |

More than half of the member farmers of JGS purchased chemical fertilizers from dealers followed by PACS (14%), PC (12%) and dealers & PC (12%). The member farmers of BKSL preferred PC (67%) followed by dealers (14%) and PACS (13%). Dealers and PCs were equally preferred sources for chemical pesticide with the latter being non-user of chemical pesticides (Table 8.27).

Table 5.27: Distribution of IGS and BKSL PC member farmers by Source of Chemical Inputs

| Type of Producer Cooperatives | Fertilizers | | | | Pesticides | | | |
|----------------------------------|-------------------|-------------|-------------------|-------------|-------------------|-------------|-------------------|-------------|
| | IGS | | BKSL | | IGS | | BKSL | |
| | No. of farmers | % of all | No. of farmers | % of all | No. of farmers | % of all | No. of farmers | % of all |
| Dealers | 37 | 33.2 | 7 | 14.28 | 31 | 48.43 | 7 | 33.33 |
| INCS/BKS | 5 | 5.5 | 7 | 14.2 | 1 | 1.57 | 3 | 14.28 |
| PC | 4 | 4.4 | 16 | 32.6 | 1 | 1.57 | 7 | 33.33 |
| Dealers & INCS | 1 | 1.1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dealers & PC | 4 | 4.4 | 0 | 0 | 1 | 1.57 | 0 | 0 |
| Agri Expt | 0 | 0 | 1 | 2.04 | 0 | 0 | 0 | 0 |
| Don't buy | 2 | 2.2 | 7 | 14.28 | 14 | 21.54 | 7 | 33.33 |
| Total | 53 | 100 | 29 | 100 | 53 | 100 | 21 | 100 |

Bioinputs were used only by a handful of members. The use of biopesticides was more prominent than biofertilizers. 62 % of IGS members were not using any of the bio-inputs whereas in the case of BKSL, the non-usage was 41% for bio fertilizers and 47 % for Biopesticide. The main sources for those who use these bio inputs were dealers, producers (cooperatives), INCS and local farmers. (Table 5.28)

Table 5.28: Distribution of IGS and BKSL PC member farmers by Source of bio input

| Type of bio-inputs category | Fertilizers | | | | Pesticides | | | |
|--------------------------------|-------------------|-------------|-------------------|-------------|-------------------|-------------|-------------------|-------------|
| | IGS | | BKSL | | IGS | | BKSL | |
| | No. of farmers | % of all | No. of farmers | % of all | No. of farmers | % of all | No. of farmers | % of all |
| PC | 1 | 3.3 | 4 | 13.3 | 1 | 3.3 | 2 | 6.6 |
| Dealers | 3 | 10 | 4 | 13.3 | 2 | 6.6 | 4 | 13.3 |
| Local farmers | 1 | 3.3 | 2 | 6.6 | 1 | 3.3 | 0 | 0 |
| INCS | 1 | 3.3 | 0 | 0 | 1 | 3.3 | 0 | 0 |
| Agri Expt | 0 | 0 | 1 | 3.3 | 0 | 0 | 1 | 3.3 |
| Don't buy | 21 | 66.6 | 18 | 60 | 21 | 66.6 | 14 | 46.6 |
| Total | 27 | 100 | 29 | 100 | 27 | 100 | 21 | 100 |

The average cropping intensity of BKSL member farmers (2.4) which was higher than IGS member farmers (1.76). The members of BKSL PCs had higher cropping intensity than that of IGS PCs members, as the gross cropped area of BKSL member farmers exceeds that of IGS member farmers (Table 5.29). The average Kharif, Rabi and Zaid (Summer) was three times higher of BKSL members than that by IGS PC members. (Table 5.29)

In case of IGS farmers, the diesel & electric engines was used by 21% and 27% member farmers respectively. On the contrary, in case of BKSL PC members, 37% members were using electrically powered tube wells followed by diesel operated tube wells (47%) (Table 5.30)

Table 5.29: Season wise Average Cropped Area of members of IGS and BKSL PCs

| Category/Season/Member | IGS | BKSL |
|------------------------|-----|------|
| Kharif | 138 | 104 |
| Rabi | 125 | 106 |
| Summer | 632 | 507 |

The Kharif cropping was dominated by paddy and vegetable crops. 94 % of IGS PC member farmers had cultivated paddy followed by vegetables (12%) and cucumber (15%). Paddy (7%) and vegetables (15%) were two major crops occupying large area in total Kharif acreage. Paddy was found to be significant crop in the cropping pattern of members occupying 36% of total acreage. Similar pattern was observed for BKSL members as well where paddy (95%) was grown by most of the farmers followed by vegetables (14%) and chili (16%). Paddy was the most important crop occupying 95% of total Kharif acreage and 39% of total area (Table 5.31).

Table 5.30: Distribution of IGS and BKSL PC member farmers by source of irrigation

| Farmer's Source of Irrigation | Source of Energy | IGS | | BKSL | |
|-------------------------------|------------------|----------------|------------|----------------|------------|
| | | No. of Farmers | % of IGS | No. of Farmers | % of BKSL |
| Canal | NA | 2 | 5.00 | 4 | 8 |
| Canal | NA | 2 | 5.00 | 0 | 0 |
| Well | NA | 2 | 5.00 | 2 | 4 |
| Tube well | Electric Motor | 5 | 12.50 | 0 | 0.00 |
| Tube well | Diesel Engine | 0 | 0.00 | 3 | 6.00 |
| Well | Hand Engine | 6 | 15.00 | 0 | 0 |
| Total | | 20 | 100 | 25 | 100 |

The number of crops grown in rabi season was higher than the Kharif season. Crops taken by most of the IGS farmers were potato (60%), mustard (30%), onion (30%) and vegetables (23%). Cucumber and gram were two additional major crops grown by BKSL PC members with the rabi acreage of 7% and 6% respectively. Though the acreage was low but 24% of the members had cultivated these crops (Table 5.22). Diversity in the crop grown during summer (rain) season was higher for IGS PC members than BKSL PC members. But in the case of BKSL, acreage was highly skewed towards two crops viz. paddy and vegetable occupying 95% of total summer area (Table 5.35).

Table 5.31: Kharif cropping pattern of IGS and BKSL PC members

| Crop/Category | Farmers | IGS | | | | | BKSL | | | | | |
|---------------|---------|-----------|--------------|---------------|----------------|--------------|-----------|--------------|---------------|----------------|--------------|---------------|
| | | Area (ha) | % Total Area | Output (t/ha) | % Total Output | % Total Area | Area (ha) | % Total Area | Output (t/ha) | % Total Output | % Total Area | Output (t/ha) |
| Cumbar | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wheat | 2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wheat, Paddy | 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 |
| Paddy | 20 | 23.54 | 54.7 | 70.47 | 31.76 | 0.00 | 20 | 95.24 | 60.26 | 0.00 | 20.00 | 0.00 |
| Vegetables | 14 | 12.47 | 0.3 | 0.00 | 0.25 | 0.00 | 2 | 9.26 | 0.0 | 0.00 | 0.26 | 0.00 |
| Chilli | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 9.26 | 0.0 | 0.0 | 0.26 | 0.00 |
| Total | 37 | 100 | 53.0 | 40.4 | 1.0 | 25 | 100 | 60.26 | 60.26 | 0.00 | 20.00 | 0.00 |

Table 5.32: Rabi cropping pattern of IGS and BKSL PC members

| Crop/Category | Farmers | IGS | | | | | BKSL | | | | | |
|---------------|---------|-----------|--------------|---------------|----------------|--------------|-----------|--------------|---------------|----------------|--------------|---------------|
| | | Area (ha) | % Total Area | Output (t/ha) | % Total Output | % Total Area | Area (ha) | % Total Area | Output (t/ha) | % Total Output | % Total Area | Output (t/ha) |
| Cucumber | 5 | 5.5 | 1.7 | 1.33 | 1.03 | 0.07 | 2 | 1.0 | 1.4 | 1.06 | 0.0 | 0.0 |
| Tomato | 3 | 3.0 | 0.35 | 0.05 | 0.26 | 0.0 | 3 | 14.26 | 2.0 | 0.0 | 1.4 | 0.0 |
| Wheat | 1 | 1.0 | 0.07 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mustard | 11 | 10.0 | 0.71 | 20.0 | 7.9 | 0.04 | 5 | 7.4 | 1.0 | 7.00 | 0.0 | 0.0 |
| Onion | 0 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 | 4 | 19.0 | 0.24 | 0.00 | 0.0 | 0.00 |
| Potato | 22 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sesame | 1 | 1.0 | 1 | 1.0 | 0.0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sunflower | 2 | 1.00 | 0.08 | 0.00 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Vegetables | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | 32 | 100 | 0.00 | 1.00 | 0.00 | 1.00 | 20 | 100 | 24.00 | 0.00 | 22.00 | 1.00 |

28% of IGS member farmers either did not know or mentioned incorrect name of the PC they were members of. This count was higher for BKSL PC members where 43% of the members were not able to provide the information (Table 5.34). Farmers were not able to specify the PC owner also. In case of IGS, more than half of the farmers were not able to provide the name of owner (Table 5.35). Those who answered gave the names of PC employees (42%), promoting agencies (3%) and BoD (3%). BKSL members have comparatively higher awareness of the PC owner. 33% of the members were not able to provide the name of PC owner. Similar pattern in case of IGS PC members was observed where 29% members reported PC employees followed by government (24 %) and BoD (19%) (Table 5.35).

Table 5.33: Summer cropping pattern of IIS and BKSL members

| Crop | IIS | | | | | | BKSL | | | | | |
|----------------|--------|----------------------|-------------------|---------------|------------------|---------------|--------|----------------------|-------------------|---------------|------------------|---------------|
| | Number | Cultivated Area (ha) | Cropped Area (ha) | Yield (kg/ha) | Total Yield (kg) | Yield (kg/ha) | Number | Cultivated Area (ha) | Cropped Area (ha) | Yield (kg/ha) | Total Yield (kg) | Yield (kg/ha) |
| Cash | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 557 | 227 | 149 | 343 | 64 |
| Cumquat | 5 | 155 | 152 | 5.56 | 852 | 632 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fruit | 1 | 303 | 307 | 389 | 389 | 389 | 3 | 408 | 126 | 388 | 388 | 658 |
| Wet | 5 | 155 | 832 | 22.89 | 679 | 124 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wet Vegetables | 1 | 303 | 662 | 2.34 | 69 | 662 | 0 | 0 | 0 | 0 | 0 | 0 |
| Paddy | 5 | 155 | 832 | 22.25 | 479 | 626 | 6 | 71.83 | 425 | 3635 | 367 | 37 |
| Sesame | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4.28 | 8.08 | 0 | 8.08 | 63.5 |
| Terrace | 3 | 909 | 0 | 3.84 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Vegetables | 0 | 0 | 4.72 | 16.5 | 135 | 6.43 | 3 | 46.25 | 4.48 | 33 | 2.58 | 1.65 |
| Total | 23 | 160 | 28.61 | 160 | 21.54 | 8.87 | 21 | 100 | 25.34 | 108 | 25.8 | 2.81 |

Table 5.34: Distribution of IIS and BKSL member farmers by knowledge of PC Name

| Category | IIS | | BKSL | |
|--------------|-------------------|----------|-------------------|----------|
| | Number of farmers | % of all | Number of farmers | % of all |
| Correct Name | 21 | 91.4 | 0 | 0.0 |
| Don't Know | 0 | 0.0 | 0 | 0.0 |
| Wrong Name | 0 | 0.0 | 3 | 14.3 |
| Total | 21 | 100 | 21 | 100 |

Table 5.35: Distribution of IIS and BKSL PC member farmers by knowledge of PC Owner

| Category | IIS | | BKSL | |
|------------------|-------------------|----------|-------------------|----------|
| | Number of farmers | % of all | Number of farmers | % of all |
| Don't Know | 0 | 0.0 | 7 | 33.3 |
| Government | 0 | 0 | 3 | 14.3 |
| PC Employees | 4 | 19.0 | 6 | 28.6 |
| Promoting Agency | 1 | 4.8 | 3 | 14.3 |
| POB | 1 | 4.8 | 4 | 19.0 |
| Total | 20 | 100 | 21 | 100 |

Table 5.36: Distribution of IGS and BKSL PC member farmers by PC influencer

| Category Primary PC influencer | IGS | | BKSL | |
|--------------------------------------|-------------------|-------------|-------------------|--------------|
| | No. of farmers | % of IGS | No. of farmers | % of BKSL |
| Friends/ Neighbours/ Relatives | 20 | 30% | 7 | 43% |
| PC Employees | 18 | 24% | 0 | 0% |
| PC Promoters | 4 | 6% | 6 | 35% |
| Total | 42 | 100 | 13 | 100 |

Members were encouraged by friends/ relatives/ neighbours, PC employees and promoters to join the PCs. PC employees had been the major influencer for farmers (30%) followed by friends/ relatives/ neighbours (24%) and PC promoters (6%) for IGS members. PC employees (62 %) and PC promoters (29 %) were reported to be major influencers in the case of BKSL (Table 5.36).

Promoter-wise Output Impact of PCs

In case of IGS PCs, three farmers reported selling fruits to the PC and two paddy and 15 vegetables compared with three years before. The vegetable output was important as Subal Bangla was buying it from the PC or the PC was running the Subal Bangla store and buying from its members and non-members directly. This was about 30% of all members in vegetables and 10% in fruits and about 7% in paddy. 17 additional members farmers (50% of total) of IGS started selling their products through PCs dealing in four commodities viz. fruits, paddy, tomato, and vegetables. Vegetables were a major commodity sold through the channel of PC, showing exponential growth followed by tomato.

On the other hand, in case of BKSL PCs there was no output side interface of PCs with the farmers.

Promoter-wise PC comparison

BKSL PCs

All the member farmers of Bithun PC were male while in case of Shantiniketan PC, 12 member farmers were male and one was a female. Average age of Bithun PC members (36 years) was higher than Shantiniketan PC members (34 years). The largest %age of member farmers in the case of Bithun PC was educated up to High school (30%) followed by Middle school and Higher secondary level (20% each) while in the case of Shantiniketan PC, majority of member farmers (64%) were educated up to middle school and 13% were even illiterate at primary level.

Farming was the primary occupation for the majority 35-70% of the member farmers in both the PCs. In case of Bithun PC, animal husbandry was another important occupation for 20% member farmers. In case of Shantiniketan PC, business and skilled jobs was the primary occupation for 13% member farmers each. 55% of the Shantiniketan PC members didn't have

any secondary occupation but in the case of Birbhum PC members this share was only 20%. Largest number of the member farmers for Shantiniketan PC (45%) and Birbhum PC (37%) had agriculture as the secondary occupation. Animal husbandry (20%) and skilled job (25%) were other major secondary occupation reported for Birbhum PC members.

The average owned and operational landholding was higher for Birbhum PC (3.69 and 3.87 acres respectively) than in case of Shantiniketan PC (2.43 and 2.5 acres). Most of the Shantiniketan PC members (91%) were marginal farmers owning 66% of the total land. In the case of Birbhum PC, the largest category in terms of number of farmers was of small farmers (50%) followed by marginal farmers (30%) and semi-medium farmers (20%) owning 45%, 16% and 40% respectively, of the total land. Similarly, in terms of operated land holding, Shantiniketan PC had largest share of marginal farmers (44%) followed by small and semi-medium farmers (15% in each case). However, the largest proportion of operated land was with semi-medium farmers (52%) followed by marginal farmers (30%) and small farmers (18%). For Birbhum PC, small farmers (50%) were highest in number followed by marginal farmers (30%) and medium farmers (20%). Small farmers had the largest share in land (48%) followed by semi-medium farmers (40%) and marginal farmers (12%).

70% and 50% Birbhum PC member owned cows and goats which was 52% and 45% each of total livestock owned respectively. In case of Shantiniketan PC, the number of member farmers who owned cows was 43% and 16% had goats lower than Birbhum PC. Also, cows were 75% of total livestock.

PCs were source of awareness on farming for 60% farmers and friends for another 30% in Birbhum PC members while in the case of Shantiniketan PC, 64% of the member farmers obtained information through PC and rest from other multiple sources like ADO, media, ad combinations of PC and other sources.

The cropping intensity was lower for Birbhum PC (1.24) than that in case of Shantiniketan PC members (1.58) though it was quite high in general in both cases. All the member farmers of Birbhum PC grew paddy in kharif season which occupied 95% of the kharif area and 44% of the total area. The remaining member farmers grew vegetables. In case of Shantiniketan PC, 91% of the member farmers grew paddy followed by Oil (17%) and vegetables (11%). Paddy (90%) had the highest share in kharif acreage. Mustard (30%), potato (27%), vegetables (20%) and onion (40%) were grown by large number of Birbhum PC members occupying 18%, 15%, 31% and 2% respectively, of the rabi acreage. In case of Shantiniketan PC potato (32%), mustard (36%) and vegetables (35%) were the major crops grown occupying 40% of the rabi acreage in case of potato and other vegetables each and 20% in mustard.

Paddy was grown by most of the Birbhum PC members (90%) followed by vegetables while in the case of Shantiniketan PC members, paddy was the most important crop grown by 58% farmers in 75% of summer acreage followed by fruits (or 15%) in 7% area and vegetables by 2% farmers in 19% summer area. Surprisingly, the summer acreage was 30-40% of GCA in both cases which explains high cropping intensity.

PC was the most important source for Bithum PC and Shantiniketan PC members for seeds. In case of 40-45% member farmers, Dealers and PC was another major source of seed purchase for 15-20% of member farmer of both PCs. 45% of Shantiniketan PC members also purchased seeds from dealers alone.

50% of the Bithum PC member farmers did not purchase any biofertilizers while this share was 45% in the case of Shantiniketan PC member. PC and Dealers was the most important source of biofertilizers for 10-20% and 15-27% member farmers respectively in Bithum and Shantiniketan PC respectively. Most of the member farmers (50-70%) did not purchase any biopesticides. However, majority of the remaining member farmers were purchasing biopesticides from dealers (15-25%) and only 10% each from PC.

50% of Bithum and 62% of Shantiniketan PC member farmers purchased chemical fertilizers from PC respectively. In the case of Bithum PC, dealers (20%) and FACS (20%) were also important sources of chemical fertilizer purchase. 30% and 35% of the member farmers did not purchase any chemical pesticides in Bithum and Shantiniketan PCs. PC was a source of chemical fertilizers for 30-55% of the member farmers respectively and dealers were another major source for the purchase of chemical pesticides in case of 27-40% of the member farmers.

30% of Bithum and 45% of Shantiniketan PC members didn't know the name of PC while 60% and 45% of the member farmers respectively provided the correct name of the PC.

40% Bithum PC members and 27% Shantiniketan PC member didn't know the name of PC owner. 27% and 30% member farmers in case of Bithum and Shantiniketan respectively provided the name of PC employees while the SoCs were mentioned as correct by 10% and 27% of the member farmers. 10% and 13% respectively thought PC was owned by the government. 60% and 64% of the member farmers were influenced by PC employees to become members in case of Bithum and Shantiniketan respectively. Other major source of influence were PC promoters (40%) for Bithum PC and friends family (18%) and PC promoters (18%) in case of Shantiniketan PC.

IGS PCs

All members were male in all three cases. The average age of members was the highest for Hooghly Vegetables PC members (35 years) followed by Chhatra PC members (30 years) and Simlapal PC members (44 years). The highest proportion of members were illiterate in case of Chhatra PC (20%), followed by Simlapal PC (17%) and Hooghly vegetables PC (9%). The members who were educated up to middle school were highest in Simlapal PC (53%) followed by Chhatra PC (40%) and Hooghly vegetables PC (27%). High school qualified members were highest in Hooghly vegetables PC (44%) followed by Simlapal PC (33%) and Chhatra PC (20%) (Table 5.37).

Table 5.37: Distribution of IGS PC members by Education

| PC | Chhatra | | Hooghly Vegetables | | Sardal | |
|------------------|----------------|------------|--------------------|------------|----------------|------------|
| | No. of Farmers | % of Total | No. of Farmers | % of Total | No. of Farmers | % of Total |
| Illiterate | 2 | 20% | 1 | 10% | 2 | 10% |
| Primary | 0 | 0 | 0 | 0 | 1 | 5% |
| Middle | 3 | 30% | 2 | 20% | 1 | 5% |
| High School | 2 | 20% | 1 | 10% | 4 | 20% |
| Higher Secondary | 1 | 10% | 0 | 0 | 2 | 10% |
| Undergrad | 0 | 0 | 0 | 0 | 1 | 5% |
| Graduate | 2 | 20% | 0 | 0 | 0 | 0 |
| Total | 10 | 100 | 11 | 100 | 12 | 100 |

Primary occupation was farming in all members in case of Chhatra and Hooghly and in case of 92% of Sardal PC members with one farmer reporting labour. Most of the member farmers didn't have any secondary occupation. However, for the remaining labour and skilled jobs was reported as an important secondary occupation. (Table 5.38)

Table 5.38: Distribution of IGS PC members by Secondary Occupation

| PC | Chhatra | | Hooghly Vegetables | | Sardal | |
|-------------|----------------|------------|--------------------|------------|----------------|------------|
| | No. of Farmers | % of Total | No. of Farmers | % of Total | No. of Farmers | % of Total |
| Farming | 8 | 80% | 0 | 0 | 1 | 8% |
| Labour | 0 | 0 | 2 | 18% | 3 | 25% |
| Skilled job | 2 | 20% | 0 | 0 | 1 | 8% |
| None | 2 | 20% | 9 | 82% | 8 | 67% |
| Total | 10 | 100 | 11 | 100 | 12 | 100 |

The owned as well as operated land was the highest for Hooghly Vegetables PC (2.25 acres) followed by Chhatra PC (2.14 acres) and Sardal PC (1.1 acres). (Table 5.39)

Table 5.39: Average Owned and Operated land of IGS PC members

| PC | Chhatra | Hooghly Vegetables | Sardal |
|----------------------|---------|--------------------|--------|
| Average Land (acres) | | | |
| Owned | 2.14 | 2.25 | 1.1 |
| Operated | 2.14 | 2.25 | 1.0 |

All the member of Sardal PC were marginal farmers followed by Chhatra PC (50%) and Hooghly vegetables PC (45%). The share of small farmers was higher for Hooghly Vegetables PC (54%) than Chhatra PC (50%). The share of land holding by small farmers was also higher for Hooghly Vegetables PC members (50%) than Chhatra PC members (41%). (Table 5.40)

Most of the members of all the PCs were in the category of marginal farmers in terms of operational land i.e. Simlapal PC members (88%), Hooghly vegetables PC members (85%) and Chhatra PC members (81%). Land holding was also distributed in a similar pattern. But in case of small operational landholding, Chhatra PC (47%) was highest followed by Hooghly vegetables PC (27%) and Simlapal PC (17%) with a share of 59%, 40% and 39% respectively in the operational land holding (Table 5.40).

Cows were owned by the majority of the member farmers of all three PCs. All members of Chhatra PC followed by Simlapal PC (72%) and Hooghly vegetables (64%) owned cows which was 47%, 69% and 44% respectively, of the total animals owned by each PC members. The second most important livestock was goat which was owned by 58% Simlapal PC members, 30% Chhatra PC members and 18% Hooghly vegetables PC members with the share of 54%, 40% and 12% respectively, of the total livestock. Buffalo was owned by only 20% of Chhatra PC members which was 9% of the total animals owned (Table 5.41).

Table 5.40: Category-wise Distribution of ICS PC members by Owned Land

| PC | Chhatra | | | | Hooghly Vegetables | | | | Simlapal | | | |
|-------------|----------------|------------|--------------|------------|--------------------|------------|--------------|------------|----------------|------------|--------------|------------|
| | No. of Farmers | % of Total | Avg. in Hect | % of Total | No. of Farmers | % of Total | Avg. in Hect | % of Total | No. of Farmers | % of Total | Avg. in Hect | % of Total |
| Marginal | 11 | 100% | 1.02 | 73% | 8 | 100% | 0.85 | 25.4% | 17 | 100% | 0.31 | 100% |
| Small | 2 | 20% | 0.32 | 10% | 4 | 50% | 0.11 | 55% | 0 | 0 | 0 | 0 |
| Semi-Medium | 1 | 10% | 0.32 | 21% | 1 | 10% | 0 | 20% | 4 | 4 | 4 | 4 |
| Total | 14 | 100 | 21.48 | 100 | 13 | 100 | 25.36 | 100 | 21 | 100 | 13.31 | 100 |

Table 5.41: Category-wise Distribution of ICS PC members by Operated Land

| PC | Chhatra | | | | Hooghly Vegetables | | | | Simlapal | | | |
|-------------|----------------|------------|--------------|------------|--------------------|------------|--------------|------------|----------------|------------|--------------|------------|
| | No. of Farmers | % of Total | Avg. in Hect | % of Total | No. of Farmers | % of Total | Avg. in Hect | % of Total | No. of Farmers | % of Total | Avg. in Hect | % of Total |
| Marginal | 11 | 100% | 0.49 | 56% | 7 | 100% | 0.03 | 25.7% | 19 | 100% | 0.01 | 100% |
| Small | 4 | 40% | 0.33 | 32% | 3 | 37% | 0.03 | 32% | 1 | 5% | 0.33 | 20% |
| Semi-Medium | 1 | 10% | 0.69 | 25% | 1 | 10% | 0 | 25% | 0 | 0 | 0 | 0 |
| Total | 16 | 100 | 21.48 | 100 | 11 | 100 | 28.32 | 100 | 20 | 100 | 18.36 | 100 |

Table 8.49: Distribution of MCS FCS members by livestock Owned

| FCS | Cattle | | | | Bovine | | | | Poultry | | | | Others | | | |
|---------|-------------------|------|--------|-------|-------------------|------|--------|-------|-------------------|------|--------|-------|-------------------|------|--------|-------|
| | Number of Members | Male | Female | Total | Number of Members | Male | Female | Total | Number of Members | Male | Female | Total | Number of Members | Male | Female | Total |
| Bahadur | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bar | 30 | 16 | 14 | 30 | 1024 | 7 | 10 | 17 | 11107 | 26 | 26 | 52 | 4424 | 208 | 208 | 416 |
| Baran | 3 | 3 | 0 | 3 | 183 | 3 | 0 | 3 | 1823 | 26 | 26 | 52 | 5370 | 104 | 104 | 208 |
| Chandi | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 105 | 105 | 210 | |
| Total | 35 | 19 | 14 | 33 | 1207 | 10 | 10 | 20 | 12207 | 80 | 80 | 160 | 10774 | 212 | 212 | 424 |

PC was the source of general awareness for 42% Simalpal PC members, 49% Chhatra PC members and 23% Hooghly vegetables PC members. 42% Simalpal and 36% Chhatra PC members obtained information through friends. Other major source was PC & ADO providing information to 27% Hooghly vegetables PC members and Friends & PC providing information to 30% Chhatra PC members and 8% Simalpal PC members (Table 5.43).

Table 5.43: Distribution of IGs PC members by source of General agricultural information

| PC Category | Friends | | Hooghly vegetables | | Simalpal | |
|----------------------------|----------------|------------|--------------------|------------|----------------|------------|
| | No. of Farmers | % of total | No. of Farmers | % of total | No. of Farmers | % of total |
| Friends | 0 | 0 | 4 | 25.0 | 5 | 6.3 |
| PC | 4 | 40.0 | 3 | 22.5 | 5 | 6.3 |
| Friends, ADO | 1 | 10.0 | 3 | 0 | 0 | 0 |
| PC, ADO | 0 | 0 | 3 | 22.5 | 0 | 0 |
| Friends, PC | 3 | 30.0 | 3 | 0 | 1 | 1.3 |
| PC, Mobile | 0 | 0 | 1 | 7.5 | 0 | 0 |
| ADO, Point of Purchase | 1 | 10.0 | 0 | 0 | 0 | 0 |
| PC, Point of Purchase | 1 | 10.0 | 2 | 0 | 0 | 0 |
| Friends, Point of Purchase | 0 | 0 | 0 | 0 | 1 | 1.3 |
| Total | 10 | 100 | 17 | 100 | 12 | 100 |

Highest cropping intensity was reported for Hooghly vegetables OC (2.05) closely followed by Simalpal PC (2.05) and Chhatra PC (1.75).

Majority of the member farmers was reported to cultivating paddy: 100% Chhatra and Simalpal PC member and 91% Hooghly vegetables PC members cultivating paddy crop. Kharif acreage of paddy was highest for Simalpal PC (94%) followed by Chhatra PC (81%) and Hooghly vegetables PC (67%). Vegetable was another major crop grown by member farmers with highest Kharif acreage was reported for Hooghly vegetables (22%) followed by Chhatra PC (15%) and Simalpal PC (7%). Jute and jute & paddy were other two crops grown by 15% and 9% of the Hooghly vegetables PC members. (Table 5.44)

80% Chhatra PC members, 35% Simalpal PC members and 37% Hooghly vegetables PC members grew mustard which occupied 1-4% of the total area. All Hooghly vegetables PC members were growing dolma which occupied 11% of the total area. Potato was a major crop grown by members of IGs-promoted PCs. Simalpal PC (87%) had the highest number of onion growers followed by Hooghly vegetables PC (77%) and Chhatra PC (40%) occupying 3%, 15% and 15% respectively, of the total acreage. The number of vegetable growers were very high for Chhatra PC (70%) followed by Hooghly vegetables PC (31%) and Simalpal PC (17%). Sunflower was a major crop for Chhatra PC members only grown by 30% member farmers. (Table 5.45)

Vegetables were grown by all Chhatra PC members followed by 45% Hooghly vegetable PC members and 25% Simlatal PC members occupying 89%, 22% and 9% of the summer acreage. Sesame was an important crop for Chhatra PC and Simlatal PC grown by 25% and 67% of the member farmers. 25% Simlatal and 15% Hooghly vegetables PC members cultivated paddy which occupied 26% of the summer acreage in each case. Jute was a major crop for Hooghly PC members only grown by 35% of the total members occupying 49% of the summer acreage. (Table 8.44)

Table 2.44: Wharff Cropping Pattern of 105 PC's members

| Crops | Wharff | | | | | Majhiya | | | | | Bhamb | | | | |
|----------------|-----------|---------------|---------------|---------------|---------------|-----------|---------------|---------------|---------------|---------------|-----------|---------------|---------------|---------------|---------------|
| | Area (ha) | Yield (kg/ha) | Yield (kg/ha) | Yield (kg/ha) | Yield (kg/ha) | Area (ha) | Yield (kg/ha) | Yield (kg/ha) | Yield (kg/ha) | Yield (kg/ha) | Area (ha) | Yield (kg/ha) | Yield (kg/ha) | Yield (kg/ha) | Yield (kg/ha) |
| Wheat | 10 | 105 | 163 | 163 | 163 | 15 | 142 | 153 | 153 | 153 | 12 | 160 | 160 | 160 | 160 |
| Vegetables | 7 | 75 | 31 | 42 | 64 | 7 | 38 | 349 | 326 | 326 | 4 | 33.3 | 12 | 647 | 310 |
| Oil | 0 | 0 | 1 | 1 | 1 | 1 | 10 | 7 | 11 | 11 | 0 | 0 | 0 | 0 | 0 |
| Soil Fertility | 0 | 0 | 1 | 1 | 1 | 1 | 112 | 112 | 112 | 112 | 0 | 0 | 0 | 0 | 0 |
| Total | 17 | 180 | 214 | 214 | 214 | 18 | 180 | 214 | 214 | 214 | 12 | 160 | 160 | 160 | 160 |

Table 2.45: Maize Cropping Pattern of 105 PC members

| Crops | Majhiya | | | | | Wharff | | | | | Bhamb | | | | |
|----------------|-----------|---------------|---------------|---------------|---------------|-----------|---------------|---------------|---------------|---------------|-----------|---------------|---------------|---------------|---------------|
| | Area (ha) | Yield (kg/ha) | Yield (kg/ha) | Yield (kg/ha) | Yield (kg/ha) | Area (ha) | Yield (kg/ha) | Yield (kg/ha) | Yield (kg/ha) | Yield (kg/ha) | Area (ha) | Yield (kg/ha) | Yield (kg/ha) | Yield (kg/ha) | Yield (kg/ha) |
| Maize | 1 | 15 | 15 | 15 | 15 | 1 | 15 | 15 | 15 | 15 | 1 | 15 | 15 | 15 | 15 |
| Wheat | 1 | 10 | 10 | 10 | 10 | 1 | 10 | 10 | 10 | 10 | 1 | 10 | 10 | 10 | 10 |
| Soil | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Vegetables | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Soil Fertility | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total | 5 | 41 | 41 | 41 | 41 | 5 | 41 | 41 | 41 | 41 | 5 | 41 | 41 | 41 | 41 |

Dealers was the most important source for the purchase of seeds supplying seeds to 47% Sirtalpal PC members, 49% Chhatra PC members and 27% Hooghly vegetables PC members. Other major sources reported were dealers & PACS and dealers & PC. PC was supplying seeds to 26% Hooghly PC members followed by 10% Chhatra PC members and 4% Sirtalpal PC members (Table 5.47).

Table 5.47: Distribution of IGS PC members by Source of Seeds

| PC | Chhatra | | Hooghly vegetables | | Sirtalpal | |
|---------------|----------------|------------|--------------------|------------|----------------|------------|
| | No. of Farmers | % of total | No. of Farmers | % of total | No. of Farmers | % of total |
| Dealers | 4 | 40.0 | 2 | 22.2 | 3 | 43.8 |
| Dealers, AOP | 0 | 0 | 1 | 11.1 | 0 | 0 |
| Dealers, PACS | 2 | 20.0 | 2 | 22.2 | 1 | 14.3 |
| Dealers, PC | 3 | 30.0 | 1 | 11.1 | 2 | 28.6 |
| PACS | 0 | 0 | 2 | 22.2 | 2 | 28.6 |
| PC | 1 | 10.0 | 1 | 11.1 | 1 | 14.3 |
| Total | 10 | 100 | 18 | 100 | 12 | 100 |

Dealers was a major source of chemical fertilizers supplying to 75% Sirtalpal PC members, 40% Chhatra PC members and 44% Hooghly vegetables PC members. PACS were supplying to 20% of the Chhatra PC members followed by 17% Sirtalpal PC members and 7% Hooghly vegetables PC members. Dealers & PC was supplying to 26% Chhatra PC members and 9% Hooghly vegetables PC members. Majority of the Hooghly vegetables PC members (87%) and Chhatra PC members (50%) were not purchasing any chemical pesticides. For the members buying pesticides, dealers were the most important source for 47% Sirtalpal PC members, 40% Chhatra PC members and 26% Hooghly vegetables PC members (Table 5.48).

Most of the member farmers of IGS promoted PC didn't purchased any bio inputs. 25% of Sirtalpal PC members were reported to be purchasing biofertilizers from dealers, 10% of Chhatra PC members were purchasing each from local farmers and PACS. 15% dealers were a major source for biopesticides supplying to 17% Sirtalpal PC members and 10% Chhatra PC members. 7% of Hooghly vegetables PC members each purchasing from local farmers and dealers (Table 5.49).

Majority of the member farmers of IGS promoted PC gave correct name of the PC. Highest share was reported for Hooghly vegetables (82%) followed by Chhatra PC (40%) and Sirtalpal PC (50%). While remaining 50% Sirtalpal PC members did not know the PC name followed by Chhatra PC members (20%) and Hooghly vegetables PC members (9%) (Table 5.50). Large number of member farmers did not know the name of the PC owner. Highest percentage was reported in the case of Sirtalpal PC (84%) followed by Hooghly vegetables PC (58%) and Chhatra PC (40%). 50% of the Chhatra PC members gave the name of the PC employees for PC owner followed by Sirtalpal PC (42%) and Hooghly vegetables PC (36%) (Table 5.51).

A large number of member farmers envisaged PC employees and friends/family when asked about the PC influence. 67% Simlipal PC members envisaged PC employees followed by Hooghly vegetables PC members (43%) and Chhatna PC members (42%). Friends/family was provided by 45% Chhatna, 27% Hooghly vegetables and 15% Simlipal PC members. Other provided the name of PC promoter and PC employees and friends (Table 5.52).

Table 2.48: Distribution of 105 PC members by Source of Chemical inputs

| Chemical Category | Condition | | | | | | Position | | | | | |
|----------------------|----------------|-----------------|-----------------|-----------------|----------------|-----------------|----------------|-----------------|-----------------|-----------------|----------------|-----------------|
| | Customer | | Supply/Supplier | | Company | | Customer | | Supply/Supplier | | Company | |
| | No. of Members | Value (Million) | No. of Members | Value (Million) | No. of Members | Value (Million) | No. of Members | Value (Million) | No. of Members | Value (Million) | No. of Members | Value (Million) |
| PC | 0 | 0 | 4 | 3028 | 1 | 1 | 4 | 3 | 1 | 308 | 0 | 0 |
| Coalescer | 4 | 4330 | 4 | 3438 | 0 | 0 | 4 | 6000 | 4 | 3000 | 6 | 6000 |
| PAES | 3 | 3000 | 1 | 100 | 2 | 1800 | 0 | 0 | 0 | 0 | 1 | 100 |
| DWDM-PAES | 1 | 1000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Coalescer Coalescing | 0 | 0 | 1 | 300 | 1 | 1 | 1 | 3000 | 1 | 0 | 0 | 0 |
| Total | 8 | 1000 | 11 | 100 | 12 | 1000 | 10 | 100 | 11 | 1000 | 12 | 100 |

Table 2.49: Distribution of 103 PC members by Source of Bitz Inputs

| Chemical Category | Condition | | | | | | Position | | | | | |
|-------------------|----------------|-----------------|-----------------|-----------------|----------------|-----------------|----------------|-----------------|-----------------|-----------------|----------------|-----------------|
| | Customer | | Supply/Supplier | | Company | | Customer | | Supply/Supplier | | Company | |
| | No. of Members | Value (Million) | No. of Members | Value (Million) | No. of Members | Value (Million) | No. of Members | Value (Million) | No. of Members | Value (Million) | No. of Members | Value (Million) |
| Coalescer | 0 | 0 | 0 | 0 | 1 | 1000 | 1 | 1000 | 0 | 0 | 2 | 1000 |
| PAES | 1 | 1000 | 3 | 100 | 0 | 0 | 3 | 0 | 1 | 1000 | 0 | 0 |
| PC | 0 | 0 | 1 | 100 | 3 | 1 | 0 | 0 | 1 | 100 | 1 | 0 |
| PAES Coalescing | 1 | 1000 | 0 | 0 | 1 | 1 | 1 | 1000 | 0 | 0 | 0 | 0 |
| Total | 1 | 1000 | 4 | 100 | 5 | 1000 | 4 | 1000 | 2 | 1000 | 2 | 1000 |

Table 5.50: Distribution of IGS PC members by Knowledge about PC Name

| PC Knowledge of PC Name | Ghana | | Bengal/Agartha | | Zorapat | |
|-------------------------|----------------|------------|----------------|------------|----------------|------------|
| | No. of Farmers | % of total | No. of Farmers | % of total | No. of Farmers | % of total |
| Don't Know | 2 | 20.00 | 1 | 5.26 | 0 | 0.00 |
| Wrong Name | 2 | 20.00 | 1 | 5.26 | 0 | 0 |
| Correct Name | 6 | 60.00 | 5 | 95.27 | 6 | 30.00 |
| Total | 10 | 100 | 7 | 100 | 12 | 100 |

Table 5.51: Distribution of IGS PC members by Knowledge about PC Owner

| PC Knowledge of PC Owner | Ghana | | Bengal/Agartha | | Zorapat | |
|--------------------------|----------------|------------|----------------|------------|----------------|------------|
| | No. of Farmers | % of total | No. of Farmers | % of total | No. of Farmers | % of total |
| BOO | 0 | 0 | 1 | 5.26 | 0 | 0 |
| Don't Know | 4 | 40.00 | 0 | 0.00 | 2 | 16.67 |
| PC Employees | 5 | 50.00 | 4 | 38.46 | 0 | 0.00 |
| Promoting Agency | 1 | 10.00 | 0 | 0 | 0 | 0 |
| Total | 10 | 100 | 5 | 100 | 12 | 100 |

Table 5.52: Distribution of IGS PC members by PC Influencer

| PC Knowledge of PC Influencer | Ghana | | Bengal/Agartha | | Zorapat | |
|-------------------------------|----------------|------------|----------------|------------|----------------|------------|
| | No. of Farmers | % of total | No. of Farmers | % of total | No. of Farmers | % of total |
| Friends/Family | 4 | 40.00 | 3 | 27.27 | 3 | 25.00 |
| PC Employees | 4 | 40.00 | 0 | 0.00 | 0 | 0.00 |
| PC Promoters | 2 | 20.00 | 2 | 18.18 | 1 | 8.33 |
| PC Employees, Friends | 0 | 0 | 1 | 9.09 | 0 | 0 |
| Total | 10 | 100 | 6 | 100 | 12 | 100 |

Summary

Most of the PCs had mobilised high percentage of authorised capital except Sankharia, though authorised capital itself was small or modest in most cases. Therefore, they made negligible profit or net losses except the Chhatra PC which made a small profit after taking franchise of Sufal Barga. Except one, most of them had a small size of membership which is problematic given the small size of land holdings on the state.

The members were mostly marginal (72%) and small (27%) in their landholdings with average size of owned land being 1.98 acres and operated just 2.32 acres which was higher than that of non-members. 55% of them did not report membership of any other group or collective except a few being members of the FVCS. They grew mostly paddy and vegetables with 97% members growing paddy and 44% vegetables in Kharif and these two crops accounted for 87% of the season's area. On the other hand, in Zabi season, it was mostly grown by 64% farmers and potato grown by 70% farmers besides cotton by 30% and vegetables by 62%. Mustard and

potato accounted for 25% each of the season's area, followed by vegetables at 25% and onion at 50%. The average cropping intensity of non-members was 2.09 which was slightly lower than that in the case of members (2.2).

The PC interface with members for farm inputs was in general not very strong while on the output side it was even weaker reaching only a few farmers. 14 (25%) members had sold to PC vegetables and 2 each paddy and fruits (3% each). This had increased from just those farmers selling to it three years before (3%) to 20 (35%).

Only 3% were not keen to continue as they did not use its services. 67% also were keen to encourage others to become members. A majority (53%) of those who suggested any improvements suggested better procurement, timely availability of inputs and services and even loans besides irrigation facilities support.

Farming was the primary occupation of almost all of IGS PC member farmers. But in case of IGS, 62% of members reported agriculture as a primary occupation. Most of the member farmers reported no secondary occupation. Only 10% BKSL PC members had animal husbandry as secondary occupation. Agriculture was the secondary occupation of only 3% for IGS but as many as 35% for BKSL PC members.

The BKSL PC member farmers were relatively large in both owned and operated land though all were only marginal or small in both cases. The average number of cows & goats owned by each farm was 2.57 and 4.5 respectively, for IGS members. For BKSL, average number of cow and goat per household was 4.06 and 5.28, respectively. No member of BKSL PC owned buffalo or goat. Within each Promoter's PCs, there were significant variation of farmer profile e.g. in case of IGS PCs, all the members of Sorghal PC were marginal farmers but only 67% in case of Chhatra PC and 55% in case of Hooghly PC.

The member farmers of BKSL preferred PCs much more than IGS PC member for purchase of inputs. The average cropping intensity of BKSL PC member farmers (2.4) was higher than that of IGS member farmers (1.95).

58% members did not know the name of the PC and 45% of the members did not know who owned the PC. 56% of IGS PC member farmers did not know name of the PCs they were members of. This count was higher for BKSL PC members where 45% of the members were not able to provide the correct name. In case of IGS, more than half of the farmers did not know who owned the PC. Hooghly PC members were also aware of the name of the PC (in 52% cases). BKSL PC members had comparatively higher recall of the PC names.

In case of IGS PCs, those farmers reported selling fruits to the PC, not paddy and 15 vegetables, compared with three years before. The vegetable output was important as Sukt, Belega was buying it from the PC or the PC was running the Sukt, Belega store and buying from its members and non-members directly. This was almost 57% of all members in vegetables and 10% in fruits and about 7% in paddy. On the other hand, in case of BKSL PCs there was no output side interface of PCs with the farmers.

Appendix 5)

IGS promoted PCs

IGS believed that PC structure was culturally agonistic concept for farmer organisation and not necessarily suited and relevant in all local situations. The promoter has organized 170 PCs in India so far, mostly in UP, MP, West Bengal, Telangana and earlier in Karnataka and Rajasthan. It was expanding to north-east and eastern India. It claimed that in the last five years, 70% of the PCs were assigned to promoter by SFAC. The IGS had three levels of personnel starting with local service providers, associates, and associates.

Hooghly Vegetable PC

The Hooghly PC promoted by IGS had its regions in the vegetable clusters promoted in 2010 by NABARD which also had promoted farmer clubs. The six farmer clubs had members ranging from 15 to 100 within an average of 75 members. The PC covered 10 villages in four blocks and had 1124 members since 2007 starting with 1000 members in 2012 at the time of registration. IGS was an FI of SFAC only landowners could become members of the PC with the payment of Rs 1000/- per 100 acres of Rs 10 each. 60% of the members were marginal landowners and remaining small and semi-medium landowners. At the farmer club level there were about 15% members who were completely landless. In fact, the additional 125 members of the PC were still not shareholders though they were members of the farmer clubs. 80% of the members were men but only 40% were active because the vegetable cluster subsidy which was there for five years up to 2017 was over. This subsidy was available for hybrid and local vegetable production and one could avail up to a maximum of Rs 15000 per acre and another Rs 5000 for the second time.

The PC had authorized capital of Rs 25 lakh which was Rs 10 lakh to begin with and paid up capital of Rs. 20 lakh which was Rs 10 lakh in 2015-16 (Table 3-1).

The PC had 10 members of the Board of whom one was a female. It had no seed or fertilizer licenses though it had been selling fertilizers and had no APNOC license. It bought standard rice from 50 farmers to sell in Kishikalela retail shop and also bought onions from 50 farmers and sold to private companies. Besides the acting CEO who was one of the Board members, the PC had no other staff. It had two staff from IGS in 2012 and had one staff until 2015. A member to become a Director on the board had to be atleast matriculate.

Major inputs being sold by the PC included: seeds, fertilizers, for crops like paddy, onion, potato and vegetables, most of which were bought by the members for reasons of low price and assured quality. 25% members bought exclusively from PC. PCs sold seeds worth Rs 10 lakh in 2015-16 of which 25% was potato seed and 40% onion seed. It also bought potato seed from farmers in 2014 to supply it to PC in Narayanpur. On the output side, it bought paddy from member and non-member farmers and branched it as Hooghly PC rice. It had retail outlet at its office premises besides a separate shop.



Photo 51: Paddy being threshed (semi-mechanically) in a village in West Bengal

The PC attempted to introduce Khairt onion to the area in 2013 with 150 farmers for which the horticulture department supplied free seed. There were 80 member and 70 non-member farmers growing this crop in one block. The PC also supplied onion seeds to other PCs and the Department of Horticulture. It had introduced capsicum starting with few farmers in 2014 which has expanded to 100 farmers including 80 non-members. It had also introduced apple cool to ten farmers and Grand # banana variety in 2014 which had spread to 30 farmers.

On the market linkage front, it attempted contract farming of potato for Pepsi with 200 farmer members in 2013 on 400 bighas and 15% of the produce was rejected. This arrangement had expanded to 600 farmers, but the company did not honour the contract. The PC also sold paddy, onion and potato in wholesale to 2 to 3 private companies and traders each from its retail outlets. It sold automatic rice which was bought from 50 farmers and processed before being sold to its retail outlets and in Krishi Mela for the last few years. It had even attempted mango sales at Delhi Haat in 2013. In some of these transactions it lost money while in other it made money.

Most of the turnover of the PC came from input sale where only 15% came from non-members. The PC had never paid dividends but it received matching equity grant of Rs. 10 lakh in 2014. The business plan for the PC was made by the promoter only to avail the grant from the SEAC. However, the annual plan was made by the BoD and members at the time of general body meeting of the PC. The BoD and members or staff had never been trained or taken for any exposure visits and the PC was perhaps the only PC in the state to not get any support from anywhere other than the SEAC. It thought that provision of good quality seeds and new crops were its best practices.

The major problem of the PC was absence of CEO, non-payment for remuneration to the acting CEO, no other staff, no office space and no grants or loans. On the external front, the political distribution of subsidy only to members because of which non-members had much the PC and lack of direction of the PC were major problems.

Table 5.1: Profile and Performance of Hooghly Veg growers PC

| Year / Parameter | 2014-15 | 2015-16 | 2016-17 | 2017-18 |
|---------------------------------|---------|---------|---------|---------|
| Authorized capital (Rs. lakh) | 25 | 25 | 25 | 25 |
| Share capital (Rs. lakh) | 10(40%) | 20(80%) | 20(80%) | 20(80%) |
| Turnover (Rs. lakh) | 204 | 215 | 183 | 21 |
| Profit (Rs. lakh) | 83 | 144 | 437 | 69 |
| Reserves and Surplus (Rs. lakh) | 1.25 | 32 | 2.40 | 124 |
| Assets (Rs. lakh) | 9 | 128 | 63 | 34 |
| Number of shareholders | 100 | 700 | 700 | 200 |

The PC had sold paddy and cotton seeds to a large number of farmers in 2015-16 amounting to Rs. 19.5 lakh. It also had assets of the order of Rs.7.5 lakh in the same year. It is also selling vermicompost, lubricant, seed and pesticide from its retail store.

Shimilapal Agro PC

This PC registered in 2015 has its origins in the 42 EIGs of which 20 were members of the PC with each one having 10 members and total membership of the PC being 450 across 23 villages in one block of the district. The PC membership increased from 217 in 2014-17 to 654 in 2018-19. Each village had a minimum of 15 and maximum of 50 members. Each member had to buy 100 shares of Rs.10 each. 50% percent members of the PC were marginal farmers and remaining 15% small landowners. The PC had no landless farmers as members as land was a must for membership. Due to the SFAC mandate, 30% of the members happened to be women. 85% of the members of the PC were active. The PC had authorized capital of Rs. 10 lakh and paid capital of Rs. 371 lakh in 2018-19 (Table 5.2). It had reserves of Rs.1.5 lakh in fixed deposits and Rs. 43 lakh as working capital mainly for procuring seed potatoes for 100 farmers across five EIGs. Among the five members of the Board, one was a woman and a farmer member to become BoD had to be at least a matrilineal. The present CEO of the PC worked with the private sector (IGS) for three years as a marketing officer. The number of BoD had been reduced from 10 to 5 because of the non-involvement of the members in the PC.

The PC had licenses for seed dealership, seed certification and the APSC license for direct purchase from farmers. 99% of the seed sales in potato and paddy were to the members who bought it from the PC because of better quality and lower price. 30% of the members bought exclusively from the PC. The PC had a small storage space for the purpose of storing seeds and agri products temporarily. It had a retail outlet at its office premises. It had also tried to promote new crops like Khairi onion and potato seed production in 2017 which was later stopped due to losses it incurred.

On the output side, it attempted contract farming of seed potato for Agro Agri with 40 farmers in 50 higher as a facilitator but it didn't succeed as the yield was very low.

Contract Farming by PC

It was a tripartite agreement between Apis Agri IGS, and the PC under which the Apis Agri provided foundation seed to the PC for multiplication at the farmer level under the supervision of IGS and the PC. It was mentioned that neither the AA variety neither seed material nor the seed potato multiplied from it shall be disposed of elsewhere by the two partners. In case the seeds were used for any other purpose than the specified purpose, then the IGS would pay Rs.1000/- per bag. The AA had agreed to buy the multiplied product as per the agreement and the PC was to procure a seed license for undertaking seed production with its members. The AA was to provide three bags of foundation seed of 25 to 25 mm or five bags of 35 to 45 mm for sowing 50 decimab each. Cost of these seeds was returned to its equivalent to that of a reputed Punjab brand of foundation seeds and was to be paid in advance in the second week of November. The AA also agreed to provide a crop card to be filled by the farmers and followed up by the IGS and the PC failing which the company had the right to reject the contracted farms of farmers. The PC was also not supposed to hold AA liable or responsible for any failure in the crop or lower yield arising out of AA supplied foundation seeds unless it was proven that the seeds had not germinated. At harvesting, all defective seed potatoes were to be returned, otherwise, it could be done by the buyer at the time of grading and sent back to farmer.

The price of purchase of seed potato was based on average market price of potato in the first two weeks of March in the local potato market with an addition of Rs.100/- per kg. This price was for seed potato of 25 to 25 mm size. The buyer was to pay a commission of Rs.10/- per bag to IGS. The larger size seeds were to be bought at the prevailing market price as the buyer had agreed to buy back some production. 50% of the payment was to be made within a week or ten days after receiving the seeds at the cold storage and the rest by the end of March 2018. The price included all charges until the truck was loaded at Sankhal after grading. The grading of the seed potato was to be done by a grader provided free of cost in returnable bins by the buyer at a location made available by the PC. The contracting company had also given guidelines for production of seed potato including use of chemical and bio-herbicides, field preparation, seed treatment, weed control, disease control and pest attack and harvesting over the cropping cycle of 80 days. The planting instructions were also given.

The PC had sold farmer produce of potato, bitter melon, and cucumber to wholesalers but made losses and therefore, discontinued. It has only once sold some cillies in APMC markets but since there was no auction based discovery of price, it ended up selling at lower than the MSP. The PC was running the supermarket store of Sitala Bengla along with another PC under the same promoter in 2016-17 but due to problems with the other PC, it moved out of its partnership.

70% of its turnover came from inputs. It received a matching equity grant of Rs.3.17 lakh in 2017-18 and availed another similar grant in 2018-19. It also engaged in palm leppery purchase from farmers and sold it to Sitala Bengla and another PC. It availed a loan of Rs.5 lakh under LAMP fund from its promoter for engaging in seed potato business.

The Board of Directors and the PC management had been exposed to management and governance of the PC and E-NAM through training at various places by IIRD, Lucknow and NIAM, Alpur supported by Government of West Bengal.

The PC was of the view that contract farming of seed potato was a good practice though the PC could not manage it well. It was also getting into paddy seed processing based on contract farming based paddy seed production for the member farmers. The only problem it faced in its major activity of seed potato supply was the local competition and spurious seed potato.

Table 5.2: Profile and Performance of Shimlapal Agro PC

| Key Parameters | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|---------------------------------|----------|----------|----------|----------|
| Authorised capital (Rs. lakh) | 10 | 10 | 10 | 10 |
| Share capital (Rs. lakh) | 2,58,250 | 1,00,000 | 2,00,000 | 5,00,000 |
| Turnover (Rs. lakh) | 31 | 753 | 226 | 207 |
| Profit (Rs.) | -146 | 104 | 50 | 146 |
| Reserves and Surplus (Rs. lakh) | | 14 | 13 | 46 |
| Assets (Rs. lakh) | | 67 | | |

Cihatalna Agro PC

This PC registered in 2015 was based on farmer's interest groups (FIGs) promoted by IGS since 2013 which number 69 now across 27 villages of the block. There were 2016 shareholders at present starting with 356 members in 2015. Each member has to buy minimum of 100 shares of Rs.10/- each. All of the farmer members were marginal landowners or landless and 30% were women members due to the SEAC mandate for matching equity grant, under which one-third of the BOD and the Chairperson also had to be woman/women. The PC claimed that all its members were active. It had eight members of BOD.

The PC had an authorised capital of Rs 20 lakh and paid capital of Rs 15.30 lakh (Table 5.3). It has reserves of Rs 5 lakh and had already received a matching equity grant of Rs 2.46 lakh based on number of shareholders in 2015. It added new members and raised the paid up capital to Rs 10 lakh and, therefore, attracted a second instalment of equity grant of Rs 5.54 lakh.

The PC had seed production licence from the seeds certification authority. It had input selling licence from the local panchayat valid for one year and dealership of IFCO. It also ran Suta-Bangla supermarket store. Out of the total turnover of Rs 3.5 crore of Suta-Bangla, 40% of the sales were of farm produce. It received 600 bushels every day and pays 1.1% of the sales turnover to the government (Suta-Bangla). The monthly turnover of Suta-Bangla store at the farmer's market was Rs. 3 lakh per month. It also sold farm supplies which make 10% of its turnover. It had 11-member Board of whom the only woman member was also its Chairperson. The only criteria for membership of the BOD was that one had to be a farmer and 8th standard literate. Other than the CEO, the PC had one marketing officer and nine assistants.



Photo 5.2: Exterior of a PC run Sural Bangla supermarket in Sukoharjo

The PC dealt in various farm inputs, 90% of which were sold to member farmers who bought it for lower price and better quality with 50% of the members buying exclusively from the PC. It also ran a custom hiring centre (CHC) which received 50% subsidy and mostly served member farmers with relatively lower fee than that for non-members. The PC also sold many biopills which were produced locally. It was one of the two PCs promoted by SGS to have an CHC, the other being in Madijapur district. The turnover from custom hiring centre (CHC) is Rp. 100 lakh. The PC planned to expand CHCs and reported no problem in its functioning.

It had two retail outlets- one each for input and output and another wholesale outlet for buying vegetable. It also bought vegetables from farmers and sells in wholesale charging a commission of 3%. It had promoted new crop of black rice, gram and sweet corn besides some pulses in 2018-20 which were cultivated by about 100 farmers each. It was also doing PGS certification for the last three years especially in black rice. It had a franchise from IFDC for sale of fertilizers. It also had input sale licence from the local agriculture office.



Photo 5.3: Interior of Sural Bangla Store and its price list

On the output side, it facilitated contract farming of tomato last year for 50 days with 40 farmers including 10 non-members where the contractor provided all the inputs. The contract was oral and could not be continued because the farmers could not produce quality output. It direct retail sales of farmer produce through Sural Bangla.

Sufal Bangla has helped Chhatra PC in a big way as earlier it was in loss. The PC also participated in monthly melas-22 in one year, for 3 days each and govt. subsidised it up to Rs.27000/mela. The PC saved Rs. 20000 out of this as the real cost was only Rs. 5000. Govt. fixes rate of produce and mostly grains and non-perishable were sold. Chhatra had no brand. It sold under Sufal Bangla brand its produce like honey. The PC had a wholesale vegetable business licence from the Chhatra Gram Panchayat since 2012.

It had also been selling some of the perishable produce like onion and potato from Sufal Bangla at much lower than the market price due to provision of government subsidy for the same. It also collected farmer produce from their doorsteps with only 20% bringing on their own to the Sufal Bangla centres. The farmers were given local market prices and paid instantly. There were 140 Sufal Bangla stores in this state and 19 in Bardhaman district alone. In the district, only this PC run store was working because it had been handed over to the PC, all others were defunct. The PC had a vegetable stall in Chhatra Bazaar from where vegetables were sold to traders. The daily turnover is Rs. 20,000/- and margin was 3%. This outlet had been functioning since 2015.

30% of the turnover came from farm inputs and services which were made up of 90% from members and 10% from non-members. 80% of its turnover was on the output side while 20% of the members transacted with PC. It had not paid dividends so far and bought land for Rs 5 lakh.

The members of the BoD had been taken for an exposure visit to a few places by the Department of agriculture. The PC claimed that its best practices included: soil testing, facilitation of crop insurance scheme and removal of intermediaries in farmer produce trading. It planned to set up pulses, paddy, oilseeds and spice processing units.

Table 5.3: Profile and Performance of Chhatra Agro PC

| 2012 Parameters | 2014 | 2015 | 2016 | 2017 |
|---------------------------------|---------|---------|---------|----------|
| Authorized capital (Rs. lakh) | 0 | 0 | 0 | 25 |
| Share capital (Rs. lakh) | 120(4%) | 120(4%) | 120(4%) | 232(91%) |
| Turnover (Rs. lakh) | 302 | 400 | 502 | 3255 |
| Profit (Rs. lakh) | 14 | 14 | 23 | 63 |
| Reserves and Surplus (Rs. lakh) | 6.5 | 20 | 35 | 95 |
| Assets (Rs. lakh) | | 26 | 57 | 63 |

The Sufal Bangla sales from its store were of the order of Rs.1.57 lakh per day. On the day of the visit to one of its large stores in district town of Bardhaman's Krishak Bazaar, the sale of the day was of the order of Rs. 4050/- from 8.30 am to 5.30 pm and it had 233 bills generated representing footfalls. The grant from the IFAC permitted not only individual members with a shareholding of Rs.1000 each but also groups of individual shareholders like SHG, FIC or JLG added to a maximum of Rs.20000 and institutional shareholders like PCs with a limit of Rs.one lakh. The member equity constituted by grant was non-cumulative and had to be

issued as additional shares to the existing members within 45 days. The PC also conducted a value chain analysis of tomato crop and the requirements at the pre-harvest like CHCs and post-harvest facilities like pack houses or a cold chain van till the value additional stage which included processing plant.



Photo 5-9: Vegetables being sold from a satul bangla supermarket

Bak Tin Satul Bangla Scheme

During a potato price hike way back in 2004, market intervention by the State Government helped stabilise potato prices to the desired satisfaction of both producers and consumers. Subsequently when there was a price surge hike in vegetable prices the Government was compelled to around a lot-play in agricultural marketing practices whereby the interests of both growers and consumers must be safeguarded. This paving the way for the birth of Satul Bangla, with the assistance of Satul (NODB, New Delhi), and financial support of NRY (Foodgrains Krishi Vikas Yojana), the implementing agency being Paschim Banga Agri Marketing Corporation Ltd.

The venture started in 2004 with 16 mobile shops. According to the state agricultural marketing department, which runs the Satul Bangla chain, there are now 27 stalls in Kolkata and 12 in the districts. In 2015 there were 204 stalls across the state including both permanent and mobile. A major demand for alternate vegetables, grains and fruits of a number of big housing complexes in Kolkata is fulfilled by Satul Bangla. Currently there are 26 Satul Bangla stalls in housing complexes, 21 of which are in Rajarhat – the IT hub of Bengal. 16 products are sold from these stores. The PCs are given these stores to run them as franchises. There are 5 stalls and 2 mobile units in Sonson district and 2 state outlets in Paschim and Hooghly has 5 outlets (state).

Though the overall running of the Satul Bangla stalls were monitored by the state agriculture marketing department, but various farmers' producers' companies (FPCs) were involved in day-to-day operations. The state government distributed the stalls to FPCs through a tendering process.

The government also constructed the stalls and provided vehicles for bringing the goods from the farmers' places to the stalls. The direct transport of the goods without the involvement of middlemen was the key to the very reasonable prices offered to customers.

As the tastes and preferences of consumers changed and diversified, it became imperative to tie up with Market Being Kolkata and West Bengal Livestock Development Corporation Limited to make the range of products wide enough. State Fisheries Development Corporation Ltd extends its services across farm and stores across the state.

In its bid at digitisation, Satul Bangla entered into a partnership with E-DAC for finding IT solutions for its problems. In order to address the issue, E-DAC, Kolkata, has launched a drive to ensure optimum induction of IT and Electronics for improvement of services, quality and transparency of agricultural products especially the fresh varieties of fruit such as Kullu/Nilgiri, Nishadibhoga, Kalyansona, Kishinor and Tebhaga.

Satul Bangla has made a tie-up with Indian Institute of Packaging for best solution to the problems of loss, damage etc. IIP offered packaging solutions by installing machines and offering commodity specific consultancy.

Paschimbanga Agri Marketing Corporation Limited has also entered into an agreement with SCMV (Sichan Chandra Kishu Vidyalyayal) to the effect that their exotic varieties of rice, pulses, oil-seed, honey species, mustard oil, wheat, flour etc. was marketed by Paschimbanga Agri Marketing Corporation Limited under Satal Bangla brand.

Satal Bangla Store (brick & mortar) outlet at Shantoketan in Durgam approved in the guise of a full-fledged department store as part of a pilot scheme with a wide range of products including fresh fruits, vegetables, potato, milk, ice-cream, panicle, glass, edible oil, rice, pulses, chicken, lamb and rabbit meat and processed food. It had weighing scale, crates and perforated vehicles for transportation of vegetables. It was operated by the FPC which was delineated through bidding on the condition that a certain percentage of the sale proceeds would go to the Government as royalty and the said percentage would be paid by franchised bidding. As the business model proved successful, it was replicated elsewhere.

Satal Bangla store became popular among the consumers because it updates the procurement and retail prices of commodities on its website and mobile App in advance to enable the consumers to take decisions as to their marketing on their own.

A unique experiment started as the FPC-operated retail sale of agricultural product to the residents of Unimark City in New Town became very popular. It also got replicated elsewhere. Satal Bangla's online presence through PC and mobile App turned marketing into an interactive experience. As a pilot scheme one retail outlet for organic produce has been opened at New Town.



Photo 5.6c: Satal Bangla supermarket, Durgam (Shantipur)

The Satal Bangla agreement included the FPC depositing 1.1% of the total sales as an institutional overhead as determined during the bidding process. The Satal Bangla agency was to provide a covered space for the store and central space for aggregation, storage and grading of products including decorating and furnishing the store at its own cost. It also provided crates, weighing scales, rice coolers. The PC also had to give a security deposit of Rs. 25,000 to the state livestock development corporation for sheep farmers to be supplied by them. The work force for the store was to be employed by the FPC and it was to recruit the staff and obtain all licenses from the local bodies. The franchisee is about to sell products from other agencies as per written communication with the respective agencies. But sale and stocking of other than notified products was not permitted without permission from the Satal Bangla agency. It was also mandated that the PC would procure vegetable and other agri produce from individual

farmers or groups or their collectives or from Sufal Bangla in other districts. The franchisee also retains the right to direct the franchisee to sell any specific produce or to procure farm produce from any farmer or group facing distress. In fact, the first party also retains the right to utilize the entire infrastructure or part of it for market intervention programme as directed by the state government. The franchisee has to notify the maximum procurement price and minimum retail price for the next day, daily by 3 p.m. The franchisee would also submit a consolidated statement of sales to the franchisee and also monthly statement. The PC had to deposit Rs 20000/- in addition to the regular deposit. The franchisee will get the benefit of vehicle sale price not less than 10 percent of the MRP for products procured from distressed development corporation. These products will have to kept properly in deep freeze and products once sold by the corporation to the franchisee could not be taken back and only at the time of delivery any objection can be pointed out and products return to the corporation. The franchisee would also mention shelf life of these products and would sell it only during that period. In the case of products supplied by the Mother Dairy Kolkata, a margin cost cost sharing amount would be borne by the franchisee to the MDC. The agreement was signed by project director of Sufal Bangla and the CEO of the producer PC.

The project aimed to directly procure fruits and vegetables from farmers and sell them to consumers. The state government claimed that it was committed to fair play in agricultural marketing practices in order to safeguard the interests of both the growers and the consumers, this paving the way for Sufal Bangla, which was being run with the assistance of Sufal (National Dairy Development Board, New Delhi), and the financial support of Rashtriya Kisan Utsah Yojana, the implementing agency being Prachinbanga Agri Marketing Corporation Ltd.

In 2019, the state had 67 static counters and 97 mobile counters. Kolkata had the highest concentration of these counters: the city had 24 static counters and 92 mobile counters out of the total 144 counters. These counters were located all across the city.

A pricing committee, consisting of officials from the Directorate of Agricultural Marketing, was set up to analyse daily market prices and declare the Procurement price and the Consumer Price to be followed by Sufal Bangla.

To aggregate and store vegetables, Singur was designated as the main hub; now there are 20 such hubs. Alongside, more than sixty thousand farmers have been enrolled. The scheme also generated new jobs, for instance, in order to run the stalls. Moreover, there was indirect employment as well.

By March 2020, the government was planning to open 66 more Sufal Bangla counters and in the next two years, the total counters would reach 500. The plan was to expand the number of products as well (IE, Jan 13, 2020).

BKSL PCs

Birbhum PC

The promoter BKSL set up 8 PCs in the district since 2015. This PC registered in 2015 in Dubrajpur block of the Birbhum district had its origins in FICs which numbered 53 and were spread across 25 villages promoted by BKSL since 2013. There were total 1281 members who were contributing ₹8 100 each per month and this money was transferred to the PC as loans for 700 farmers when the PC was registered. Many other farmers joined later on taking the total to 1025 members. The members mostly are marginal or small landholders. About 13% of the members were women and 89% members were active, only one FIC of 20 members was not active because it was located too away from the PC. The PC had authorized capital of ₹20 lakh and paid capital of ₹7.55 lakh (Table 8-4). The PC had reserves of ₹2.2 lakh. Each BoD member had bought shares of ₹20,000 each compared with only ₹2,000 for each ordinary member. It had 9 members of BoD including one woman. The criteria for being appointed on the BoD was that a member should represent five FICs totaling 100 farmers and should be acceptable to all farmers. It had also various licences for selling various inputs as well as registration on E-NAM. The PC had a CEO and one woman marketing assistant.

70% of its input turnover came from members and 30% of the members bought exclusively from PC for lower price and better quality. It supplied paddy and wheat seeds, seed potato and banana tissue cultured plant besides pulses and groundnut seeds. It had IFCO dealership for the last two years and it also sold the fertilizers supplied by IFCO and other companies. On the output side which included potato, mustard, and vegetables including onion, 73% of its turnover came from members. It had shop cum office cum godown and supplied to local schools and anganwadis vegetables for Mid-day meal (MDM) for five years.



Photo 5.11: Office cum godown cum retail outlet of Birbhum YAPC.

It claimed that it had brought in new crops of Khair onion, mulroom, tissue cultured banana plants, table potato and aromatic rice to its members as new crops. 200 households were involved in mulroom production and 100 farmers in potato production and five dozen farmers each in black rice and khair onion production.

It had engaged a contract farming in fish and banana last year where fish was directly contracted by BKSL. It had eight members producing fish for BKSL and five members growing banana for Coventar Agro, under contract. The PC received a commission of 20% of farmer's price for its facilitation service in banana. In the case of fish, besides 20% of the consumer price was retained by the PC, the organizer of the programme i.e. BKSL, also received 20% of it leaving 60% for the farmer. It also facilitated leasing of six ponds from individual farmers for the FPO for fishing at the rate of Rs. one lakh per year for ten years. It also supplied banana corms to the Sufal Bangla stores. It was produced by two members. Besides it has sold vegetables in local haat to recover loans after procuring from farmers.

70% of the turnover of the PC (total Rs. 16 lakhs) came from input sales of which members accounted for 70%. The remaining 30% of the turnover came from output handling involving 200 members. The company had for the first time made a profit of Rs.2 lakhs last year and had received a matching equity grant of Rs.3.29 lakhs from SPAC. The business plan of the PC was made for the first time in 2015-17 by the promoter, CEO and the Board of Directors. The promoter also supported the PC with the salary of the staff for the first two years, and then it was supported by SPAC for next three years. Later, the PC paid the salary of its staff.

The BoD had been exposed to business management and business linkage by the promoter as well as NABARD. Similarly, the staff had been also trained in day to day business management, accounting and food safety regulations by the promoter and NABARD.

The PC claimed that introduction of hybrid seeds, tissue cultured banana and fisheries intervention can be considered its best practices. It also considered contract farming and its introduction of Khairi onion as innovative practices. It felt that the tenure of BoD being five years was a problem as every new batch of BoD needed to be trained in their roles. The PC did not report any internal problems. On the external front, it reported shortage of fixed capital and local trader opposition to its activities as major problems.

Table 5.4: Profile and Performance of Birbhum PC

| Particulars | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|---------------------------------|---------|---------|---------|----------|
| Authorized capital (Rs. lakhs) | 10 | 10 | 10 | 10 |
| Share capital (Rs. lakhs) | 40(40%) | 45(45%) | 45(45%) | 242(24%) |
| Turnover (Rs. lakhs) | 107 | 168 | 146 | 213 |
| Profit (Rs. lakhs) | 68 | 67 | 114 | 104 |
| Reserves and Surplus (Rs. lakh) | 52 | 14 | 100 | 26 |
| Assets (Rs. lakhs) | 128 | 109 | 149 | 191 |

The PC also received a grant from the SPAC for infrastructure under SIDDI for a pack house costing Rs.1 lakhs and zero energy cool chamber costing Rs. 1,000,00. The PC had seed selling licence and fertiliser licence. It had also received a mini dal mill with a machine spare from the State Agro Industries Corporation costing Rs.2.1 lakhs in 2017-18. It had a trade licence for its two shops from the local panchayat. The PC had a business plan for the period 2017-21 submitted to SPAC.

The PC covered 26 villages and had 445 shareholders in 2017-18 which were to go up to 2000 by the end of the Plan and share capital of the order of Rs.10.9 lakhs. It was looking at roping in a few hundred farmers every year reaching up to 644 with an average landholding of 1.3 acres. The plan had demand projections for various crop, seed, fertiliser and pesticides including fish. The marketing plan included selling of inputs as well as output targeting four to five percent higher income for the farmer from output sale. The Plan also mentions packaging, promotion, and multi-channel strategy for availing better price for farmer produce. The PC had a marketing manager and a finance officer besides a CEO and service provider and Ekam Mitra to help the marketing manager.

Box: Contract Farming by PC

The PC had a contract farming agreement for banana cultivation for 2002 under which it was mentioned that the PC would provide all the required inputs, supervise the land and undertake post-harvesting work besides marketing the produce and marketing it. The contracting company (PC) agreed to provide basic inputs i.e. banana plants - 400 plants per one bigha and technical guidance to the farmer for two years. The cost of various inputs including leasing of land to the tune of Rs. 10,000 per bigha (Rs.20 used for the farmer was Rs. 20,000 and Rs. 2,000 used by the contracting agency) and the PC. The contracting agency charges also included Rs. 4,000 as service charge besides Rs.1000 for 400 plants. It was assumed that 600 plants with a mortality rate of five percent in the first phase of 14 months would provide a total production of 200 tons and price that Rs. 1,000 per ton would give Rs. 2,00,000 gross income to the farmer. The second phase of eight months the same number of plants plus less per cent mortality would give 570 tons and gross income of Rs. 5,70,000. This total to Rs.7,70,000 income for the farmer for the full cropping cycle. The operating agency and the PC took 20 per cent each of the total maintenance and shared similar percentage from the revenue which came to Rs.10,000 each for company and the agency. The company agreed to purchase only the graded material and the under size inferior quality and damaged material was to be sold in local market or any other market at prevailing price by mutual agreement among all parties.

Shantiniketan KUPC

This PC set up in 2015 originated from 54 EICs organized by BKSS, with 1028 members in 2018. At the time of registration 433 members which has now increased to 1012 shareholders and 50 EICs across 22 villages in three gram panchayats in the Block of Shantiniketan in Bardhaman district. Anyone with own land or leased land cultivation could become member and had to buy 30 shares of 10 rupees each which was later increased to 100 shares per member. The members of the Board of Directors needed to pay Rs. 10,000/- for 1000 shares. Majority of the farmers were marginal and others small or semi-medium and there were no landless members. The average landholding of the members was 5.3 acres. Most of the members were men with only 20 being women farmers and only 40% of the members were active in 2017-18. But after the PC started selling fertilizer, 50% of the farmers started transacting with the PC.

The PC had authorized capital of Rs.10 lakh and paid up capital of Rs. 504 lakh in 2018-19. It had reserves of Rs. 7500/- and working capital of the order of 7.8 lakh. The PC had various input licenses, panchayat level trading license and supplier arrangement with Sufal Bangla. There were six members of the BoD and one of them being woman since beginning, due to the SFAC mandate. A member was to represent at least 100 farmers to be eligible to be appointed as a member of BoD. The PC had one CEO and one marketing assistant. The CEO was earlier an LRP with the promoting agency for organizing EICs.

In the first year, the PC had 424 shareholders. It was planned to take this membership to 1,000 shareholders and equity capital of Rs 3 lakh by 2021. It planned to undertake three major activities – input supply, aggregation and sale of produce and value chain intervention in major crops of the local area like paddy, potato, onion, other vegetables, and fish. It planned to get farmers four to five percent higher price by its intervention on the output side. The company had facilitated input/output sale of the order of Rs 11.7 lakh in the first of plan going up to Rs 1.9 crore by 2021-22. It hoped to make a profit of Rs 92,000 in the first year and Rs 5-36 lakh by the end of five-year plan. Its business plan mainly focused on wheat paddy, banana and more importantly potato which made the major chunk of the total business handling besides fish which was very significant in itself. It had also prepared a month wise plan for each of the crops and products.

The input business of the PC includes seeds, fertilizers and that too mainly potato and paddy seeds besides onion and mustard. It also supplies banana and papaya plants. Fifty percent of the inputs are bought by the members for reasons of lower price and better quality and availability. 50% of the members bought exclusively from the PC. The PC delivered inputs at the village level if pre-ordered by the grower from distant villages. In 2013-14, the PC sold inputs worth Rs 4.5 lakh out of which Rs 2 lakh was seed potato.



Photo 3.7. Office cum retail outlet of Shantimukhi PCC.

On the output side, it had undertaken contract farming of potato and also used its office premises as warehouses in two places on rental basis. It had two such outlets for selling inputs. It had in the last two years, promoted banana tissue culture cultivation, papaya cultivation and khairi crop with 24 farmers upto last year annually. The banana and papaya experiments were only with two and one farmer each. Like the other BPSL PC it had also ventured into fisheries contract farming with two fish farmers and banana contract farming with one farmer. In both

cases, the produce was not bought by the contracting agencies due to small quantities or low quality. It also helped farmers sell their produce at MSP after registering with the APMC which numbered 35 last year and 10 this year. It also facilitated wholesale transactions in paddy and potato by bringing in wholesale buyers though it was more from non-members especially in the case of paddy where out of the total transaction of Rs.7 lakh, 60% was from non-members. It also bought paddy at MSP and sold at higher price. In the case of potato, it bought worth Rs.4 lakh from 15 non-member farmers and sold to fresh produce retailers earning a profit of Rs. 20,000. It had no direct retail presence though it planned to sell vegetables directly.

47% of the total turnover of the PC came from input business of which 81% was from fertilizers and 60% from non-members. On the output side, again 60 to 65% of the transactions were with non-members. The PC had received matching equity grant of Rs.207 lakh last year. It has also received some support under MIDH for a pack house and from W.B. department of agriculture for setting up a fruit processing unit. The promoter prepared a five-year plan in 2017 for the PC.

The PC had been supported first three years by the BKSL and SFAC with the latter extending its support for two more years and upto 2019-20. The BoD and PG leaders were trained at various places over three years in PC management by the promoter and NABARD training centres. The CEO had received training in plant health management at NIFEM, Hyderabad.

The PC used marketing linkage development, agricultural production assistive training, and drum seeder and direct seeded, paddy as its major best practices. It also looks at 100% coverage of its members for input supply and complete integration of value chain in high value crop like potato as the way forward viable business model for the PC.

In terms of problems, the PC management believed that the BoD was still not confident of managing RoC compliances, and on the external front, it was still not able to get the benefit of MSP procurement for all its members. All of its member farmers grow paddy and 20% and 35% each growing mustard and vegetables. It was also planning to become a franchisee of Suniti Bangla. A NABARD-supported PC ran one such store in Bidpur.

Table 5.5: Profile and Performance of Shantiniketan PC

| Key Performance Indicators | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|---------------------------------|---------|---------|---------|---------|
| Authorized capital (Rs. lakh) | 0 | 0 | 0 | 0 |
| Share capital (Rs. lakh) | 1100000 | 2200000 | 2100000 | 3400000 |
| Turnover (Rs. lakh) | 0 | 180 | 220 | 850 |
| Profit (Rs.) | 108 | -94 | -40 | 175 |
| Reserves and Surplus (Rs. lakh) | 108 | 101 | 61 | 0 |
| Assets (Rs. lakh) | 4% | 6% | 6% | 6% |

The FC received a grant of Rs 2.11 lakh towards FPO management cost under special project during 2013 to 2016. The FC had seven Directors at the time of registration, each one holding 1000 shares.

Non-FC FPOs

Saptarishi FPO

Saptarishi FPO was registered in 2015 originating from farmer clubs which numbered 5 with membership of 524. In 2015, it started with two farmer clubs and 145 members in one block which has now expanded to five blocks of the district. These farmer clubs were promoted by NABARD through the local PACS. The local NGO Clubs Sona had taken over these clubs and the trust since 2017 as a PCPI of NABARD. The NGO itself was 10-year old. All the members of the Trust were required to have land and needed to buy equity share of 500 each. The members were mostly marginal and small farmers and even included 50 landless members.

90% of the members were male, and 80 percent of the members were active. The FPO had a paid up capital of Rs. 35 lakh and assets Rs. 75 lakh. It had seed potato licence and APJIC trader licence from Govt. Panchayat. The trust had exclusive done business in seed potato worth Rs.40 lakh under a NABARD project and sold these seeds to members of PACS. The PACS has 2500 members, 80% of whom benefited from sale of paddy at MSP through the PACS. The overlap of members between PACS and Saptarishi was 50%. The trust had nine members of the Board including two women. The trustees were required to be land owning and formally educated. The FPO had a secretary who was 12th standard pass, a treasurer, who was a graduate and botanist and two assistant staff.

The input business of the FC included, seed potato supply and fishings. 40% of the potato was bought by the members with 10-20 of the members buying exclusively from the Trust. It also supplied breeder and foundation seed to farmers to produce seed for sale to other farmers. On the output side, it undertakes aggregation of potato and fish. The latter came from fish ponds leased from private owners at the rate of Rs 40000 per year. 40% of the potato supply came from member farmers. It had facilities for processing of groundnut and paddy seeds which was used for supplying upto 60% of the member farmers. It had its own brand of seed potato and it planned to get into American sweet corn as well.

The Trust did not have permission to procure at MSP as the PACS did not in the state. It was only in potato seed that it had been buying from 500 farmers for selling to private traders. It had sold brinjal in the whole vegetable market in the past which came from 10 farmers and had also sold potato in Bikaner Mandi. The brinjal produce was aggregated and sold on behalf of farmers. However, more recently, farmers had stopped growing it as it was not profitable compared with potato and groundnut.

Only about one third turnover of the FPO came from input sales of which only 40% was sold to its members. Similarly, of the two third of total turnover coming from the output side, only 40% came from members.

The Trust had no business plan. However, it had been receiving capacity building support from NABARD for the last three years. It had also availed of a loan of ₹ 76 lakh at the rate of 12% interest from NABARD for engaging in seed potato business. This loan was repaid after borrowing from the DCCB in the name of farmers through PACS at the rate of 7% interest - an amount of ₹ 51 lakh. Since the Trust was being converted into PC structure due to PC being found better business structure, it would also help it get SFAC matching equity grant. The Chaita Seta NGO was an FI of SFAC and POI of NABARD and was registered in 2000 which was involved in forming SHGs. The Trust was able to secure a grant ₹ 3.8 lakh from NABARD in 2017-18 for setting up a groundnut chaffing unit.

The staff of FPO had been exposed to its management by NABARD and KVAFSU including a visit to Gujarat for the visit. The FPO considered seed certification facilitation as its best practice. On the process innovation side, it considered leasing of the pond as an innovation by an FPO.

The major problem of the FPO include lack of awareness among members with 40% not being interested in the working of FPO at all. On the external front, it lacked financial support to undertake new activities. It also planned to get into poultry farming on its own as a high value business. In 2015-16, it had sold seed potato worth ₹ 15.37 lakh and had procured seeds worth ₹ 105.74 lakh. It sold this produce for ₹ 121.28 lakh earning a net profit of ₹ 14.74 lakh. For this it had a loan of ₹ 114.55 lakh from NABARD with a repayment period of 10 months.

Table 5.9c: Profile and Performance of Saptarishi FPO

| Items | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|---------------------------------|---------|---------|---------|---------|---------|---------|
| Turnover (Rs. lakh) | 146 | 183 | 257 | 158 | 143 | 407 |
| Profit (Rs. lakh) | - | - | 11540 | - | 5 | 3 |
| Authorized capital (Rs. lakh) | - | - | - | - | - | - |
| Share capital (Rs. lakh) | 00 | 15 | 10 | 40 | 25 | 35 |
| Reserves and Surplus (Rs. lakh) | 007 | 007 | - | 80 | - | - |
| Assets (Rs. lakh) | 29 | 106 | 202 | 830 | 87 | 774 |
| Number of shareholders | 25 | 3 | 10 | 27 | 68 | 59 |

Gram Saathi

This PC was registered in 2019 with an authorized capital of ₹ 10 lakh and paid up capital of ₹ 3 lakh. It had a turnover of ₹ 11.51 lakh in 2018-19 and net profit of ₹ 2.16 lakh. The PC has been converted from a farmer club federation trust (Jhrou Utkon) supported by NABARD since 2015-18 (Table 5.7) which included the payment of salary of the CEO and other office expenses. The rationale for converting the Trust into a PC structure was to get into a for-profit legal structure, get access to matching equity grant from the SATC and the attraction of the recent (2018-2020 budget) income tax exemption offered by the government to the PCs for five years.

The PC had a CEO and one more staff handling accounts. Over four years, it had received total grant of Rs. 6.45 lakh including a revolving fund of Rs. 50,000. It had also received 30% subsidy amounting to Rs. 1.8 lakh from the District Department of Horticulture for the construction of onion storage structure. The Trust which was registered in 2013 had 45 farmer clubs which increased to 48 by 2017-18 covering 48 villages, 10 panchayats and four blocks of the district of Hooghly. All the members of the clubs were now the PC members and mostly women, numbering 624 in 2017-18. Each member had 50 to 150 shares of Rs. 10 each. Most of its members were marginal land owners and 10 percent were landless. More than 50% of its members were active. The Srijoni NGO which promoted this Trust and now the PC was registered in 1999 and is POI of NABARD. It had earlier along with LMS – a missionary organization based in Kolkata, promoted 1000 self-help groups (SHGs) in 175 villages across five blocks of the district. In 2009, it started with 273 members and reached 920 members by 2010.

It had 1018 members of which 400 were already approved shareholders. About 45 of its farmers were into onion cultivation and 100 farmers were into turmeric cultivation. It was also handling cashew selling supplied by 400 women farmers who collected it from the forest. Some of its farmers were also into ISI methods of paddy cultivation and some also grew other vegetables. The PC was planning to get into goat rearing and poultry as these animals and birds were already reared by 50% of its member households.

The PC had 10 members on the Board of Directors out of which four were women. The Board members had to buy a minimum of 100 shares each (Rs. 1000 per member). The Directors and the CEO have been exposed to PC management and governance by NABARD a few times at the local centre of BIRD.

The PC had a business plan for the next three years which included various crop and allied produce like onion, goat, input supply, turmeric and vegetable cultivation which would lead to a turnover of Rs.42.5 lakh in 2019-20, going upto Rs.77 lakh in 2021-22.

The PC had not undertaken any input activities so far. On the output side, it claimed that it has encouraged cultivation of onion, groundnut and pulses. It had also helped a few dozen farmers sell their onions for a commission. It had attempted some grading of cashew and pulses in the rural markets in the past.



Photo 3.40: Srijoni brand of species of Onion Sasthi PC

It considered that fulfilling of cruce storage structure, processing of pulses and rural retailing of food products were its best practices which other FCs should follow. The promoters claimed that this was the weakest FC among all promoted by NABARD in the state.

Major problems faced by the FC included: lack of awareness among the members of which only 10% knew that the FC belonged to them. Further women members couldn't spare much time attending to the affairs of the FC. Its staff also had poor exposure. Most of these problems were internal, rather than external.

Table 3.7: Profile and Performance of Gram Saathi FC

| Year / Parameters | 2016-17 | 2017-18 | 2018-19 |
|---------------------------|---------|---------|---------|
| Share capital (Rs. lakhs) | 528 | 16 | 17 |
| Turnover (Rs. lakhs) | 8 | 173 | 186 |
| Profit (Rs.) | 15 | 236 | 268 |
| Assets (Rs. Lakhs) | 447 | 44 | 447 |

Performance and Impact of PCs in Tamilnadu

Introduction

Tamil Nadu is one of the relatively developed and fast growing states in India, with considerable progress achieved in various facets of development. Although agriculture accounts for only 15.7% of total GDP and 44% of the total employment in Tamil Nadu, Farm income accounts for about half of household income. 20-4% of the rural population is poor. For the poorest rural quintile (approximately 1.5 million households), more than three-quarters of income is derived from agriculture, with agricultural wage labour alone accounting for half of household income.

Of the total GCA of 57.52 lakh hectares, the gross irrigated area was 22% and the rest (44%) was under rainfed cultivation. Paddy accounts for about a third of the GCA of the state and nearly 60% of irrigated area in Tamil Nadu (over 90% of paddy is irrigated). Pulses (18% of GCA), millets (11%), and groundnut (5%) require less water than rice or sugarcane, and millets and pulses are grown almost exclusively on non-irrigated land. About 5% of GCA is devoted to sugarcane, all of it irrigated (accounting for almost 17% of irrigated land). Cotton occupies about 5% of GCA, and about a third of the cotton crop is irrigated. The state accounts for nearly 5% of the area under fruits and 4% of the area under vegetables in India. In terms of production, the state's share is nearly 10% in fruits and 8% in vegetables. The state is also a leading producer of flowers.

In all, crop agriculture, livestock, and animal husbandry account for 92.2% of total value added in agriculture and allied activities, with fishing accounting for 4.5% and forestry for 3.3%. Cropping intensity was at 1.18 during 2011-12.

The average size of individually held farms was only 0.91 hectares, with over half the farms smaller than 0.5 hectares. Nearly three-quarters of farms were smaller than one hectare, accounting for only 31.2% of total cultivable land. In comparison, the average farm size in India was 1.41 hectares, with 62% of farmers holdings being less than one hectare.

The marginal and small farmers who constituted 91% of the total farmers held 59% land, whereas medium and large farmers (2.9% of the total farmers) possessed a larger chunk of 30% of land (Sivagnanam, 2014).

The state had a consortium of FPCs registered as a PC like nine more states of India, with 25 FPCs as members with 100 shares worth Rs. 10,000 each since 2012 with paid up capital of Rs. 1.2 lakh and authorized capital of Rs. 15 lakh. The consortium PC members run shops and retail outlets called farmer supermarket network (Uttaran Ushar Arund) by its member

PCs in different places in the state for collectively selling value added products in partnership with the state department of agri marketing and agribusiness. But, none of the study PCs were members of this consortium. The Pudukottai district website mentions one of the study PCs (Iluppur agri PC) as one of the three successfully functioning PCs the district. The state government was also setting up and handing over 54 primary processing centres (PPCs) costing Rs. six crores each to PCs across 10 districts. These facilities were provided to PCs for three years at concessional rentals and providing salary of the staff of PPCs of the order of Rs. 15-20 lakh per annum each (TOI, October 24, 2015).

In this background and context, this chapter examines the physical and financial performance of various case study PCs in section followed by member non-member comparison in profile and impact across all PCs together. Section 5 then profiles the PCs across various promoters and section 6 compares the performance of PCs of the same promoters. Section 7 compares the goat PC in Tamilnadu with a similar PC in MP, as they both belong to a unique business and both are women owned. The chapter then concludes with a summary.

6.1 Profile and Performance of PCs in Tamilnadu

Table 6-1 for all PCs studied in the state shows that all the three EBAF promoted PCs which had small mobilised equity base of Rs. 10 lakh, Rs. 4 lakh and Rs. one lakh against authorised capital of Rs. 10 lakh in each case, had not undertaken any business activity in one case even after 4 years of existence, and therefore was into losses technically. The other two had decent turnover of Rs. 67 lakh and Rs. 17 lakhs but their profile were negligible.

Kodal Hills of EBAF was one PC which made small profits every year as its revenue was from high value crops like pepper and coffee. But still it could not mobilise more than 61% of its authorised equity from its members. The Thani goat PC which was unique in many ways i.e. all women PC, into goatery and the only one PC promoted by an NGO achieved one of the largest equity mobilisation by reaching 100% of its authorised capital and revenue of the order of Rs. 54 lakh per year with small profits. This was mainly because it was into high value low cost business of rearing goats and selling meat and live animals locally.

Kottampatti PC by Dhan was a big failure throughout with only coconut trading giving it much needed respite recently. It could not mobilise even 30% of its authorised equity despite being a landowning farmer PC. Both the PCs promoted by IIL of Dhan Foundation had mobilised most of their authorised capital (Rs. 10 lakh and Rs. 25 lakh) and very high levels of revenue in each case which was more than Rs. one crore. But even their profits were negligible which is more due to the fact that PCs until recently have behaved like the co-operatives passing on the surplus generated as price and other benefits to members to avoid paying income tax on their profits. It is only since last year that their profits have been exempted from income tax for next five years and it remains to be seen whether profits would go up and reserves and surplus would be used more for capacity creation by the PCs.

The SEEDS NGO promoted PCs were the most vibrant and successful as they not only mobilised most of the authorised equity capital (77-80%) which itself was of the order of Rs. 20 and Rs. 40 lakh but also had revenue in crores (> Rs. 4 crore) in case of SEEDS-PC. But, even then its profits were very modest (Rs. 4 lakhs). However, the second PC had small revenue and no profits from its operations.

6.2 PC member and non-member farmers: Profile and Impact

Of the 105 members interviewed in TsimbaOa across 9 PCs, 48% were women farmers with 17% of them being illiterate with most others having school level literacy. 76% of them had farming as the primary occupation and 60% animal husbandry (Tables 6.2 & 6.3). Farming and animal husbandry (14% each) and labour (13%) happened to be most secondary occupations among these 48% who had any secondary occupation (Table 6.4).

47% of the 31 non-member farmers were women and 30% each of them were illiterate or middle school literate with another 14% each being primary or high school literate. 74% of them reported farming as their primary occupation followed by farm labour by 14% and animal husbandry by 10%. More than half of them did not report any other occupation with 10% and 12% reporting farming and animal husbandry and another 12% farm labour as secondary occupation. There were a few farmers each into petty business or skilled labour besides 5% also being MGNREGS workers.

Table 6.2: Distribution of PC member and non-member farmers by education

| Category: Farmer's Education | Members | | Non-members | |
|------------------------------------|----------------|-------------|----------------|-------------|
| | No. of farmers | % of all | No. of farmers | % of all |
| Illiterate | 19 | 18% | 27 | 26% |
| Primary | 1 | 1% | 12 | 12% |
| Middle | 35 | 33% | 27 | 26% |
| High School | 27 | 26% | 0 | 0% |
| Higher Secondary | 6 | 6% | 7 | 7% |
| Unemployed | 4 | 4% | 3 | 3% |
| Outcast | 1 | 1% | 0 | 0% |
| Orphan | 4 | 4% | 2 | 2% |
| Total | 105 | 100% | 91 | 100% |

Table 6.3: Distribution of PC member and non-member farmers by Primary Occupation

| Category: Farmer's Primary Occupation | Members | | Non-members | |
|---|----------------|-------------|----------------|-------------|
| | No. of farmers | % of all | No. of farmers | % of all |
| Agriculture | 80 | 76% | 67 | 73% |
| Animal Husbandry | 17 | 16% | 6 | 7% |
| Business | 1 | 1% | 0 | 0% |
| Dist. collector in field | 1 | 1% | 0 | 0% |
| Labour | 0 | 0% | 12 | 13% |
| Skilled Labour | 0 | 0% | 2 | 2% |
| Total | 105 | 100% | 91 | 100% |

Table 3.4: Distribution of PC member and non-member farmers by Secondary Occupation

| Category Secondary Occupation | Members | | Non-members | |
|----------------------------------|----------------|----------|----------------|----------|
| | No. of Farmers | % of all | No. of Farmers | % of all |
| Agriculture | 15 | 100% | 8 | 100% |
| Animal husbandry | 15 | 100% | 8 | 100% |
| Business | 1 | 6% | 2 | 25% |
| Construction Supervisor | 1 | 6% | 0 | 0 |
| Service/Govt. job (Retired) | 1 | 6% | 2 | 25% |
| Labour | 11 | 73% | 0 | 0% |
| Medicinal Plant Dealer | 1 | 6% | 0 | 0 |
| None | 54 | 363% | 0 | 0% |
| Retired Teacher | 1 | 6% | 0 | 0 |
| Skilled Labour/Janitor | 2 | 13% | 1 | 12% |
| Total | 106 | 100% | 19 | 100% |

The average owned land of members was 5.12 acres and operated land 8 acres per household (Table 3.5). The members were mostly marginal, small and semi-medium farmers (92%) of the total owning 53% of land. However, in terms of operated land, they accounted for only 62% of all farmers and 45% of the operated land (Tables 3.6 and 3.7). 45% had owned ground water source of irrigation and 50% were rain fed. Only 2% reported access to canal water. These farmer members mostly owned goat and cows with goats accounting for 65% of the total animals, cows 20%, and sheep another 7%.

The average owned land of non-members was 3.7 acres and operated land 6.12 acres. 73% of non-member farmers were marginal or small farmers owning 31% land. There were no large landowners with the rest 14% and 13% each being semi-medium or medium category farmers but they had 31% and 46% of total land. There was not much difference in the operated land distribution with 73% still being marginal or small operators controlling 31% land. On the other hand, semi-medium and medium farmers who were 26% of the total controlled only 61% land though they had owned 70%. This was due to the leasing in and out of land where one farmer ended up being in the large farmer category operating 37% of total land. 68% of the farmers were rainfed and only 4% had access to canal irrigation with the rest depending on wells and tube wells for irrigation with some being shared and some also having water from other farmers. 39% and 37% of the farmers owned cows and goat respectively with 18% having poultry with others owning bullocks and one farmer sheep. In terms of number of livestock, goats accounted for 41% with an average of 10 goats per household and cows and poultry 18% of the total.

Table 8.5: Average Owned and Operated Land of PC Members and Non-Members

| Category | Members | Non-Members |
|----------------------|---------|-------------|
| Average Land (Acres) | | |
| Owned | 523 | 37 |
| Operational | 604 | 102 |

Table 8.6: Category-wise Distribution of PC member and non-member Farmers by Owned Land

| Category | Members | | | | Non-Members | | | |
|----------|----------------|------------|---------------|------------|----------------|------------|---------------|------------|
| | No. of Farmers | % of total | Land in acres | % of total | No. of Farmers | % of total | Land in acres | % of total |
| Marginal | 48 | 45.71 | 58.7 | 3.07 | 49 | 53.85 | 415 | 12.81 |
| Small | 29 | 27.62 | 885 | 18.26 | 17 | 18.26 | 1825 | 12.52 |
| Semi-med | 17 | 16.28 | 155.25 | 25.45 | 11 | 11.79 | 72 | 2.48 |
| Medium | 8 | 7.62 | 104 | 21.03 | 12 | 12.71 | 302 | 8.85 |
| Large | 3 | 2.86 | 60 | 1.14 | 4 | 4.32 | 4 | 0.12 |
| Total | 105 | 100.00 | 538.45 | 100.00 | 93 | 100.00 | 294.4 | 100.00 |

Table 8.7: Category-wise Distribution of member and non-member farmers by Operated Land

| Category | Members | | | | Non-Members | | | |
|----------|----------------|------------|---------------|------------|----------------|------------|---------------|------------|
| | No. of Farmers | % of total | Land in acres | % of total | No. of Farmers | % of total | Land in acres | % of total |
| Marginal | 48 | 43.83 | 58.7 | 4.37 | 46 | 53.55 | 46.25 | 17.73 |
| Small | 29 | 27.36 | 855 | 12.75 | 24 | 27.98 | 162.5 | 13.82 |
| Semi-Med | 16 | 15.24 | 150.25 | 22.38 | 12 | 14.29 | 75 | 28.24 |
| Medium | 11 | 10.23 | 116 | 16.29 | 8 | 9.29 | 64 | 23.18 |
| Large | 3 | 2.86 | 78 | 1.14 | 1 | 1.19 | 20 | 7.52 |
| Total | 107 | 100.00 | 1794.5 | 100.00 | 91 | 100.00 | 292.2 | 100.00 |

Table 6.8: Distribution of member and non-member farmers by Livestock Owned

| Category | Members | | | | | Non-Members | | | | |
|--------------|----------------|----------|------------------|----------|---------|----------------|----------|------------------|----------|---------|
| | No. of Farmers | % of All | No. of Livestock | % of All | Average | No. of Farmers | % of All | No. of Livestock | % of All | Average |
| Cow | 43 | 41.65 | 134 | 21.34 | 3 | 20 | 26.02 | 34 | 23.40 | 1.70 |
| Cow (Shared) | 1 | 0.95 | 25 | 5.05 | 25 | 0 | 0 | 0 | 0 | 0 |
| Goat | 47 | 44.71 | 459 | 67.13 | 10 | 30 | 24.24 | 28 | 20.74 | 0.93 |
| Oxen | 3 | 2.88 | 9 | 0.47 | 3 | 4 | 4.88 | 4 | 2.88 | 1.5 |
| Sheep | 9 | 8.71 | 50 | 7.22 | 5.5 | 1 | 1.20 | 5 | 3.70 | 5 |
| Total | 105 | 100 | 633 | 100.00 | 6 | 31 | 100 | 45 | 100.00 | |

64% of them relied on friends and other forms for agricultural information, with only 7% relying exclusively on PC. As against this, non-members relied only on informal services for this (Table 6.9).

Table 6.9: Distribution of member and non-member farmers by Source of general agricultural information

| Category | Members | | Non-Members | |
|---|----------------|----------|----------------|----------|
| | No. of Farmers | % of All | No. of Farmers | % of All |
| Friends/ Neighbours/ Relatives | 57 | 53.81 | 44 | 52.38 |
| Newspapers/ Radio | 1 | 0.95 | 0 | 0 |
| PC | 7 | 6.67 | 0 | 0 |
| Friends/ Neighbours/ Relatives, PC | 10 | 9.52 | 2 | 2.38 |
| Friends/ Neighbours/ Relatives, Mobile groups | 2 | 1.90 | 0 | 0 |
| PC, Mobile/ Mobile Groups | 2 | 1.90 | 0 | 0 |
| AGU Extension Workers | 1 | 0.95 | 0 | 0 |
| Friends/ Neighbours/ Relatives, Newspapers/ Radio, PC | 1 | 0.95 | 0 | 0 |
| Friends/ Neighbours/ Relatives, Newspapers/ Radio, PC, AGU | 1 | 0.95 | 0 | 0 |
| Friends/ Neighbours/ Relatives, Newspapers/ Radio, Mobile/ Mobile Groups, AGU | 1 | 0.95 | 0 | 0 |
| Friends/ Neighbours/ Relatives, PC, Mobile/ Mobile Groups | 1 | 0.95 | 0 | 0 |
| Friends/ Neighbours/ Relatives, PC, AGU | 2 | 1.90 | 0 | 0 |
| Coffee trader | 1 | 0.95 | 0 | 0 |
| Mobile/ Mobile Groups | 0 | 0 | 1 | 1.11 |
| Friends/ Neighbours/ Relatives, Newspaper/ Radio | 0 | 0 | 1 | 1.11 |
| Friends/ Neighbours/ Relatives, Newspaper/ Radio, AGU extension | 0 | 0 | 1 | 1.11 |
| Friends/ Neighbours/ Relatives, AGU | 0 | 0 | 1 | 1.11 |
| Friends/ Neighbours/ Relatives, Newspaper/ Radio, AGU | 0 | 0 | 1 | 1.11 |
| Total | 105 | 100.00 | 31 | 100.00 |

The average cropping intensity of the members was 1.18. Major crops grown in kharif season included coffee, coriander, maize and paddy in terms of share of GCA but only about 35% of farmers took any crop in this season. There were even fewer crops grown in summer season, mostly maize, vegetables and coffee, sorghum and jamuna being grown in more than 10% of the area each but bought only about 10% of the farmers. The major cropping season was kharif where most of the farmers grew multiple crops with 33% farmer each growing chilli and green gram, 18% paddy, 25% vegetables and 15% black gram. The crops of maize, vegetables and chillies and green gram accounted for 14%, 11% and 8% and 3% respectively of the kharif area. Paddy accounted for 9% and millets another 3% like sorghum (Tables 8.11–8.12).

So far as the cropping pattern in S-kharif was concerned, 21% of the member farmers grew maize, 10% paddy, 24% vegetables, 15% chilli and 15% black gram and 15% green gram. Cotton was planted by 10% of the farmers as wheat millets and sorghum many farmers had various crops inter-cropped and mixed cropped. Vegetables accounted for 11% of the kharif area and maize 14% with paddy accounted for 9% (Table 8.12). The other significant crops in terms of kharif area were chilli and gram (3%) each, millets and sunflower and sorghum (3% each). The kharif crops which accounted for significant of the gross crop area during the area were maize at 12%, paddy at 7%, vegetables 9%, and green gram and chilli at 7% of the total area during the year. In rabi season, large number of farmers planted paddy (3%), vegetables (6%), and black gram 3%. In fact, only 30% farmers grew crops in Rabi. In terms of area, most crops were maize and paddy at 12% and coffee at 11% besides chilli and rag at 8%. Surprisingly coriander accounted for 11% of the season area and cotton along with green and red gram 12%. In terms of the gross crop area, this was only 13% of the total with coffee, maize and paddy accounting for a major chunk besides coriander. Very few farmers took a summer crop which was mainly the plantation crop of coffee accounting for 48% of the total area followed by sorghum and vegetables at 20% and jamuna flowers another 12% besides rag and black gram along with some intercrops 9% each. Summer area was only 3% of the GCA during the year with kharif accounting for 83% of the total.

In terms of cropping pattern, in rabi season, very few non-member farmers grew any crops, and they were mostly pulses, cotton and oilseeds. Cotton accounted for 25% of the area followed by sesame at 13% and black, green and red gram another 13%. Pigeon guand too took another 12% of the area and beans were another major crop with 7% of the area. Tobacco had 3% and paddy and cucumber accounted for 4% of the kharif area each. Altogether this season had only 4% of the GCA of the year and cotton was the only crop which had more than 1% of the GCA. In kharif, major crops grown by significant number of farmers included black gram, green gram, cotton, millets, paddy, beans and chilli. Pulses were the major group of crops grown during the season accounting for 30% of the area followed by maize, cotton and sorghum at 11% and brinjal and groundnut at 3% and 6% respectively. This season had 4% of the GCA accounted for mostly by pulses crops, maize, cotton, paddy and sorghum besides banana, chillies, and millets.

Table 6.10: Kharif Cropping Pattern of PC Members

| Perennial Crop | Number | % members | Total | % of Total Area | Total Area (ha) | Total Yield (t) |
|---|--------|-----------|-------|-----------------|-----------------|-----------------|
| Avocado | 2 | 0.5 | 25 | 0.0 | 62 | 0.0 |
| Banana | 7 | 0.57 | 81 | 0.0 | 100 | 0.0 |
| Black gram | 14 | 0.09 | 255 | 0.07 | 246 | 0.0 |
| Chilli | 36 | 0.24 | 405 | 0.0 | 366 | 0.0 |
| Coconut | 7 | 0.07 | 155 | 0.0 | 150 | 0.0 |
| Coffee | 4 | 0.0 | 15 | 0.0 | 15 | 0.0 |
| Cotton | 8 | 0.05 | 24 | 0.0 | 120 | 0.0 |
| Green Gram | 16 | 0.14 | 402 | 0.0 | 350 | 0.0 |
| Maize | 22 | 0.095 | 656 | 0.0 | 650 | 0.0 |
| Paddy | 28 | 0.08 | 525 | 0.07 | 480 | 0.0 |
| Groundnut | 10 | 0.07 | 10 | 0.0 | 40 | 0.0 |
| Millet | 8 | 0.06 | 105 | 0.0 | 60 | 0.0 |
| Sunflower | 5 | 0.0 | 10 | 0.0 | 10 | 0.0 |
| Sorghum | 8 | 0.05 | 105 | 0.0 | 80 | 0.0 |
| Red gram | 2 | 0.0 | 2 | 0.0 | 0 | 0.0 |
| Flat Gram | 3 | 0.0 | 15 | 0.0 | 0 | 0.0 |
| Isarite | 4 | 0.0 | 45 | 0.0 | 0 | 0.0 |
| Mango | 2 | 0.0 | 2 | 0.0 | 0 | 0.0 |
| Orange | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Vegetables | 26 | 0.18 | 660 | 0.07 | 670 | 0.0 |
| Black Gram, Bengal Gram | 1 | 0.0 | 1 | 0.0 | 0 | 0.0 |
| Bengal, Sorghum | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Coffee, Avocado | 1 | 0.0 | 2 | 0.0 | 6 | 0.0 |
| Coffee, Pepper, Orange, Banana | 1 | 0.0 | 1 | 0.0 | 0 | 0.0 |
| Coffee, Pepper | 4 | 0.0 | 10 | 0.0 | 0 | 0.0 |
| Coffee, Pepper, Avocado, Orange | 2 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Coffee, Pepper, Banana | 1 | 0.0 | 15 | 0.0 | 0 | 0.0 |
| Coffee, Pepper, Orange | 2 | 0.0 | 6 | 0.0 | 0 | 0.0 |
| Cauliflower, Millet | 1 | 0.0 | 4 | 0.0 | 0 | 0.0 |
| Cotton, Groundnut, Black Gram | 1 | 0.0 | 2 | 0.0 | 0 | 0.0 |
| Cotton, Red Gram, Black Gram, Green Gram | 1 | 0.0 | 2 | 0.0 | 0 | 0.0 |
| Cotton, Red gram, Maize, Green Gram, Black gram | 1 | 0.0 | 6 | 0.0 | 0 | 0.0 |
| Flat gram, Groundnut | 3 | 0.0 | 15 | 0.0 | 0 | 0.0 |
| Pepper | 2 | 0.0 | 4 | 0.0 | 0 | 0.0 |
| Green gram, Red Gram, Maize | 1 | 0.0 | 2 | 0.0 | 0 | 0.0 |

| Prevalent Crop | Members | % members | Area | % of District Area | % of total area | Average Area |
|-----------------------------|---------|-----------|--------|--------------------|-----------------|--------------|
| Green Gram, Black Gram | 1 | 0.05 | 2 | 0.01 | 0.01 | 2.00 |
| Maise, Black Gram | 1 | 0.05 | 4 | 0.02 | 0.04 | 4.00 |
| Maise, Black gram, Red Gram | 1 | 0.05 | 4 | 0.02 | 0.04 | 4.00 |
| Maise, Green Gram | 1 | 0.05 | 1 | 0.01 | 0.01 | 1.00 |
| Maise, sorghum | 1 | 0.05 | 1 | 0.01 | 0.01 | 1.00 |
| Onion, Maise | 2 | 0.10 | 8 | 0.04 | 0.16 | 4.00 |
| Pepper, Orange | 1 | 0.05 | 2 | 0.01 | 0.01 | 2.00 |
| Red Gram, Sorghum | 2 | 0.10 | 24 | 0.12 | 0.24 | 12.00 |
| Sandhway Chili | 1 | 0.05 | 3 | 0.01 | 0.03 | 3.00 |
| Taua | 1 | 0.05 | 2 | 0.01 | 0.02 | 2.00 |
| Total | | 200 | 632.05 | 3.00 | 63.26 | |

Table 8.2: Rabi cropping pattern of PC members.

| Prevalent Crop | Members | % members | Area | % of District Area | % of total area | Average Area |
|----------------------|---------|-----------|------|--------------------|-----------------|--------------|
| Banana | 1 | 0.05 | 1 | 0.01 | 0.01 | 1.00 |
| Black Gram | 3 | 1.50 | 25 | 0.12 | 0.38 | 8.33 |
| Chili | 2 | 1.00 | 4 | 0.02 | 0.08 | 2.00 |
| Coffee | 1 | 0.05 | 30 | 0.15 | 0.47 | 30.00 |
| Coffee, Banana | 1 | 0.05 | 5 | 0.02 | 0.15 | 5.00 |
| Coconut | 1 | 0.05 | 6 | 0.03 | 0.19 | 6.00 |
| Cotton | 3 | 1.50 | 25 | 0.12 | 0.38 | 8.33 |
| Cotton, Green Gram | 1 | 0.05 | 5 | 0.02 | 0.15 | 5.00 |
| Custard, Red Gram | 1 | 0.05 | 60 | 0.30 | 0.95 | 60.00 |
| Flax gum | 1 | 0.05 | 15 | 0.07 | 0.23 | 15.00 |
| Green Gram | 2 | 1.00 | 15 | 0.07 | 0.23 | 7.50 |
| Green/Red gram/mulur | 1 | 0.05 | 2 | 0.01 | 0.06 | 2.00 |
| Groundnut | 3 | 1.50 | 25 | 0.12 | 0.38 | 8.33 |
| Jasmine | 2 | 1.00 | 25 | 0.12 | 0.38 | 12.50 |
| Maise | 3 | 1.50 | 8 | 0.04 | 0.13 | 2.67 |
| Vegetables | 4 | 2.00 | 15 | 0.07 | 0.23 | 3.75 |
| Paddy | 5 | 2.50 | 11 | 0.05 | 0.16 | 2.20 |
| Hagi | 1 | 0.05 | 45 | 0.22 | 0.69 | 45.00 |
| Red Taua, Rice | 1 | 0.05 | 38 | 0.19 | 0.59 | 38.00 |
| Total | | 400 | 324 | 1.60 | 16.36 | |

Table 6.12: Summer cropping pattern of PC members

| Parameter Crop | Number | % of total area | Total Area | Average Area | % of total area | % of total area |
|-----------------------|--------|-----------------|------------|--------------|-----------------|-----------------|
| Banana | 1 | 100 | 1 | 208 | 04 | 100 |
| Black gram, Groundnut | 1 | 200 | 3 | 338 | 38 | 30.00 |
| Coffee | 1 | 100 | 17 | 117 | 10 | 10.00 |
| Coffee, Pepper | 1 | 100 | 3 | 64 | 44 | 10.00 |
| Cotton | 1 | 100 | 15 | 6 | 10 | 10.00 |
| Jackfruit | 2 | 65.0 | 125 | 100 | 64 | 10.00 |
| Maize, Pearl millet | 1 | 100 | 3 | 124 | 16 | 10.00 |
| Red Tint, Rice | 1 | 100 | 10 | 110 | 10 | 10.00 |
| Sorghum | 1 | 100 | 15 | 113 | 14 | 10.00 |
| Vegetables | 1 | 23.0 | 13 | 141 | 14 | 10.00 |
| Total | | 100 | 11.55 | 100 | 6.4 | |

In the case of non-members, major kharif crops in terms of number of farmers growing them and the area under them were black gram (12% of total area), maize (11%), cotton, sorghum, and paddy (7% each), green gram and millets (4% each), banana (3%), chillies (2%) and some plantation crops like coffee and pepper. In total, which had only 4% of cropped area, coffee, sesame, tamarind, various type of gram and vegetables were major crops. The summer season crops of tomato and beans were grown by only two farmers in just 2.5 acres (Table 6.14).

Table 6.13: Kharif Cropping Pattern of Non-Members

| Parameter Crop | No. member farmers | % of total number farmers | Total Area | Average Area | % of total area | % of total area |
|----------------|--------------------|---------------------------|------------|--------------|-----------------|-----------------|
| Arachide | 1 | 10 | 15 | 15 | 10 | 10.00 |
| Banana | 2 | 20 | 20 | 10 | 10 | 10.00 |
| Black Gram | 11 | 66.0 | 49.5 | 4.5 | 10 | 10.00 |
| Chilli | 2 | 20 | 15 | 7.5 | 10 | 10.00 |
| Coconut | 2 | 20 | 4 | 2 | 10 | 10.00 |
| Coffee | 1 | 10 | 4 | 4 | 10 | 10.00 |
| Cumin | 4 | 40 | 8 | 2 | 10 | 10.00 |
| Cotton | 11 | 66.0 | 21 | 1.9 | 10 | 10.00 |
| Red Gram | 4 | 40 | 1 | 0.25 | 10 | 10.00 |
| Fodder | 4 | 40 | 1 | 0.25 | 10 | 10.00 |
| Green Gram | 11 | 66.0 | 22.5 | 2.0 | 10 | 10.00 |
| Groundnut | 10 | 100 | 11 | 1.1 | 10 | 10.00 |
| Horse Gram | 2 | 20 | 2 | 1 | 10 | 10.00 |
| Maize | 11 | 110 | 11 | 1 | 10 | 10.00 |

| Parameter / Crop | Raw number of farms | % of raw number of farms | Total area | Average area | % of total area | % of total farms |
|----------------------------------|---------------------|--------------------------|------------|--------------|-----------------|------------------|
| Millets | 7 | 23 | 75 | 10.7 | 2.9 | 5.9 |
| Orange | 1 | 3 | 65 | 65 | 18.7 | 6.0 |
| Paddy | 29 | 91 | 261 | 9.0 | 26.7 | 81.9 |
| Pearl Millet | 4 | 12 | 6 | 1.5 | 0.4 | 2.6 |
| Pulses | 1 | 3 | 1 | 1 | 0.3 | 3.0 |
| Red Gram | 1 | 3 | 25 | 25 | 7.3 | 6.0 |
| Sesame | 2 | 6 | 25 | 12.5 | 3.6 | 6.0 |
| Sorghum | 10 | 30 | 26 | 2.6 | 0.8 | 15.0 |
| Sunflower | 3 | 9 | 25 | 8.3 | 2.4 | 6.0 |
| Urad | 1 | 3 | 2 | 2 | 0.6 | 6.0 |
| Vegetables | 5 | 15 | 6.25 | 1.25 | 0.4 | 2.0 |
| Watermelon | 1 | 3 | 2 | 2 | 0.6 | 6.0 |
| Coffee, Pepper | 3 | 9 | 60 | 20 | 5.8 | 6.0 |
| Various orchard | 1 | 3 | 1 | 1 | 0.3 | 3.0 |
| Other Cotton | 1 | 3 | 1 | 1 | 0.3 | 3.0 |
| Other, Millet | 1 | 3 | 2 | 2 | 0.6 | 6.0 |
| Other, Other | 1 | 3 | 30 | 30 | 8.7 | 2.0 |
| Coffee, orange | 1 | 3 | 2 | 2 | 0.6 | 6.0 |
| Groundnut, Raj gram | 1 | 3 | 1 | 1 | 0.3 | 3.0 |
| Project, Orange | 1 | 3 | 2 | 2 | 0.6 | 6.0 |
| Raj, Black gram | 1 | 3 | 1 | 1 | 0.3 | 3.0 |
| Coffee, Pepper, Orange | 2 | 6 | 10.25 | 5.125 | 1.5 | 10.0 |
| Black gram, Green gram, red gram | 1 | 3 | 2 | 2 | 0.6 | 6.0 |
| Coffee, Banana, Orange, Avocado | 1 | 3 | 2 | 2 | 0.6 | 6.0 |
| Total | | 100 | 260 | | 100 | 95.0 |

Table 6.14: Rabi cropping pattern of Non-Members

| Cultivated Crop | No. members (Farmers) | % of total members | Total Area | Average Area | % of total area | % of total area |
|----------------------------------|-----------------------|--------------------|------------|--------------|-----------------|-----------------|
| Rice | 1 | 100 | 65 | 65 | 100 | 100 |
| Water Cress | 1 | 100 | 2 | 2 | 3 | 3 |
| Black gram, Green gram, red gram | 1 | 100 | 2 | 2 | 3 | 3 |
| Common | 2 | 200 | 65 | 32.5 | 50 | 50 |
| Cucumber | 1 | 100 | 1 | 1 | 1.5 | 1.5 |
| Paddy | 1 | 100 | 1 | 1 | 1.5 | 1.5 |
| Ragi | 1 | 100 | 65 | 65 | 100 | 100 |
| Sesame | 1 | 100 | 2 | 2 | 3 | 3 |
| Timorrot | 1 | 100 | 14 | 14 | 21 | 21 |
| Total | 10 | 100 | 253 | 25.3 | 100 | 100 |

The members were more aware of PC name than the non-members (57% versus 24%). Further, only 15% farmers thought or knew the PC belonged to farmers with others mentioning PC employees (24%) or promoting agency (22%) as the owners. There was hardly any awareness of PC ownership among non-members (Tables 6.15 and 6.16).

Table 6.15: Distribution of TM members and non-members by Knowledge of PC Name

| Category Possibility PC Name | Members | | Non-Members | |
|------------------------------------|----------------|------------|----------------|------------|
| | No. of Farmers | % of total | No. of Farmers | % of total |
| Don't Know | 25 | 30.24 | 27 | 27.24 |
| Wrong Name | 8 | 9.76 | 0 | 0 |
| Correct Name | 50 | 60.00 | 74 | 72.76 |
| Total | 83 | 100 | 101 | 100 |

Table 6.16: Distribution of TM members and non-members by Knowledge of PC Owner

| Category Possibility PC Owner | Members | | Non-Members | |
|-------------------------------------|----------------|------------|----------------|------------|
| | No. of Farmers | % of total | No. of Farmers | % of total |
| Govt. Farm | 33 | 39.76 | 88 | 87.18 |
| Ind. | 1 | 1.20 | 0 | 0 |
| Farmers | 6 | 7.24 | 4 | 3.96 |
| PC Employees | 25 | 30.12 | 1 | 0.99 |
| Private Company | 1 | 1.20 | 0 | 0 |
| Promoting Agency | 22 | 26.50 | 1 | 0.99 |
| Total | 83 | 100 | 101 | 100 |

Among the members, dealers emerged as the major source of seed purchase with 35% buying from there. Only 17% farmers bought it from the PC with another 13% from both PC as well as dealers. 9% even reported buying it from other farmers and 3% using home based seed (Table 6.17). The reliance on dealers was even higher in case of chemical inputs at more than 60% with only 22-30% farmers buying it from the PC. In fact, even PACs did not figure as a major source in case of fertilizer purchase (Table 6.18). The bio-inputs which were used by the very small percentage of farmers were bought more from the PC ranging from 7% in case of bio-pesticides and 31% in case of bio-fertilizers (Table 6.19). Since the PCs were not into machinery or equipment selling or renting out, it was mostly bought from dealers and renting took place from dealers and local farmers with only 4% farmers reporting renting it from PC. The PCs had higher presence in cattle feed with 13th of the farmers who bought in reporting as source of purchase was only 10% farmers reporting purchase of cattle feed. 91% farmers had no complaint about the PC services with 70% even reporting that the PC did help get to them government schemes and subsidies with 59% specifically reporting crop and other agri and allied loans.

So far as purchase of inputs were concerned, the seeds were mostly bought by non-members from dealers and local farmers with only 3% farmers reporting buying it from the PC. On the other hand, bio-fertilizers and bio-pesticides were mostly bought from dealers and local farmers. In case of chemical fertilizer, 79% bought it from the dealers and only 3% from the PC and 2% each from PACs and department of agriculture (Tables 6.17-6.19). Similarly, chemical pesticides were largely bought from dealers (58%) and local farmers with only 7% of those reporting buying it from the PC. Since most of the PCs did not deal with machinery rentals an equal percentage of farmers accessed it from dealers or local farmers. Members bought from PC for different reasons as listed in table 6.13A.

However, 88% did not report any initiatives undertaken by the PC (Table 6.20). Only 14% were aware of any PC initiatives like agri equipment, loans, training for good rearing and procurement of new business, like poultry.

91% members has no dislike for any of the services of the PCs while a few others pointed out poor access to some of the services like availability or high cost. 60% had not received any subsidy or information about it from PC while 14% had received subsidised inputs and 5% various farm equipments like MBE or implements. 2% also reported learning agricultural farming and 4% reported received MBEs from the PC. 38% even reported reporting loans from through the PCs.

Table 6.17: Distribution of member and non-member farmers by Source of Seeds

| Category/ Primary Source | Members | | Non-Members | |
|--------------------------------|-------------------|-----------|-------------------|-----------|
| | No. of Farmers | % of N | No. of Farmers | % of N |
| Dealers | 28 | 34.2% | 47 | 53.5% |
| Local Farmers | 9 | 10.7% | 19 | 21.6% |
| PMCS/DCS | 2 | 2.4% | 1 | 1.1% |
| PC | 18 | 21.9% | 7 | 7.9% |
| Other FSOs | 1 | 1.2% | 1 | 1.1% |
| Agri Dept | 4 | 4.8% | 6 | 6.8% |
| Dealers, Local Farmers | 5 | 6.1% | 0 | 0% |
| Dealers, PMCS | 1 | 1.2% | 0 | 0% |
| Dealers, PC | 17 | 20.6% | 9 | 10.1% |
| Dealers, Agri Dept | 2 | 2.4% | 6 | 6.8% |
| Local Farmers, PC | 2 | 2.4% | 0 | 0% |
| Local Farmers, Agri Dept | 1 | 1.2% | 0 | 0% |
| PC, Agri Dept | 1 | 1.2% | 0 | 0% |
| None (Home based) | 5 | 6.1% | 0 | 0% |
| Don't cultivate | 9 | 10.7% | 17 | 19.3% |
| Total | 105 | 100.0% | 87 | 100.0% |

Table 6.18: Distribution of member and non-member farmers by Source of Chemical Inputs

| Type of Input | Dealers | | | | PMCS | | | |
|---------------|-------------------|-----------|-------------------|-----------|-------------------|-----------|-------------------|-----------|
| | Members | | Non-Members | | Members | | Non-Members | |
| | No. of Farmers | % of N | No. of Farmers | % of N | No. of Farmers | % of N | No. of Farmers | % of N |
| Dealers | 45 | 43.8% | 54 | 25.2% | 15 | 15.8% | 12 | 10.9% |
| Local Farmers | 2 | 1.9% | 3 | 1.4% | 1 | 1.0% | 0 | 0.0% |
| PMCS | 7 | 6.8% | 1 | 0.5% | 6 | 6.3% | 6 | 5.5% |
| PC | 28 | 27.3% | 5 | 2.3% | 8 | 8.4% | 31 | 28.4% |
| Agri Dept | 1 | 1.0% | 1 | 0.5% | 1 | 1.0% | 0 | 0.0% |
| Dealers, PC | 3 | 2.9% | 0 | 0.0% | 3 | 3.2% | 0 | 0.0% |
| PC, Agri Dept | 1 | 1.0% | 0 | 0.0% | 1 | 1.0% | 0 | 0.0% |
| Dealers, PMCS | 0 | 0.0% | 1 | 0.5% | 0 | 0.0% | 1 | 0.9% |
| Total | 75 | 72.5% | 82 | 38.2% | 52 | 54.5% | 42 | 38.6% |

Table 6.19: Distribution of member and non-member farmers by Source of His Inputs

| Type of Inputs Category | Members | | | | Non-members | | | |
|----------------------------|----------------|------------|----------------|------------|----------------|------------|----------------|------------|
| | Members | | Non-members | | Members | | Non-members | |
| | No. of Farmers | % of total | No. of Farmers | % of total | No. of Farmers | % of total | No. of Farmers | % of total |
| Dealers | 5 | 31.25 | 2 | 35.7 | 1 | 18.2 | 1 | 18.2 |
| Local Farmers | 6 | 35.3 | 4 | 71.4 | 1 | 18.2 | 1 | 18.2 |
| PC | 5 | 31.25 | 0 | 0 | 0 | 0.0 | 1 | 18.2 |
| Agri Deal | 0 | 0 | 1 | 17.9 | 0 | 0 | 0 | 0 |
| Total | 16 | 100.00 | 6 | 100.00 | 2 | 100.00 | 3 | 100.00 |

45% reported monthly meeting and 34% attended them every time with 17% mentioning quarterly meeting and 5% attending it every time and another 5% only sometimes. More than 20% thought that PC meeting were held monthly and quarterly and 80% attended them every time and 25% never and other sometimes or occasionally. The main issues discussed at perceived by the members came out to be agri related about the working of the PC and decisions of loans. 37% had never asked any questions in the meetings while 36% were satisfied with the outputs.

Table 6.20: Distribution of PC owners by reasons for purchase of inputs from PC

| Type of PC Reasons | Total | | Dist. Freq. | | Dist. % | | Total | | Dist. | |
|--|----------------|------------|----------------|------------|----------------|------------|----------------|------------|----------------|------------|
| | No. of Farmers | % of total | No. of Farmers | % of total | No. of Farmers | % of total | No. of Farmers | % of total | No. of Farmers | % of total |
| | Better Quality | 4 | 100 | 2 | 50 | 1 | 25 | 1 | 25 | 2 |
| Better quality and lower price | | | 1 | 25 | | | 0 | | 0 | |
| Better Quality, Easy Accessibility, Lower Cost | 1 | 25 | 2 | 50 | 1 | 25 | 0 | | 0 | |
| Better Quality, Easy Accessibility, Lower Cost, Lower Price | 5 | 125 | 2 | 50 | 4 | 100 | 0 | | 1 | 25 |
| Better Quality, Easy Accessibility, Lower Cost, Lower Price, Fair Deal More Reliable | 2 | 50 | 1 | 25 | 0 | | 0 | | 0 | |
| Better Quality, Easy Accessibility, Lower Cost, Lower Price, Timely Availability | 3 | 75 | 2 | 50 | 0 | | 0 | | 0 | |
| Better Quality, Easy Accessibility, Lower Cost, Timely Availability | 1 | 25 | 1 | 25 | 1 | 25 | 0 | | 0 | |

| Type of Goals | Total | | China, No.: | | China, % of | | Finland | | Finland | |
|---|--------------|--------------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|
| | No. of Goals | % of Total | No. of Goals | % of Total | No. of Goals | % of Total | No. of Goals | % of Total | No. of Goals | % of Total |
| Better Quality, Fair Deal/ More Reliable, Timely Availability | 2 | 6.6 | 1 | 4 | 4 | | 0 | | 0 | |
| Better Quality, Lower Price/ Fair Deal/More Reliable, Timely Availability | 1 | 3.0 | 4 | | 0 | | 0 | | 1 | 16.7 |
| Better Quality, Lower Price, Timely Availability | 1 | 3.0 | 4 | | 0 | | 0 | | 0 | |
| Better Quality, Timely Availability | 1 | 3.0 | 4 | | 0 | | 3 | 20 | 4 | |
| Easy Accessibility/ Lower Cost | 2 | 6.6 | 1 | 4 | 1 | | 3 | 20 | 4 | |
| Easy Accessibility, Lower Cost and timely availability | 0 | | 3 | 12 | 1 | 6.7 | 4 | | 0 | |
| Easy Accessibility, Lower Cost, Fair Deal, More Reliable | 2 | 6.6 | 1 | 4 | 0 | | | | 0 | |
| Easy Accessibility, Lower Cost, Lower Price, Timely Availability | 1 | 3.0 | 1 | 4 | 0 | | 1 | 20 | 1 | 16.7 |
| Easy Accessibility, Lower Cost, Timely Availability | 3 | 9.9 | 1 | 4 | 1 | 6.7 | 4 | | 0 | |
| Fair Deal/ More Reliable | 1 | 3.0 | 1 | 4 | 0 | | 0 | | 0 | |
| Fair Deal/ More Reliable, Timely Availability | 1 | 3.0 | 2 | 8 | 0 | 0.0 | 0 | | 0 | |
| Lower Price | 1 | 3.0 | 1 | 4 | 4 | | 4 | 20 | 4 | 16.7 |
| Timely availability | 0 | | 0 | | 1 | 6.7 | | | | |
| Lower price and timely availability | 0 | | 0 | | 1 | 6.7 | 4 | | 0 | |
| Lower price and more reliable, without | 0 | | 1 | 4 | 0 | | 0 | | 0 | |
| No other Goals | 1 | 3.0 | 4 | | 0 | | 0 | | 0 | |
| Total | 33 | 100.0 | 25 | 100 | 15 | 100 | 3 | 100 | 4 | 100 |

Table 6.20: Distribution of member and non-member farmers by their knowledge of initiatives taken by PC

| Category | Members | | Non-members | |
|---|--------------|-------------|--------------|-------------|
| | Know farmers | % of n | Know farmers | % of n |
| No. | 29 | 64.3 | 25 | 25.0 |
| Get training | 2 | 7% | 0 | 0% |
| Loan | 2 | 7% | 1 | 4% |
| Business Plans to avail Bank loans | 1 | 3% | 0 | 0% |
| Helping for Dairy and Poultry (Financial and technical), water harvesting, irrigation facilities | 3 | 10% | 4 | 16% |
| Procurement | 1 | 3% | 1 | 4% |
| Inputs | 2 | 7% | 2 | 8% |
| Customisation ideas | 1 | 3% | 4 | 16% |
| Drip irrigation | 1 | 3% | 0 | 0% |
| Drip irrigation, Springs, Motor engine pump | 1 | 3% | 0 | 0% |
| Loan and Procurement | 1 | 3% | 0 | 0% |
| Loan, Subsidy, Proper system, Livestock details, Advice over Phones, New variety, Subsidised input | 3 | 10% | 0 | 0% |
| Total | 65 | 100% | 64 | 100% |

50% wanted to continue being members as it was beneficial in various ways like information, loans and subsidies, procurement and timely and lower cost input supply by PC. Those who (17%) did not want to continue said so as they did not find it useful or had not availed any service from the PC. 77% also were keen to encourage others to join the PC as members as it brought benefits. While 50% did not suggest any new product or services, others suggested loans and input supply, procurement and market linkage for farm produce, timely supply of inputs and more training of farmers and value addition to farm produce. A few others also suggested expanding the membership of the PC and making staff more accountable to members.

The only major expansion in crop area was in black gram due to the intervention of PC and yields had improved in coffee, groundnut, maize and minor pulses and vegetables by 10-25% compared with that before the PC intervention. Major price benefits (23-25%) were realised in pulses, coffee, sunflower, millets and maize by members selling to or through the PC.

Three years before, only one or two farmers each had used the PC channel to sell gram, green gram, maize, paddy, or millets which increased to 3-4 farmers across all of these crops. The largest increase was in case of black gram which increased to 14 farmers from just 2 farmers three years earlier. In terms of channels of sale, 29% of the farmers sold 39% of their produce through the PCs, mainly in the crops of black gram, coffee, cotton, green gram and maize (Table 6.21). After the intervention of a few years at the PC, major mass crops were being handled by the PC in both number of the farmers and quantity sold through 64 PC increased substantially.

So far as effect of PCs on the member business was concerned, there was a low production like cow milk, black gram, cotton, fat gram, green gram, groundnut maize paddy and red gram where the number of farmers selling through the PC increased significantly as well as output sold compared with that three years earlier. This was in sharp contrast to the non-member impact where only in one crop- green gram, there were some sales by the non-members through the PCs.

In terms of area shift due to the intervention of PCs there was significant increase in groundnut, black gram, and to some extent coffee. In terms of marketing channels before and after the interventions of PC, the number of farmers selling through the PC increased significantly in black gram, fat gram, green gram, groundnut, maize and oilseeds besides paddy. In fact, paddy, pulses, saagi, red gram, and sesame besides sunflower were being sold first time through the PCs. In terms of volume sold, besides these crops, coffee also substantially increased as did red gram. This was mainly a shift from wholesale channel to the PC channel in most cases.

76% of the non-member farmers had no knowledge of the PC and 56% did not know who owned the PC, with others mentioning farmers promoting agency and employees in 3 to 4 cases each. In fact, 81% reported that no one had informed them about the PC with only 9%-7% mentioning PC employees, friends and meetings as the source. 77% non-member farmers did not want to become members of the PC and 57% of them were not sure that they wanted to become members of the PC. 23% wanted to take membership of the PC and of this 11% wanted to become members to avail of loans and subsidies. 33% had no idea about the activities of the PC and others mentioned the supply of fertilizers, dairy animals, seeds and other inputs as its services. 56% had not attended any of the meetings of the PC and others mentioned that it was more about farming and input supply besides loans, data collection, and prices. 36% had no experience with the PC and a few others talked about loans and high interest rates. 43% of them expected only more inputs and subsidies. The non-member farmers sourced agricultural information from farmers, farmer friends and relatives in 62% cases, and most of them reported PC as the source with others depending on multiple sources with personal and non-personal including radio, mobile and newspapers.

Non-member farmers reported improvement in input quality, cost, availability, and adequacy and very significant improvement in price realisation for the output besides small improvement in output market availability and accessibility. In terms of marketing channels, there was no big change in the channels used by these non-member farmers except in green gram where earlier, only one farmer had sold through the PC which increased to three after three years. On the other hand, in terms of amount of produce sold, it increased from 1% of the total to 54% over time. Further, in yellow gram, farmers had been selling through the PC for some time. There were also cases of contract farming in case of chili and vegetables where one farmer each was undertaking contract farming.

In terms of cropping pattern impact of the PCs on non-member farmers, more area was being grown with maize, millets, cowpea and black gram. In terms of yield, significant improvement was reported in black and green gram crops and in maize and millets besides sorghum. In fact, the highest yield improvement was reported in vegetables. Due to this, marketed surplus

had gone up significantly in black gram, green gram, maize, red gram and vegetables. So far as price realisation was concerned, after-FC prices were higher in chillies, maize, onion, red gram, sorghum and vegetables. However, there was significant delay in receiving payment in many of these crops compared to pre-FC situation.

Only two and three farmers each out of 91 sold black gram and green gram to the FCS whereas it was none and only one each three years before respectively.

Table 2.20: Distribution of farmer members and produce by crop-wise channel of sales

| Country | Cooperative | Crop | Farmer members | | Produce | | Farmer members | Produce | Farmer members | Produce |
|----------|-------------|-------|----------------|------------|---------|------------|----------------|---------|----------------|---------|
| | | | Number | Percentage | Volume | Percentage | | | | |
| China | Yanhuang | Wheat | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% |
| | | Maize | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% |
| | | Other | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% |
| | | Wheat | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% |
| | | Maize | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% |
| | | Other | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% |
| | Yanhuang | Wheat | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% |
| | | Maize | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% |
| | | Other | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% |
| | | Wheat | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% |
| | | Maize | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% |
| | | Other | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% |
| Yanhuang | Wheat | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% | |
| | Maize | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% | |
| | Other | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% | |
| | Wheat | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% | |
| | Maize | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% | |
| | Other | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% | |
| Yanhuang | Wheat | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% | |
| | Maize | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% | |
| | Other | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% | |
| | Wheat | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% | |
| | Maize | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% | |
| | Other | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% | |
| Yanhuang | Wheat | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% | |
| | Maize | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% | |
| | Other | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% | |
| | Wheat | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% | |
| | Maize | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% | |
| | Other | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% | |
| Yanhuang | Wheat | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% | |
| | Maize | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% | |
| | Other | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% | |
| | Wheat | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% | |
| | Maize | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% | |
| | Other | 100 | 100% | 100000 | 100% | 100 | 100% | 100 | 100% | |

6.3 Comparison across Promoters

58% of the Seeds PC members were male which was lower than Dhan/KTL PC members (48%) and ESAP PC members (55%). This meant that the share of female members was 42% for Seeds promoted PCs which was not very different from Dhan/KTL (46%) PC membership but much higher than that in case of ESAP promoted PCs (35%). (Table 6.22). The average age of Dhan/KTL's PC members was the highest (50 years) followed by ESAP PC members (46 years) and Seeds PC members (45 years).

Table 6.22: Promoter and gender wise distribution of PC members

| Promoter | Seeds | | Dhan/KTL | | ESAP | |
|----------|----------------|----------|----------------|----------|----------------|----------|
| | No. of Members | % of all | No. of Members | % of all | No. of Members | % of all |
| Male | 14 | 58.3 | 15 | 46.9 | 17 | 44.7 |
| Female | 10 | 41.7 | 16 | 49.0 | 22 | 55.3 |
| Total | 24 | 100 | 31 | 100 | 39 | 100 |

16% of ESAP PC members were illiterate followed by Dhan/KTL PC members (17%) and Seeds (17%) PC members. Most of the Seeds' PC members were educated up to middle school (44%). This share was 28% and 20 % for ESAP PC members and Dhan/KTL PC members, respectively. The proportion of member farmers having education up to high school was the highest for Dhan/KTL promoted PC (31%) followed by Seeds promoted PC (25%) and ESAP promoted PC (16%). Similar pattern was provided for high school educational level where Dhan/KTL PC members had the highest proportion (31.6%) followed by Seeds PC members (22%) and ESAP PC members (16%). Dhan/KTL promoted PC also had highest share of member farmers qualified up to higher secondary (17%) followed by ESAP promoted PCs members (13%) and Seeds promoted PC members (8%). No member farmer was reported to have completed undergraduate and graduate degrees in the case of Seeds promoted PC while 12 % and 3 % of ESAP PC members had completed undergraduate and post graduate degrees. In the case of Dhan/KTL PC members, 4% had completed undergraduate degree while no member had completed graduate degree (Table 6.23).

Table 6.23: Promoter wise Distribution of PC members by Education

| Promoter | Seeds | | Dhan/KTL | | ESAP | |
|------------------|----------------|----------|----------------|----------|----------------|----------|
| | No. of Members | % of all | No. of Members | % of all | No. of Members | % of all |
| Illiterate | 4 | 16.7 | 5 | 16.1 | 5 | 12.8 |
| Primary | 1 | 4.2 | 3 | 9.7 | 2 | 5.1 |
| Middle | 8 | 33.3 | 7 | 22.6 | 10 | 25.6 |
| High School | 6 | 25.0 | 9 | 29.0 | 4 | 10.3 |
| Higher Secondary | 2 | 8.3 | 5 | 16.1 | 3 | 7.7 |
| University | 0 | 0 | 2 | 6.5 | 4 | 10.3 |
| Graduate | 0 | 0 | 0 | 0 | 1 | 2.6 |
| Total | 24 | 100 | 31 | 100 | 39 | 100 |

Farming was the primary occupation of most of the PC members. 91% of Dhan/KTL PC members had farming as the primary occupation followed by Seeds PC members (88%) and ESAP PC members (74%). Labour was another major primary occupation reported with 9% of Seeds PC members involved in it. This was followed by ESAP promoted PC (8%) and Dhan/KTL promoted PC (6%). Animal husbandry was the primary occupation of 15% ESAP PC members followed by Seeds PC members (6%). None of the Dhan/KTL PC members were reported to be having animal husbandry as primary occupation. (Table 6.24).

Table 6.24: Promoter wise Distribution of PC members by Primary Occupation

| Promoters | Seeds | | Dhan/KTL | | ESAP | |
|------------------|----------------|------------|----------------|------------|----------------|------------|
| | No. of farmers | % of total | No. of farmers | % of total | No. of farmers | % of total |
| Agriculture | 20 | 88% | 27 | 91% | 27 | 74% |
| Animal Husbandry | 1 | 4% | 0 | 0% | 1 | 1% |
| Business | 1 | 4% | 0 | 0% | 0 | 0% |
| Labour | 2 | 8% | 2 | 6% | 2 | 5% |
| Skilled lab | 0 | 0% | 1 | 3% | 0 | 0% |
| Total | 24 | 100 | 28 | 100 | 34 | 100 |

Most of the farmers had no secondary occupation. 40% of ESAP PC members had no secondary occupation. In the case of Dhan/KTL PC members and Seeds PC members, 60% and 38% of member farmers respectively had no secondary occupation. Dhan/KTL PC members had the same proportion of farmers working as labour as a secondary occupation (17%) as in case of Seeds PC members (17%) while it was only 10% in case of ESAP PC members. Animal husbandry had been practiced by 11% of Seeds PC members which was higher than ESAP PC members (16%) and Dhan/KTL PC members (9%). Farming was the secondary occupation for the members of all the three PCs with a share of 15%, 9% and 9% for Seeds, ESAP and Dhan/KTL promoted PC. None of the members of ESAP promoted PC were reported service or skilled labour as their secondary occupation. But, in the case of Seeds and ESAP promoted PCs, it was 9% and 9%, respectively (Table 6.25).

Table 6.25: Distribution of PC members by Promoter and Secondary Occupation

| Promoters | Seeds | | Dhan/KTL | | ESAP | |
|------------------|----------------|------------|----------------|------------|----------------|------------|
| | No. of farmers | % of total | No. of farmers | % of total | No. of farmers | % of total |
| Agriculture | 1 | 4% | 3 | 11% | 3 | 9% |
| Animal husbandry | 1 | 4% | 1 | 4% | 1 | 3% |
| Business | 1 | 4% | 0 | 0% | 0 | 0% |
| Labour | 1 | 4% | 1 | 4% | 1 | 3% |
| Skilled Labour | 2 | 8% | 1 | 4% | 0 | 0% |
| None | 8 | 33% | 21 | 75% | 27 | 78% |
| Total | 24 | 100 | 28 | 100 | 34 | 100 |

Friends, Neighbours, Relatives were a major source of general information. 79 % ESAP PC members had friends, neighbours, relatives as source of information followed by Seeds PC members (75%) and Dhan/KTL PC members (69%). Friends, Neighbours, Relatives, PC was the source of information for 51% Dhan/KTL PC members (highest) followed by ESAP PC members (3%) and Seeds PC members (3%). PC was also a key source of information only in case of Dhan/KTL PC members. Other sources were less important sources of information for member farmers (Table 8.26).

Table 8.26: Distribution of PC members by Promoter and source of general agricultural information

| Promoter, Source of Info | Seeds | | Dhan/KTL | | ESAP | |
|---|----------------|------------|----------------|------------|----------------|------------|
| | No. of Farmers | % of total | No. of Farmers | % of total | No. of Farmers | % of total |
| Friends/ Neighbours/ Relatives | 15 | 75% | 6 | 42% | 27 | 70% |
| PC | 1 | 4% | 4 | 26% | 1 | 3% |
| Newspaper/ Radio | 1 | 4% | 0 | 0 | 4 | 10% |
| Promoter/ Neighbours/ Relatives, PC | 2 | 10% | 3 | 20% | 3 | 8% |
| Friends/ Neighbours/ Relatives, Mobile Groups | 1 | 4% | 1 | 7% | 0 | 0 |
| Friends/ Neighbours/ Relatives, PC, Also | 0 | 0 | 1 | 7% | 1 | 3% |
| Friends/ Neighbours/ Relatives, Radio/TV/Newspaper, PC | 2 | 9% | 1 | 7% | 0 | 0 |
| APD, Extension workers | 0 | 0 | 1 | 7% | 0 | 0 |
| Friends/ Neighbours/ Relatives, Newspaper/ Radio, Mobile Groups, Also | 2 | 9% | 1 | 7% | 0 | 0 |
| Friends/ Neighbours/ Relatives, Radio/TV/Newspaper, PC, APD | 0 | 0 | 0 | 0 | 1 | 3% |
| Other friend | 3 | 15% | 4 | 26% | 1 | 3% |
| Total | 20 | 100% | 14 | 100% | 39 | 100% |

Average land ownership was highest in the case of Seeds PC members (8.75 acres) trailed by Dhan/KTL PC members (8 acres) and ESAP PC members (3 acres). Similarly, the average operational landholding was also highest for Seeds PC members (13 acres) followed by Dhan/KTL PC members (8 acres) and ESAP PC members (3 acres). ESAP PCs were really composed of marginal and landless farmer groups compared with those of other two promoters (Table 8.27). One of the factors to scale up and better performance of the SEEDS PCs could be large size of farmer holdings both owned and operated compared with that of the other two promoters PCs.

Table 6.27: Promoter wise average owned and operated land of PC members

| Promoter | Owned | Operated | EM |
|----------|-------|----------|----|
| ESAF | 1.78 | 1.62 | 23 |
| Seeds | 0.26 | 0.40 | 27 |

The highest number of marginal farmers were reported for ESAF promoted PC (42% of the total) followed by Seeds PC members (41%) and Dhan/KTL PC members (31%). There were no small farmer among Seeds promoted PC members while ESAF promoted and Dhan/KTL promoted PC each had 55% small member farmers having 50% and 36% respectively, of the total owned area member farmers of these PC. Proportion of member farmers falling in the category of semi-marginal land holding was the highest for Dhan/KTL promoted PC (29%) followed by Seeds promoted PC (21%) and ESAF promoted PC (17%) with share of 22%, 17% and 25% respectively, in the owned land. 19% of the Seeds PC members were medium farmers having 46% of the total owned area. It is followed by Dhan/KTL PC members (15%) owning 21% of the owned land. Only 3% of the member farmers of ESAF PC were in the category of medium farmers owning 15% of the total owned land. 8% of the Seeds PC members were large farmers owning 36% of the total owned land. It was followed by Dhan/KTL PC members of whom 6% were large farmers owning 26% of the total land. No member farmer of ESAF PC was in the category of large farmer (Table 6.28).

Table 6.28: Category-wise Distribution of PC members by Promoter and Owned land

| Promoter | Seeds | | | | Dhan/KTL | | | | ESAF | | | |
|----------|----------------|------------|-------------|------------|----------------|------------|-------------|------------|----------------|------------|-------------|------------|
| | No. of Farmers | % of total | Land (Hect) | % of total | No. of Farmers | % of total | Land (Hect) | % of total | No. of Farmers | % of total | Land (Hect) | % of total |
| Marginal | 0 | 0.0 | 0 | 0.0 | 9 | 24.0 | 0.3 | 1.0 | 0 | 0.0 | 0.0 | 0.0 |
| Small | 0 | 0 | 0 | 0 | 6 | 16.0 | 0.2 | 0.7 | 0 | 0.0 | 0 | 0.0 |
| Semi-M | 5 | 12.5 | 0.7 | 14.0 | 4 | 10.0 | 0 | 0.0 | 4 | 10.0 | 0.4 | 1.0 |
| Medium | 7 | 17.5 | 0 | 0.0 | 4 | 10.0 | 0 | 0.0 | 1 | 2.5 | 0 | 0.0 |
| Large | 2 | 5.0 | 0 | 0.0 | 2 | 5.0 | 0 | 0.0 | 0 | 0 | 0 | 0 |
| Total | 14 | 100 | 0.7 | 100 | 10 | 100 | 0.2 | 100 | 14 | 100 | 0.4 | 100 |

ESAF promoted PC (42%) had the largest proportion of marginal farmers followed by Dhan/KTL promoted PC (31%) and Seeds promoted PC (41%) comprising 30%, 2% and 3% respectively of the operational land holding. But, small farmer proportion was the highest for Dhan/KTL promoted PC (29%) followed by ESAF promoted PC (25%) and Seeds promoted PC (12%) covering 34%, 18% and 4% respectively, of the operational land holding. In the case of semi-medium category, Seeds promoted PC (21%) have the highest number of member farmers falling in the category of semi-medium operational land landholding having 11% of the operational landholding. Though the semi-medium farmers made up only 20% of Dhan/KTL PC members both had an operational landholding of 11%. 9% of ESAF PC members were semi-medium farmers occupying 20% of the operational land holding. Seeds PC had highest number of medium farmers (37%) having 38% of the operational land holding. It was

followed by Dhan/KTL PC members (14%) occupying 25% of the operational land holding. Only 3% of ESaF PC members were medium farmers but had a considerable share of 16% in the operational landholding. None of the ESaF PC members was a large farmer, while Seeds-promoted PC had 33% large farmers followed by Dhan/KTL promoted PC (6%). The operational land holding of large member farmers of Seeds promoted PC and Dhan/KTL promoted PC was 48% and 33% of the total (Table 6.28).

Table 6.29: category-wise Distribution of PC members by Promoter and Operational land

| Promoter | Number of Category | Small | | | | Medium | | | | Large | | | |
|--------------|--------------------|----------------|---------------|-----------------|------------|----------------|--------------|-----------------|------------|----------------|--------------|-----------------|------------|
| | | No. of Farmers | % of Total | Land (Hectares) | % of Total | No. of Farmers | % of Total | Land (Hectares) | % of Total | No. of Farmers | % of Total | Land (Hectares) | % of Total |
| Marginal | 5 | 2000 | 8 | 2.02 | 8 | 30.0 | 0.3 | 5.86 | 28 | 80.0 | 23.05 | 20.04 | |
| Small | 3 | 115 | 0 | 3.9 | 10 | 28.07 | 3.45 | 6.3 | 9 | 28.07 | 2.5 | 24 | |
| Semi-M | 5 | 1005 | 10.26 | 10 | 7 | 20 | 4.5 | 24.4 | 3 | 8.02 | 8.5 | 10.07 | |
| Medium | 11 | 3130 | 100 | 35.02 | 5 | 14.29 | 57 | 35.3 | 1 | 2.94 | 0 | 0.02 | |
| Large | 1 | 0.5 | 0.00 | 0.02 | 2 | 5.71 | 5 | 3.20 | 0 | | 0 | | |
| Total | 24 | 100 | 294.25 | 399 | 35 | 100 | 225.2 | 100 | 24 | 100 | 82.45 | 100 | |

31% of the member farmers of Dhan/KTL promoted PC owned cows which was followed by ESaF (30%) and Seeds promoted PC (21%). But the average was highest for ESaF promoted PC (3) followed by Dhan/KTL (3) and Seeds promoted PC (2). 79% of Seeds PC members owned goats followed by Dhan/KTL (29%) and ESaF PC members (21%). The average number of goats were highest for Dhan/KTL promoted PC (8) followed by Seeds promoted PC (7) and ESaF promoted PC (4). Sheep was not owned by member farmers of ESaF promoted PC. However, 4% of Seeds PC members and 3% of Dhan/KTL PC members owned sheep with the average owned population of 4 and 7 respectively (Table 6.30).

Table 6.30: Distribution of PC members by promoter and livestock owned

| Promoter | Number of Farmers | Cows | | | | | Goats | | | | | Sheep | | | | |
|--------------|-------------------|----------------|------------|-------------|----------|----------|----------------|--------------|----------|-------------|----------|----------------|------------|----------|----------|----------|
| | | No. of Farmers | % of Total | Average | Min | Max | No. of Farmers | % of Total | Average | Min | Max | No. of Farmers | % of Total | Average | Min | Max |
| Small | 4 | 100 | 11 | 3.02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Medium | 6 | 3 | 5 | 1.67 | 0 | 0 | 1 | 16.67 | 1 | 1 | 1 | 1 | 16.67 | 0 | 0 | 0 |
| Large | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Semi-M | 5 | 20 | 20 | 4.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Large | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 17 | 100 | 34 | 1.94 | 0 | 0 | 10 | 29.41 | 1 | 5.88 | 1 | 5.88 | 0 | 0 | 0 | 0 |

Seeds were purchased either from a single source or a combination of sources. 45% of the Seeds PC members purchased seeds from dealers followed by ESaF PC members (33%) and Dhan/KTL PC members (22%). PC was identified as another major source for the purchase of seeds. Dhan/KTL PC members (31%) had the highest number of member farmers who were purchasing seeds from PC followed by Seeds PC members (21%). Agriculture department was supplying seeds to approximately 6% of Dhan/KTL PC members and ESaF PC members.

No member was reported to have purchased seeds from dealers and the PC. However, 27% of Seeds PC members and 17% Dhan/KTL PC members were purchasing seeds from Dealers & PC. Only 6% of ESAP PC members were found to have purchased seeds from dealers & agriculture department with members of no other PC were reported to be doing so. The member farmers of ESAP PC had a special feature in which 26% of member farmers did not identify any source for procurement of seeds, perhaps for the reasons that they were landless or not into farming (Table 6.31).

Table 6.31: Distribution of PC members by Promoter and Source of Seeds

| Promoter Promoter Source | Seeds | | Dhan/KTL | | ESAP | |
|--------------------------------|-------------------|----------|-------------------|----------|-------------------|----------|
| | No. of Farmers | % of all | No. of Farmers | % of all | No. of Farmers | % of all |
| Dealers | 0 | 0% | 0 | 22% | 0 | 0% |
| Local Farmers | 1 | 4% | 2 | 5% | 1 | 3% |
| PC | 5 | 20% | 8 | 24% | 1 | 3% |
| INCS | 0 | 0 | 0 | 0 | 2 | 6% |
| Other FOs | 0 | 0 | 1 | 3% | 0 | 0 |
| Agri Dept | 0 | 0 | 2 | 5% | 2 | 6% |
| Dealers, PC | 6 | 24% | 4 | 11% | 0 | 0 |
| Dealers, Local Farmers | 1 | 4% | 2 | 5% | 1 | 3% |
| Dealers, INCS | 0 | 0 | 1 | 3% | 0 | 0 |
| PC, Agri Dept | 0 | 0 | 1 | 3% | 0 | 0 |
| Local Farmers, Agri Dept | 0 | 0 | 0 | 0 | 1 | 3% |
| Local Farmers, PC | 0 | 0 | 0 | 0 | 1 | 3% |
| Dealers, Agri Dept | 0 | 0 | 0 | 0 | 2 | 6% |
| None | 0 | 0 | 1 | 3% | 0 | 0% |
| Total | 26 | 100% | 26 | 100 | 24 | 100 |

Dealers were identified as major source for chemical fertilizers for most of the farmers. The highest dependence was reported by Seeds PC members (34%) followed by ESAP PC members (37%) and Dhan/KTL PC members (31%). PC was another major source for purchasing chemical fertilizers. 29% of Seeds PC members were purchasing chemical fertilizers from PC. 22% and 22.7% of Dhan/KTL PC members and ESAP PC members had purchased chemical fertilizers from PC. Dealers & PC was a major source of chemical fertilizers for 8% Seeds PC members. None of the members of other PC were reported to be purchasing chemical fertilizers from these. Some members didn't identify any source for fertilizer procurement. This category comprises of 27.17% Dhan/KTL PC members, 22% ESAP PC members and 6% Seeds PC members. Key cross noted towards the preference for chemical pesticides were similar to that of chemical fertilizers. 42% Seeds PC members, 41% ESAP PC members and 20% Dhan/KTL members were reported to be purchasing from dealers. Similarly, PC was another major source adopted by 67% Dhan/KTL PC members, 13% Seeds PC members and 6% ESAP PC members. 8% of Seeds PC members purchased from Dealers and PC with no significant purchases made by members of other PC through this channel (Table 6.32).

Table 6.32: Promoter-wise Distribution of PC members by Source of Chemical Inputs

| Type of Agricultural Promoter | Fertilizer | | | | | | Pesticide | | | | | |
|-------------------------------|----------------|-------|----------------|------|----------------|-------|----------------|------|----------------|-------|----------------|-------|
| | In-house | | Market | | DGP | | In-house | | Market | | DGP | |
| | No. of Farmers | % | No. of Farmers | % | No. of Farmers | % | No. of Farmers | % | No. of Farmers | % | No. of Farmers | % |
| Dealer | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 100 | 0 | 0.0 |
| PC, Agr. Exp. | 0 | 0 | 1 | 20.0 | 0 | 0 | 0 | 0 | 1 | 20.0 | 0 | 0.0 |
| PC | 0 | 0 | 0 | 0 | 2 | 50.0 | 0 | 0 | 0 | 0 | 0 | 0.0 |
| PC | 1 | 20.0 | 0 | 0.0 | 1 | 25.0 | 0 | 0.0 | 12 | 60.0 | 2 | 10.0 |
| Dealer, PC | 3 | 60.0 | 1 | 20.0 | 0 | 0 | 1 | 25.0 | 1 | 20.0 | 0 | 0.0 |
| Local farmer | 0 | 0 | 1 | 20.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 |
| Agricult. | 0 | 0 | 0 | 0 | 1 | 25.0 | 0 | 0 | 0 | 0 | 1 | 25.0 |
| None | 2 | 40.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Total | 24 | 100.0 | 20 | 80.0 | 24 | 100.0 | 20 | 80.0 | 20 | 100.0 | 24 | 100.0 |

Biofertilizers and biopesticides were two major bio inputs purchased by member farmers. Most of the farmers were reported to be not purchasing any bio inputs. The range of use-age for bio fertilizers and bio pesticides was 33-55% and 52-57% of the member farmer respectively for different promoter companies. PC emerged out as a key source of procuring bio inputs from where 17% Seeds PC members, 0% Dhan/KTL PC members were purchasing biofertilizers and 17% of Dhan/KTL PC members were purchasing bio pesticides. Approximately, 6% of Dhan/KTL PC members and ESAF PC members were purchasing bio fertilizers. Dealer was also another source of biofertilizers for 0% of Dhan/KTL PC members, 0% of Seeds PC members and 7% of ESAF PC members (Table 6.32).

Table 6.33: Promoter wise Distribution of PC members for source of bio inputs.

| Type of Agricultural Promoter | Fertilizer | | | | | | Pesticide | | | | | |
|-------------------------------|----------------|-----|----------------|-----|----------------|-----|----------------|-----|----------------|-----|----------------|-----|
| | In-house | | Market | | DGP | | In-house | | Market | | DGP | |
| | No. of Farmers | % | No. of Farmers | % | No. of Farmers | % | No. of Farmers | % | No. of Farmers | % | No. of Farmers | % |
| Dealer | 1 | 12 | 2 | 37 | 1 | 25 | 1 | 47 | 0 | 0 | 0 | 0 |
| Local Farmer | 1 | 42 | 2 | 67 | 2 | 50 | 0 | 0 | 0 | 0 | 1 | 25 |
| PC | 2 | 63 | 2 | 57 | 1 | 29 | 0 | 0 | 0 | 0 | 0 | 0 |
| None | 20 | 63 | 20 | 60 | 0 | 0 | 20 | 60 | 20 | 60 | 20 | 60 |
| Total | 24 | 100 | 26 | 100 | 24 | 100 | 24 | 100 | 20 | 100 | 24 | 100 |

The cropping intensity was highest for ESAF PC members (1.45) followed by Dhan/KTL PC members (1.09) and Seeds PC members (1.05).

The number of crops grown by the member farmers in the kharif season was much higher than the rabi and Zaid season. Sorghum was grown in 10% of the kharif area of ESAP PC members. The kharif acreage by Seeds and Dhan KTL PC members was found to be insignificant. Chili was grown by the member farmers of all three PCs. Chili crop had the highest share in the kharif acreage was of Seeds promoted PCs (13%) followed by Dhan KTL promoted PCs (3%) and ESAP promoted PC (3%) with the share of 11%, 3% and 1% in the total area. Onion and Onion was grown by members farmers of Seeds PC covering 10% and 5% of the kharif and total acreage respectively. No other member farmers grow chili and onion. Cotton was grown by ESAP PC members having a share of 13% and 13 % in kharif and total acreage. 14% of the total acreage was under maize crop in case of Seeds PC members followed by Dhan KTL PC members (17%) and ESAP PC members (7%). Safflower was grown by member farmers of Seeds and Dhan KTL promoted PC only on 6% of kharif acreage. Paddy was an important crop for the member farmers of Dhan KTL promoted PCs covering 20% of the kharif acreage and 19% of the total acreage (Table 2.34).

Table 8.15: Promoter wise Rural Cropping Pattern of PC members

| Promoter | Rural | | | | | District | | | | | ERT | | | | | |
|---------------|---------|--------------|--------------------|-----------------|-----------------|----------|--------------|----------------------|-----------------|-----------------|---------|--------------|----------------------|-----------------|-----------------|------|
| | Pattern | Cropped area | Wheat cropped area | % of total area | % of total area | Pattern | Cropped area | Average cropped area | % of total area | % of total area | Pattern | Cropped area | Average cropped area | % of total area | % of total area | |
| Shahid | 1 | 1 | 100 | 2.42 | 0.24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Shahid Khan | 2 | 2 | 100 | 4.02 | 0.33 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Durr | 3 | 3 | 100 | 3.62 | 0.24 | 0 | 0 | 0 | 0 | 0 | 1 | 100 | 100 | 3.31 | 0.73 | |
| Coffee | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 1000 | 1000 | 30.04 | 3.70 | |
| Coffee, Maize | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5.25 | 5.25 | 15.55 | 3.55 | |
| Colombian | 1 | 1 | 100 | 3.55 | 0.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Cotton | 1 | 1 | 100 | 3.72 | 0.47 | 0 | 0 | 0 | 0 | 0 | 1 | 0.75 | 0.75 | 2.41 | 0.05 | |
| Cotton, Wheat | 2 | 2 | 100 | 2.25 | 0.22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Erin | 3 | 3 | 0 | 0 | 0 | 2 | 1 | 0.50 | 0.54 | 0.11 | 1 | 1 | 1 | 1 | 0.73 | 0.73 |
| Erin, Wheat | 1 | 1 | 100 | 3.72 | 0.47 | 1 | 1 | 100 | 0.51 | 0.1 | 1 | 1 | 100 | 100 | 3.01 | 0.73 |
| Janaka | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Musa | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Musa, Erin | 1 | 1 | 100 | 4.02 | 0.33 | 0 | 0 | 0 | 0 | 0 | 2 | 170 | 170 | 11.02 | 2.80 | |
| Dev | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 100 | 100 | 3.31 | 0.73 | |
| Dev, Erin | 1 | 1 | 100 | 3.42 | 0.31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Shah | 1 | 1 | 100 | 3.62 | 0.24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Party | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 4.25 | 0.73 | 1.62 | 4 | 170 | 170 | 11.02 | 0.73 | |
| Wahid | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 4.75 | 0.28 | 1.23 | 0 | 0 | 0 | 0 | 0 | |
| Wahid, Erin | 1 | 1 | 100 | 3.82 | 0.31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total | | 40.36 | | 0.79 | 0.79 | 0 | 16.6 | | 0.28 | 4.28 | 30.36 | | 0.79 | 22.10 | | |

The number of crops grown in rabi season were higher than in summer season. Paddy was a major crop grown by members of Dhan KTL PC members and ESAP PC members. No member farmer of Seeds promoted PC was reported to have grown paddy. Share in the acreage was 35% for Dhan KTL PC members and 21 % for ESAP PC members. Millet had a share of 41% in rabi acreage of Dhan KTL PC members with no members of other PCs were reported to be cultivating it. Coffee was reported to be grown by the member farmers of ESAP promoted PC having an average cropped area of 10 acres occupying 35 % of the rabi acreage. No other PC members were reported to be growing coffee. Chill was grown by member farmers of Seeds promoted PC and ESAP promoted PC covering 7% and 2% of acreage respectively. Coriander was a major crop grown by Seeds PC members covering 25% of the rabi acreage. Groundnut was grown by members of all promoted PCs covering the rabi acreage in the range of 3-10 %. Gram was cultivated by member farmers of Dhan KTL promoted PC and ESAP PC members with a share of 10% and 3% respectively of the rabi acreage. Jasmine and onion were also grown by Seeds PC members covering 5% and 7% of the acreage. (Table 6.25)

Summer acreage of the member farmers was dominated by few crops. Cotton occupied 11.4 % acreage of the summer cropping season. Coffee was grown by ESAP PC members covering 50% of the summer acreage and 9% of the total area. 43 % of summer acreage of Dhan KTL PC members was occupied by each by millets and groundnut & gram. Jasmine was reported to be grown by Seeds PC members occupying 40% of the summer acreage occupying 1% of the total area. Vegetable was another major crop reported to be grown on 27 % of Seeds PC member's summer acreage. (Table 6.26)

Whereas in case of SBED PCs, 2/3 members could specify the name of the PC their were members of it was only 53% and 46% in case of ESAP and Dhan KTL. Further, only 11-17% farmers across three promoters PCs knew that PC belonged to them or farmers with others mentioning PC employees (1-23%), promoting agency (3-23%) and SoD (3-4%) (Tables 6.27 & 6.28). Sadly, the lowest awareness of PC name was in case of NGO Dhan KTL, which is well known NGO in the state. But, in general, the awareness of ownership was very low across all PCs of all promoters.

Table 6.27: Promoter-wise Distribution of PC members by Knowledge of PC Name

| Promoter | SBED | | ESAP/KTL | | NGO | |
|--------------|----------------|----------|----------------|----------|----------------|----------|
| | No. of farmers | % of all | No. of farmers | % of all | No. of farmers | % of all |
| Don't know | 7 | 20.7 | 8 | 20.5 | 14 | 43 |
| Wrong Name | 1 | 4.0 | 1 | 2.66 | 2 | 5.8 |
| Correct Name | 6 | 16.8 | 6 | 15.3 | 6 | 17.54 |
| Total | 24 | 100 | 39 | 100 | 34 | 100 |

Table 6.38: Promoter-wise Distribution of PC members by Knowledge of PC Owner

| Promoter/ PC Owner | Seeds | | Viduthugal | | ESF | |
|-----------------------|-------------------|---------------|-------------------|---------------|-------------------|---------------|
| | No. of Members | % of Total | No. of Members | % of Total | No. of Members | % of Total |
| BOB | 1 | 4.7 | 2 | 5.3 | 2 | 6.8 |
| Don't Know | 10 | 46.2 | 10 | 26.3 | 8 | 24.6 |
| Farmers | 4 | 18.2 | 4 | 10.5 | 5 | 15.4 |
| PC Employees | 7 | 30.7 | 9 | 23.7 | 6 | 18.6 |
| Private Company | 0 | 0.0 | 1 | 2.6 | 0 | 0 |
| Training Agency | 2 | 8.3 | 1 | 2.6 | 0 | 0.0 |
| Total | 24 | 100 | 38 | 100 | 34 | 100 |

6.4 Within Promoter PC Comparison

6.4.1 SEEDS NGO PCs

The share of male and female members was same for both the PCs. 55% of the member farmers were reported to be male while 42% were female member farmers. The average age of the Seeds PC and the Viduthugal PC members was 45 and 46 years respectively. 17% of the member farmers were illiterate for both PCs. 50% Seeds and 42% PC members were educated up to middle level; 35% and 31% member farmers of both PCs were educated up to high school and higher secondary level (Table 6.39).

Table 6.39: Distribution of SEEDS PC members by Education

| PC/ Education | Seeds | | Viduthugal | |
|------------------|-------------------|---------------|-------------------|---------------|
| | No. of Members | % of Total | No. of Members | % of Total |
| Illiterate | 2 | 25.0 | 2 | 16.7 |
| Primary | 0 | 0 | 1 | 8.3 |
| Middle | 6 | 75.0 | 3 | 25.0 |
| High School | 3 | 37.5 | 2 | 16.7 |
| Higher Secondary | 1 | 12.5 | 1 | 8.3 |
| Total | 12 | 100 | 12 | 100 |

55% of Seeds PC members had farming as the primary occupation in comparison to 82% of Viduthugal PC members. 8% of Seeds PC members and 5% of Viduthugal PC members had animal husbandry and business as primary occupation. 17% of Seeds PC members were working as labour in their primary occupation while no member farmer of Seeds PC was reported to be doing so (Table 6.40).

Table 6.40: Distribution of SEEDS PC members by Primary Occupation

| PC | Seeds | | Vinefrugal | |
|------------------|----------------|----------|----------------|----------|
| | No. of farmers | % of all | No. of farmers | % of all |
| Agriculture | 7 | 58.3% | 6 | 50% |
| Animal Husbandry | 1 | 8.3% | 0 | 0% |
| Business | 0 | 0% | 1 | 8.3% |
| Labour | 2 | 16.7% | 0 | 0% |
| Skilled Labour | 0 | 0% | 4 | 33.3% |
| Total | 12 | 100% | 12 | 100% |

17% and 5% of Seeds and Vinefrugal PC members respectively, had farming as secondary occupation while 6% Seeds PC members and 0% Vinefrugal PC members had animal husbandry as secondary occupation. 33% of Seeds PC members were working as labour for their secondary occupation. No member farmer was reported labour as secondary occupation in the case of Vinefrugal PC. The skilled labour was secondary occupation for 17% Vinefrugal PC members which was 8% in the case of Seeds PC members. 67% of member farmers of Vinefrugal PC had no secondary occupation compared with 33% of Seeds PC members (Table 6.41).

Table 6.41: Distribution of SEEDS PC members by Secondary Occupation

| PC | Seeds | | Vinefrugal | |
|------------------|----------------|----------|----------------|----------|
| | No. of farmers | % of all | No. of farmers | % of all |
| Agriculture | 2 | 16.7% | 1 | 8.3% |
| Animal husbandry | 1 | 8.3% | 4 | 33.3% |
| Labour | 4 | 33.3% | 0 | 0% |
| Skilled Labour | 1 | 8.3% | 2 | 16.7% |
| None | 4 | 33.3% | 5 | 41.7% |
| Total | 12 | 100% | 12 | 100% |

Friends/ Neighbours/ Relatives was the major source of agricultural information for most of the PC members for both PCs. 83% and 77% of Vinefrugal and Seeds PC members respectively obtained information about agriculture from Friends/ Neighbours/ Relatives. 1% of Seeds PC members obtained agriculture information through PC and Exco TV Newspaper each. 1% of both Seeds and Vinefrugal PC members obtained information through Friends/ Neighbours/ Relative/ PC. No member farmers of both the PCs obtained information through Friends/ Neighbours/ Relative/ PC, or ADO (Table 6.42).

Table 6.42: Distribution of SEEDS PC members by Source of general agricultural information

| PC | Seeds | | Village | |
|---|----------------|------------|----------------|------------|
| | No. of farmers | % of total | No. of farmers | % of total |
| Friends/ Neighbours/ Relatives | 9 | 75% | 10 | 83% |
| PC | 1 | 8% | 3 | 25% |
| Friends/ Neighbours/ Relatives, PC | 1 | 8% | 1 | 8% |
| Friends/ Neighbours/ Relatives, AIO | 0 | 0 | 1 | 8% |
| Friends/ Neighbours/ Relatives, PC, AIO | 0 | 0 | 0 | 0 |
| Radio/TV/Newspaper | 1 | 8% | 0 | 0 |
| Total | 12 | 100 | 14 | 100 |

The average owned and operational land for Seeds PC members was 4 acres and 3 acres respectively. In the case of Village PC, the average owned land operational land was 16 acres and 20 acres, respectively (Table 6.43).

Table 6.43: Average owned and operated land of SEEDS PC members

| PC | Seeds | Village |
|----------------------|-------|---------|
| Average land (acres) | | |
| Owned | 4.8 | 16.6 |
| Operational | 3.2 | 20.1 |

The proportion of marginal farmers was higher (33%) for Seeds PC than that in case of Village PC (25%) owning 19% and 15% of the total land respectively. There was no small farmer as a member in both the PCs. 33% Seeds PC members were semi-medium having 49% of the owned land while 8% of Village PC members were semi-medium owning 5% of the land. 35 Seeds PC members were medium farmers owning 32% of the total land while in case of Village PC, 30% of member farmers were medium and owned 46% of the total land. No member farmer of Seeds PC fell in the category of large farmers. In case of Village PC, 17% of the members were large farmers who owned 49% of the total land (Table 6.44).

Table 6.44: Category-wise Distribution of SEED PC members by owned land

| PC | Member Category | Seeds | | | | Village | | | |
|-------|-----------------|----------------|------------|---------------|------------|----------------|------------|---------------|------------|
| | | No. of Members | % of total | Total (Acres) | % of total | No. of Members | % of total | Total (Acres) | % of total |
| Seeds | Marginal | 2 | 16.7% | 8 | 16.7% | 2 | 25.0% | 1 | 6.3% |
| | Small | 0 | 0 | 0 | 0 | 0 | 0.0% | 0 | 0 |
| | Semi-M | 4 | 33.3% | 22.5 | 45.8% | 1 | 12.5% | 4 | 28.6% |
| | Medium | 1 | 8.3% | 5 | 10.4% | 4 | 50.0% | 7 | 50.0% |
| | Large | 0 | 0 | 0 | 0 | 2 | 25.0% | 10 | 71.4% |
| Total | 6 | 100 | 36.0 | 100 | 8 | 100 | 14 | 100 | |

42% of Seeds PC members were reported to be marginal farmers having a share of 14% of the total operational land. No member farmers falling in the category of marginal farmer were reported for Vairathugal PC members. Small farmers were 17% of the Seeds PC members having a share of 11% of the operational land. But in case of Vairathugal PC, 5 % of the member farmers had a share of only 2% of the operational land. Proportion of semi-medium farmers was higher in case of Seeds PC (39%) than that of Vairathugal PC (3%). The share of operational land was also higher for Seeds PC (77%) than Vairathugal PC (7%). But the %age of medium farmers was higher for Vairathugal PC (56%) than that of Seeds PC (3%). The operational land was also higher for Vairathugal PC (38%) in comparison with Seeds PC (24%). Seeds PCs had no large farmer as member while 25% farmer member was large in case of Vairathugal PC who had 57% of the operational land (Table 6.45).

Table 6.45: category-wise Distribution of SEED PC members by operated land

| PC | Parameter Category | Seeds | | | | Vairathugal | | | |
|----|--------------------|----------------|------------|--------------|------------|----------------|------------|--------------|------------|
| | | No. of Farmers | % of total | Land (Acres) | % of total | No. of Farmers | % of total | Land (Acres) | % of total |
| | Marginal | 5 | 4.62 | 5 | 100 | 0 | 0 | 0 | 0 |
| | Small | 2 | 1.82 | 7 | 12.13 | 1 | 8.33 | 4 | 1.82 |
| | Semi-M | 4 | 3.64 | 2625 | 404 | 3 | 25 | 65 | 2.74 |
| | Medium | 1 | 0.91 | 6 | 20.42 | 7 | 58.33 | 9 | 38.64 |
| | Large | 0 | 0 | 0 | 0 | 1 | 8.33 | 56 | 22.74 |
| | Total | 12 | 100 | 1475 | 100 | 12 | 100 | 233 | 100 |

88% of the member farmers of Seeds PC owned goats while 17% owned cows. The average number of goats, cows and sheep owned were 5, 2 and 4 for Seeds PC members. In case of Vairathugal PC, 79% of the member farmers owned goats followed by cows (27%) and oxen (6%). The population of goats, cows and oxen was 88%, 10% and 2% of the total animal population. The average population of livestock owned by Vairathugal PC members was 9 goats, 3 cows and 2 oxen per household (Table 6.46).

Table 6.46: Distribution of SEED PC members by livestock owned

| PC | Animals Type/Animal | Seeds | | | | | Vairathugal | | | | |
|----|---------------------|----------------|------------|----------------|------------|---------|----------------|------------|----------------|------------|---------|
| | | No. of Farmers | % of total | No. of Animals | % of total | Average | No. of Farmers | % of total | No. of Animals | % of total | Average |
| | Cow | 2 | 16.67 | 2 | 5.26 | 12 | 20 | 6.9 | 33222 | 33222 | |
| | Oxen | 0 | 0 | 0 | 0 | 0 | 1 | 206 | 2 | 2 | |
| | Goat | 10 | 83.33 | 52 | 84.74 | 52 | 90 | 34444 | 34444 | | |
| | Sheep | 1 | 8.33 | 4 | 6.78 | 4 | 6 | 0 | 0 | 0 | |
| | Total | 12 | 100 | 58 | 100 | 12 | 100 | 37 | 100 | | |

The awareness of the PC name was almost similar for both the PCs. 35% of Seeds PC members and 25% of Vizuthugal PC members didn't know the name of PC. 5% of the member farmers of both the PCs gave wrong name when asked about the name of PC. Member farmers who gave the correct name of PC were reported to be 58% and 67% for Seeds and Vizuthugal PC members, respectively (Table 6.47).

Table 6.47: Distribution of SEEDS PC members by Knowledge of PC Name

| PC | Seeds | | Vizuthugal | |
|--------------|----------------|----------|----------------|----------|
| | No. of farmers | % of all | No. of farmers | % of all |
| Don't know | 4 | 35.3 | 3 | 25.0 |
| Wrong Name | 1 | 8.3 | 1 | 8.3 |
| Correct Name | 7 | 56.8 | 6 | 50.0 |
| Total | 12 | 100 | 12 | 100 |

25% Seeds PC members and 33% Vizuthugal PC members didn't have any knowledge of owner's name of the PC. 33% of Seeds PC members and 25% of Vizuthugal PC members reported PC employees as PC owner while 25% Seeds PC members and 8% Vizuthugal PC members reported farmers as PC owner. 1% of both Seeds and Vizuthugal PC members named promoting agency as the PC owner (Table 6.48).

Table 6.48: Distribution of Seeds PC members by Knowledge of PC Owner

| PC | Seeds | | Vizuthugal | |
|------------------|----------------|----------|----------------|----------|
| | No. of farmers | % of all | No. of farmers | % of all |
| NO | 1 | 8.3 | 6 | 50 |
| Don't Know | 3 | 25.0 | 7 | 58.3 |
| Farmers | 3 | 25.0 | 1 | 8.3 |
| PC Employees | 4 | 33.3 | 3 | 25.0 |
| Promoting Agency | 1 | 8.3 | 1 | 8.3 |
| Total | 12 | 100 | 12 | 100 |

Dealers emerged as an important source for procuring the seeds. 67% of Vizuthugal PC members procured from dealers while in the case of Seeds PC, this share was reported to be 25% of the member farmers. PC was a source of seed purchase for 33% Seeds PC members and 8% Vizuthugal PC members. Dealers & PC was a major source of seeds for Seeds PC members (42%) while it was 6% for Vizuthugal PC members. 8% of the Vizuthugal PC members purchased seeds from local farmers and dealers & local farms (Table E. 4).

Table 6.49: Distribution of SEED PC members by source of seed

| PC Member Source | Seeds | | Vinefruit | |
|------------------------|----------------|----------|----------------|----------|
| | No. of farmers | % of all | No. of farmers | % of all |
| Dealers | 3 | 25.00 | 8 | 66.7 |
| Local Farmers | 0 | 0 | 1 | 8.3 |
| PC | 4 | 33.3 | 1 | 8.3 |
| Dealers, PC | 5 | 41.7 | 1 | 8.3 |
| Dealers, Local Farmers | 0 | 0 | 1 | 8.3 |
| Total | 12 | 100.00 | 12 | 100.00 |

In case of chemical inputs, the usage of the inputs was much higher than bio-inputs. 5 % of the member farmers for both the Seeds and Vinefruit PC were not purchasing both chemical fertilizers and pesticides from the PCs. 33% and 25 % of Vinefruit and Seeds PC members were reported to be purchasing chemical fertilizers from dealers. No member farmer was purchasing any chemical inputs from PC and agriculture department. 38% of the Seeds PC members were sourcing chemical fertilizers from PC while no member farmers purchased chemical fertilizers from PC. For pesticides, 50% and 33% of Vinefruit and Seeds PC members respectively, were buying chemical pesticides from dealers. While 17% and 8% of Seeds and Vinefruit PC members were purchasing chemical inputs from PC. 8% of member farmers for both the PCs were purchasing chemical pesticides from dealers & PC (Table 6.50).

Table 6.50: Distribution of SEED PC members by source of chemical inputs

| Type of input (chemical) | Fertilizers | | | | Pesticides | | | |
|-----------------------------|----------------|----------|----------------|----------|----------------|----------|----------------|----------|
| | Seeds | | Vinefruit | | Seeds | | Vinefruit | |
| | No. of farmers | % of all | No. of farmers | % of all | No. of farmers | % of all | No. of farmers | % of all |
| Dealers | 1 | 25.00 | 0 | 0.00 | 4 | 33.3 | 6 | 50.00 |
| PC | 7 | 50.00 | 0 | 0.00 | 2 | 16.7 | 1 | 8.3 |
| Dealers, PC | 1 | 8.3 | 1 | 8.3 | 1 | 8.3 | 1 | 8.3 |
| None | 1 | 8.3 | 1 | 8.3 | 1 | 8.3 | 4 | 33.3 |

No member farmer of Vinefruit PC was purchasing any bio-inputs. However, 67% and 33 % of Seeds PC members were not purchasing bio-fertilizers and bio-pesticides, respectively. 8% of Seeds PC members were purchasing bio-fertilizers from dealers and local farmers each while 17 % purchased bio-fertilizers from PC. In the case of bio-pesticides, 8% of the Seeds PC members were purchasing bio-inputs from dealers (Table 6.51).

Table 6.51: Distribution of SEED PC members by source of the inputs

| Type of the inputs | Seeds | | | | Vizuthugal | | | |
|--------------------|----------------|------------|----------------|------------|----------------|------------|----------------|------------|
| | Seeds | | Vizuthugal | | Seeds | | Vizuthugal | |
| | No. of members | % of total | No. of members | % of total | No. of members | % of total | No. of members | % of total |
| Dealers | 1 | 8.33 | 0 | 0 | 1 | 8.33 | 0 | 0 |
| Local farmer | 1 | 8.33 | 0 | 0 | 0 | 0 | 0 | 0 |
| PC | 2 | 16.67 | 0 | 0 | 2 | 16.67 | 0 | 0 |
| Home | 8 | 66.67 | 12 | 100.00 | 8 | 66.67 | 12 | 100.00 |
| Total | 12 | 100 | 12 | 100.00 | 12 | 100.00 | 12 | 100.00 |

Crudging intensity was reported to be higher for Seeds PC members (1.40) than Vizuthugal PC members (1.00).

58% of Seeds PC members were able to provide the correct name of the PC which was higher in the case of Vizuthugal PC (67%). 37% of member farmers for both the PCs didn't have any knowledge about the name of PC. 8% of Seeds PC members provided wrong name of the PC while no member farmer reported wrong name in case of Vizuthugal PC (Table 6.52).

Table 6.52: Distribution of SEEDS members by knowledge of PC Name

| PC Knowledge | Seeds | | Vizuthugal | |
|--------------|----------------|------------|----------------|------------|
| | No. of members | % of total | No. of members | % of total |
| Correct Name | 7 | 58.33 | 8 | 66.67 |
| Don't Know | 4 | 33.33 | 4 | 33.33 |
| Wrong Name | 1 | 8.33 | 0 | 0 |
| Total | 12 | 100 | 12 | 100 |

33% and 58% of Seeds and Vizuthugal PC members didn't have any knowledge about the name of the PC owner. 43% of the member farmers gave the name of PC employees followed by farmers (25%), BOD (5%) and promoting agency (5%) as the owners of the PC. In case of Vizuthugal PC, 25% of the member farmers provided the name of PC employees followed by farmer (5%) and BOD (5%) when asked about the PC owner (Table 6.53).

Table 6.53: Distribution of SEEDS members by knowledge of PC Owner

| PC Knowledge | Seeds | | Vizuthugal | |
|------------------|----------------|------------|----------------|------------|
| | No. of members | % of total | No. of members | % of total |
| Farmers | 3 | 25.00 | 1 | 8.33 |
| BOD | 1 | 8.33 | 0 | 0 |
| Promoting Agency | 1 | 8.33 | 1 | 8.33 |
| PC Employee | 5 | 41.67 | 5 | 41.67 |
| Don't Know | 2 | 16.67 | 5 | 41.67 |
| Total | 12 | 100 | 12 | 100 |

Table 3.54: Kharif Cropping Pattern of SEEDS FC members

| FC | Seeds | | | | | Harvest | | | | |
|-------------------------|-------|---------|--------------|-----------|-----------|---------|---------|-----------|-----------|-----------|
| | Times | Crop/ha | Avg. crop/ha | % to base | to base % | Times | to base | to base % | to base % | to base % |
| Bambara | 1 | 1 | 1 | 100 | 100 | 0 | 0 | 0 | 0 | 0 |
| Chick | 0 | 0 | 0 | 0 | 0 | 6 | 38 | 330 | 628 | 74.0 |
| Chick, Green | 0 | 0 | 0 | 0 | 0 | 7 | 22 | 330 | 624 | 63 |
| Convolvul | 0 | 0 | 0 | 0 | 0 | 4 | 9 | 225 | 336 | 45 |
| Convolvul, Maize | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 480 | 334 | 3.6 |
| Cotton | 2 | 6 | 300 | 60 | 35 | 3 | 45 | 225 | 287 | 33 |
| Cotton, Green | 1 | 2 | 200 | 40 | 25 | 0 | 0 | 0 | 0 | 0 |
| Cotton, Groundnut, Gram | 1 | 3 | 300 | 60 | 38 | 0 | 0 | 0 | 0 | 0 |
| Cotton, Maize, Gram | 1 | 6.5 | 6.5 | 13 | 8 | 0 | 0 | 0 | 0 | 0 |
| Gram | 5 | 10 | 200 | 40 | 24 | 3 | 35 | 225 | 336 | 4.8 |
| Legume | 2 | 325 | 160 | 32 | 40 | | | | | |
| Pigeon | 1 | 100 | 100 | 20 | 10 | | | | | |
| Maize | 1 | 3 | 300 | 60 | 38 | 7 | 40 | 0 | 712 | 83 |
| Maize, Green | 3 | 7 | 233 | 46 | 48 | 0 | 0 | 0 | 0 | 0 |
| Maize, sorghum | 1 | 1 | 100 | 20 | 10 | 0 | 0 | 0 | 0 | 0 |
| Mung | 1 | 1 | 100 | 20 | 10 | 0 | 0 | 0 | 0 | 0 |
| Mung, Green | 1 | 2 | 200 | 40 | 25 | 0 | 0 | 0 | 0 | 0 |
| Millet | 0 | 0 | 0 | 0 | 0 | 3 | 18 | 57 | 439 | 50 |
| Onion | 0 | 0 | 0 | 0 | 0 | 3 | 15 | 27 | 630 | 72 |
| Onion, Maize | 0 | 0 | 0 | 0 | 0 | 2 | 12 | 47 | 332 | 38 |
| Paddy | 1 | 2.5 | 2.5 | 50 | 25 | 0 | 0 | 0 | 0 | 0 |
| Red Lent, Rice | 1 | 100 | 100 | 20 | 10 | 0 | 0 | 0 | 0 | 0 |
| Sorghum, Gram | 1 | 2 | 2 | 40 | 20 | 0 | 0 | 0 | 0 | 0 |
| Sorghum | 0 | 0 | 0 | 0 | 0 | 4 | 20 | 64 | 362 | 42 |
| Sunflower | 0 | 0 | 0 | 0 | 0 | 2 | 10 | 70 | 330 | 37 |
| Total | | 54.85 | | | 69.3 | | 275 | | 620 | 71.2 |

Gram was the most important crop grown by Seeds PC members occupying 13% of the kharif area followed by maize & gram (14%), cotton, maize & gram (13%), jowar (5%), maize (6%), cotton, groundnut & gram (5%) and paddy (5%). In case of Vairathugal PC members, 15% of the kharif area was occupied by maize occupying 10% of the GCA. Chilli was grown on 15% of the kharif area followed by chilli & onion (12%), sorghum (10%) and gram (10%). Other major crops grown by the member farmers of Vairathugal PC members were onion (7%), onion & maize (6%), coriander (5%) and millet (5%) (Table 6.54).

Rabi acreage was dominated by fewer crops as compared to kharif season. 53% of the rabi area was occupied by cotton & gram which was 14% of the total area. Jowar was the second most important crop in the case of Seeds PC occupying 15% of the rabi area which was 4% of the total area. Maize and gram and groundnut occupied 9% and 7% respectively, of the rabi area. In case of Vairathugal PC, Coriander was the most important crop and occupied 33% of the rabi area followed by chilli and onion both occupying 14% of the rabi area. Cotton and gram each occupied 8% of the rabi area and 1% of the total area (Table 6.55).

Table 6.55: Rabi Cropping Pattern of SEEDS PC members

| PC | Seeds | | | | | Vairathugal | | | | |
|--------------|--------|--------------|-----------------|--------------|--------------|-------------|--------------|-----------------|--------------|--------------|
| | Number | Cropped Area | By Cropped Area | % Total Area | % Total Area | Number | Cropped Area | By Cropped Area | % Total Area | % Total Area |
| Banana | 1 | 1 | 1 | 45 | 45 | 0 | 0 | 0 | 0 | 0 |
| Chilli | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 3 | 14 | 15 |
| Coriander | 0 | 0 | 0 | 0 | 0 | 1 | 30 | 30 | 33 | 33 |
| Cotton | 0 | 0 | 0 | 0 | 0 | 1 | 15 | 15 | 28 | 33 |
| Cotton, Gram | 2 | 115 | 5.75 | 53.8 | 44.0 | 0 | 0 | 0 | 0 | 0 |
| Gram | 0 | 0 | 0 | 0 | 0 | 1 | 15 | 15 | 28 | 33 |
| Groundnut | 1 | 15 | 15 | 6.9 | 16.9 | 0 | 0 | 0 | 0 | 0 |
| Jowar | 2 | 3.25 | 16 | 6.9 | 48.6 | 0 | 0 | 0 | 0 | 0 |
| Maize, Gram | 1 | 2 | 7 | 3.3 | 21.0 | 1 | 0 | 0 | 0 | 0 |
| Mung | 1 | 15 | 15 | 7.3 | 33.0 | 1 | 0 | 0 | 0 | 0 |
| Onn, Brinjal | 1 | 1 | 1 | 4.5 | 13.5 | 0 | 0 | 0 | 0 | 0 |
| Onion | 4 | 0 | 0 | 0 | 0 | 1 | 3 | 3 | 14 | 15 |
| Red Taro | 1 | 15 | 15 | 7.3 | 33.0 | 0 | 0 | 0 | 0 | 0 |
| Xava | 1 | 15 | 15 | 7.3 | 33.0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | | 21.35 | | | 70 | | 49 | | | 149 |

Some crops cultivated by the member farmers of PCs were: banana, jowar, vegetables, red taro, okra, and brinjal. The largest share of rabi area was occupied by jowar (54%) followed by banana (27%), okra and brinjal (17%) and red taro and Xava (13%). In just 6 acres which was just 7% of GCA in case of Seeds PC members. In case of Vairathugal PC members, vegetables were the only crop grown by the member farmers in this area which was one percent of the GCA.

6.4.2 DHAN/KTL PCS

The Illupur PC had the highest %age of males among members as compared to all other PCs promoted by Dhan KTL. It was followed by Theotukudi PC (55%) and Kotampatti PC (54%). The largest proportion of female members was in Kotampatti PC (46%), closely followed by Theotukudi PC (45%) and the Illupur PC had the lowest share of female members in total (27%) (Table 6.56).

Table 6.56: Distribution of Dhan/ KTL PC Members by Gender

| PC | Illupur | | Theotukudi | | Kotampatti | |
|--------|----------------|----------|----------------|----------|----------------|----------|
| | No. of Members | % of all | No. of Members | % of all | No. of Members | % of all |
| Male | 4 | 71.43 | 7 | 51.85 | 6 | 54.5 |
| Female | 1 | 17.86 | 6 | 45.38 | 5 | 45.5 |
| Total | 5 | 100 | 13 | 100 | 11 | 100 |

Average age of member farmers was the highest in the case of Theotukudi PC members (57 years) followed by Illupur PC members (55 years) and Kotampatti PC members (49 years).

A large proportion of Kotampatti PC members were illiterate (82%) while in the case of Illupur PC members, only 9% PC members were illiterate. No member farmer of Theotukudi PC was illiterate. 9% of both Illupur and Theotukudi PC members were educated up to primary level followed by Kotampatti PC whose 8% members were educated up to primary level. The PC with the largest number of member farmers educated up to middle level was Theotukudi PC (48%) followed by Kotampatti PC (15%) and it was nil in case of Illupur PC. The highest proportion of member farmers of Illupur PC were educated up to high school (82%) followed by Kotampatti PC (31%) and Theotukudi PC (18%). No member farmer was educated up to higher secondary level in the case of Kotampatti PC while in the case of Illupur and Theotukudi PCs this share was 38% and 18% respectively. The graduate member farmers were 9% of total for Theotukudi PC followed by Kotampatti PC (5%). And none of the Illupur PC members was educated up to graduation level (Table 6.57).

Table 6.57: Distribution of Dhan/ KTL members by Education

| PC | Illupur | | Theotukudi | | Kotampatti | |
|------------------|----------------|----------|----------------|----------|----------------|----------|
| | No. of Members | % of all | No. of Members | % of all | No. of Members | % of all |
| Illiterate | 1 | 20 | 5 | 38.46 | 0 | 0 |
| Primary | 1 | 20 | 1 | 7.69 | 1 | 9.09 |
| Middle | 0 | 0 | 7 | 53.85 | 5 | 45.45 |
| High School | 4 | 80 | 4 | 30.77 | 3 | 27.27 |
| Higher Secondary | 0 | 0 | 0 | 0 | 2 | 18.18 |
| Illiterate | 0 | 0 | 1 | 7.69 | 1 | 9.09 |
| Total | 5 | 100 | 13 | 100 | 11 | 100 |

All the member farmers of Ilupur PC had farming as the primary occupation. Thoothukudi PC falls second after it with 91% of member farmers engaged in agriculture followed by Kotampatti PC members (86%), 15% of Kotampatti PC members and 9% of Thoothukudi PC members were working as labour and skilled labour respectively, as a part of their primary occupation. No member farmer of any PC promoted by Dhan KTL had animal husbandry and business as primary occupation.

Most of the member farmers of PCs promoted by Dhan KTL did not have any secondary occupation. 82% of the Thoothukudi PC members did not have any secondary occupation which was highest among all the PCs. It was followed by Ilupur PC members (55%) and Kotampatti PC members (46%). Farming was the secondary occupation for 9% and 8% of Thoothukudi PC members and Kotampatti PC members, respectively while animal husbandry was the secondary occupation for 13% and 5% of Ilupur and Kotampatti PC members respectively. 31% of Kotampatti PC members were working as labour as a part of their secondary occupation followed by Ilupur PC (18%). Skilled labour was another major secondary occupation reported from these PCs with 9% of member farmers of both Ilupur and Thoothukudi PC and 5% of Kotampatti PC members farmers were working as skilled labour (Table 8.5B).

Table 8.5B: Distribution of Dhan KTL members by Secondary Occupation

| PCs Farmers (Primary Occupation) | Ilupur | | Kotampatti | | Thoothukudi | |
|--|----------------|-----|----------------|-----|----------------|-----|
| | No. of members | % | No. of members | % | No. of members | % |
| Farming | 0 | 0 | 1 | 20 | 1 | 10 |
| Animal husbandry | 2 | 44 | 1 | 20 | 0 | 0 |
| Labour | 2 | 44 | 4 | 80 | 0 | 0 |
| Skilled labour | 1 | 20 | 1 | 20 | 1 | 10 |
| None | 6 | 100 | 6 | 60 | 9 | 90 |
| Total | 9 | 100 | 13 | 100 | 9 | 100 |

Friends/ Neighbours/ Relatives was most crucial source of information for Kotampatti PC members (62%) followed by Thoothukudi PC members (54%) and Ilupur PC members (37%). Friends/ Neighbours/ Relatives PC was reported to be another major source of agriculture information from where 34% Thoothukudi PC members, 31% Kotampatti PC members and 27% Ilupur PC members obtained general information. Friends/ Neighbours/ Relatives, ADD was source of information only for 9% Thoothukudi PC members while Friends/ Neighbours/ Relatives, PC, ADD was source of information for 9% of both Ilupur and Thoothukudi PC members. 9% of Ilupur PC members had Friends/ Neighbours/ Relatives, Radio/TV/ Newspaper, PC as source of general information with no member farmer of any other firm using it as an information source. 8% of the member farmers of Kotampatti PC had ADD, Extension workers as a source of general information (Data 8.5B).

Table 6.59: Distribution of Dhan/ KTL members by source of general agricultural information

| PC | Ilupur | | Kotampatti | | Thochikudi | |
|---|----------------|-------------|----------------|-------------|----------------|-------------|
| | No. of members | % of all | No. of members | % of all | No. of members | % of all |
| Friends/ Neighbours/ Relatives | 3 | 30% | 8 | 64% | 4 | 33% |
| PC | 3 | 30% | 0 | 0% | 1 | 33% |
| Friends/ Neighbours/ Relatives, PC | 3 | 28% | 4 | 30% | 4 | 33% |
| Friends/ Neighbours/ Relatives, AGO | 0 | 0% | 0 | 0% | 1 | 33% |
| Friends/ Neighbours/ Relatives, PC, AGO | 1 | 30% | 0 | 0% | 1 | 33% |
| Friends/ Neighbours/ Relatives, Radio/TV/ Newspaper, PC | 1 | 30% | 0 | 0% | 0 | 0% |
| AGO Extension workers | 0 | 0% | 1 | 33% | 0 | 0% |
| Total | 8 | 100% | 12 | 100% | 8 | 100% |

The average owned land was the highest in the case of Thochikudi PC members (2.3 acres) followed by Kotampatti PC members (1.41 acres) and Ilupur PC members (1.4 acres). Similarly, the operated land holding was also highest for Thochikudi PC members (2.5 acres) followed by Kotampatti PC members (1.3 acres) and Ilupur PC members (1.4 acres) (Table 6.60).

Table 6.60: Average owned and operated land of Dhan/ KTL PC members

| PC | Ilupur | Kotampatti | Thochikudi |
|-----------------------------|--------|------------|------------|
| Average Land (Acres) | | | |
| Owned | 1.4 | 1.41 | 2.3 |
| Operational | 1.4 | 1.3 | 2.5 |

The percentage of marginal farmer category members was the highest for Kotampatti PC (62%) followed by Ilupur PC (27%). In case of small farmer category, the highest share was for Ilupur PC members (24%) followed by Kotampatti PC members (41%) and Thochikudi PC members (14%). In terms of land ownership too, the maximum land ownership was of small farmers (33%) followed by Kotampatti PC members (25%) and Thochikudi PC members (27%). There was no semi-medium member farmer in the case of Kotampatti PC members. 34% of each Ilupur and Thochikudi PC members were semi-medium farmers owning 34% and 34% of the total owned land. On the other hand, there were no medium category farmers in case of Ilupur and Kotampatti PCs while 34% of Thochikudi PC members were medium farmers owning 45% of the total area. Large farmers did not figure among the members of Ilupur PC while 8% of Kotampatti PC members and 7% of Thochikudi PC members were large farmers owning 21% and 25% of the land, respectively (Table 6.61).

Table 6.61: Category-wise Distribution of Dhan/KTL members by Owned land Holding

| PC | Rural | | | | Semi-Urban | | | | Urban | | | |
|----------|----------------|------------|-------------------|------------|----------------|------------|-------------------|------------|----------------|------------|-------------------|------------|
| | No. of Members | % of Total | Land Holding (Ha) | % of Total | No. of Members | % of Total | Land Holding (Ha) | % of Total | No. of Members | % of Total | Land Holding (Ha) | % of Total |
| Marginal | 3 | 22.7 | 45 | 10.5 | 8 | 33.3 | 6.8 | 1.6 | 9 | 11 | 6 | 9 |
| Small | 4 | 28.6 | 14 | 32.9 | 4 | 33.7 | 15.5 | 3.9 | 2 | 25 | 7 | 21 |
| Semi-M | 4 | 28.6 | 24 | 56.9 | 0 | 0 | 0 | 0 | 4 | 50 | 23 | 72.6 |
| Medium | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 50 | 44 | 100 |
| Large | 0 | 0 | 0 | 0 | 1 | 33.3 | 50 | 71.7 | 1 | 12.5 | 25 | 72.8 |
| Total | 11 | 100 | 42.5 | 100 | 13 | 100 | 72.3 | 88 | 17 | 100 | 99 | 100 |

In terms of operated landholding, 47% Kottampatti PC members and 27% Ilupur PC members were marginal farmers having 10% and 12% of the operational landholding. Member farmers falling in the category of small farmers were present in case of all the PCs. Ilupur PC (43%) had the highest percentage of the small farmers followed by Kottampatti PC (40%) and Thoothukudi PC (9%) with the share of 30%, 31% and 9% respectively, in operational land holding. 36% and 27% of the Thoothukudi and Ilupur PC members were semi-medium farmers. No medium farmer was reported in the case of Ilupur and Kottampatti PC members. 43% of Thoothukudi PC members were medium farmers having an operational landholding of 52%. 3% Thoothukudi PC members and 9% Kottampatti PC members were large farmers having a share of 22% and 71% of the operational landholding (Table 6.62).

Table 6.62: Category-wise Distribution of Dhan/KTL PC members by Operational land holding

| PC | Rural | | | | Semi-Urban | | | | Urban | | | |
|----------|----------------|------------|-------------------|------------|----------------|------------|-------------------|------------|----------------|------------|-------------------|------------|
| | No. of Members | % of Total | Land Holding (Ha) | % of Total | No. of Members | % of Total | Land Holding (Ha) | % of Total | No. of Members | % of Total | Land Holding (Ha) | % of Total |
| Marginal | 3 | 22.7 | 55 | 12.8 | 8 | 62.3 | 8.8 | 1.6 | 9 | 4 | 4 | 6 |
| Small | 5 | 45.4 | 18 | 42.4 | 4 | 30.7 | 15.5 | 3.2 | 1 | 6.2 | 3 | 7.7 |
| Semi-M | 3 | 22.7 | 7 | 16.3 | 0 | 0 | 0 | 0 | 4 | 25 | 23 | 56.8 |
| Medium | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6.2 | 2 | 5.6 |
| Large | 0 | 0 | 0 | 0 | 1 | 7.7 | 11 | 25.5 | 1 | 6.2 | 25 | 62.8 |
| Total | 11 | 100 | 44.5 | 100 | 13 | 100 | 75.3 | 88 | 17 | 100 | 103.5 | 100 |

Goat was the most important livestock owned by member farmers of Dhan/KTL promoted PCs. 36% of Ilupur PC members owned goats which was the highest followed by Thoothukudi PC members (18%) and Kottampatti PC members (15%). But the average number of goats per member farmer was highest in case of Ilupur PC (13) followed by Thoothukudi PC (11) and Kottampatti PC (2). 18% of Ilupur PC members owned sheep while in case of Kottampatti PC members 8% of the member farmers owned sheep. Similarly, oxen were owned by 5% Ilupur

PC members followed by Kotampatti PC members in which 3% member farmers owned ones. No member farmer of Theotukudi PC was reported to have owned sheep and goat. Also, no member farmer of Ilupur and Kotampatti PC owned cows. 9% of Theotukudi PC members owned cows with the average population of 2 per member farmer (Table 6.57).

Table 6.53: Distribution of Cham/ XTL members by livestock owned

| Livestock | Theotukudi PC | | | | | Ilupur PC | | | | | Kotampatti PC | | | | |
|-----------|----------------|-----|--------------|-----|-----|----------------|-----|--------------|-----|-----|----------------|-----|--------------|-----|-----|
| | No. of members | % | No. of farms | % | avg | No. of members | % | No. of farms | % | avg | No. of members | % | No. of farms | % | avg |
| Cow | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 100 | 2 | 100 | 2 |
| Sheep | 1 | 100 | 1 | 100 | 1 | 1 | 100 | 1 | 100 | 1 | 0 | 0 | 0 | 0 | 0 |
| Goat | 4 | 100 | 4 | 100 | 0 | 2 | 100 | 2 | 100 | 15 | 1 | 100 | 10 | 100 | 4 |
| Buff | 7 | 100 | 20 | 100 | 0 | 1 | 100 | 1 | 100 | 1 | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 00 | 75 | 100 | | 0 | 0 | 5 | | | 0 | 0 | 20 | | |

55% of Theotukudi PC members procured seeds from PC followed by Ilupur PC members (36%) and Kotampatti PC members (9%). The role of dealers for the supply of seeds to member farmers was highest for Kotampatti PC (55%) followed by Ilupur PC (18%) and Theotukudi PC members (9%). Member farmers of Ilupur PC (9%) and Kotampatti PC (5%) purchased seeds from dealers & local farmers. Agriculture department emerged out as a source of seeds for 9% Theotukudi PC members and 3% Kotampatti PC members. Kotampatti PC members also obtained from other sources like local farmers (15%), PC & agriculture department (8%) along 5% of member farmers who did not provide any source (Table 6.54).

Most of the member farmers of Cham/XTL promoted PC didn't provide any source for both chemical inputs viz. chemical fertilizers and chemical pesticides. 55%, 46% and 9% of Ilupur, Kotampatti and Theotukudi PC members respectively, didn't provided any source for the purchases of chemical fertilizers. While 51%, 77% and 15% of Ilupur, Kotampatti and Theotukudi PC members didn't provide any source for the purchase of chemical pesticides. In the specific case of chemical fertilizers, 54% Kotampatti PC members, 27% Theotukudi PC members and 15% Ilupur PC members purchased from dealers. 3% of Theotukudi PC members purchased from each PC & Agriculture department and dealers & PC. PC was an important source for Ilupur and Theotukudi PC members from where 27% and 40% of members farmers respectively, were purchasing chemical fertilizers. In case of chemical pesticides, dealer was the source of purchase for 37% Kotampatti PC members, and 15% each among Ilupur and Theotukudi PC members. PC (45%), PC and agriculture department (9%) and dealers and PC (19%) were other major sources for Theotukudi PC members (Table 6.55).

Table 6.64: Distribution of Dhan/KTL PC members by Source of Seeds

| PC Primary Source | Ilupur | | Kobanpatti | | Thechikulil | |
|-------------------------|-------------------|----------|-------------------|----------|-------------------|----------|
| | No. of Members | % of all | No. of Members | % of all | No. of Members | % of all |
| Dealers | 2 | 100 | 5 | 20.8 | 1 | 3.3 |
| Local Farmers | 0 | 0 | 2 | 8.3 | 0 | 0 |
| PC | 4 | 100 | 1 | 4.2 | 6 | 20.0 |
| Other PC | 1 | 100 | 0 | 0 | 0 | 0 |
| Agri Dept | 0 | 0 | 1 | 4.2 | 1 | 3.3 |
| Dealers, PC | 3 | 75 | 1 | 4.2 | 2 | 6.7 |
| Dealers, Local Farmers | 1 | 100 | 1 | 4.2 | 0 | 0 |
| Dealers, PMS | 0 | 0 | 0 | 0 | 1 | 3.3 |
| PC, Agri Dept | 0 | 0 | 1 | 4.2 | 0 | 0 |
| None | 0 | 0 | 1 | 4.2 | 0 | 0 |
| Total | 11 | 100 | 24 | 100 | 31 | 100 |

Table 6.65: Distribution of Dhan/KTL PC members by Source of Chemical inputs

| Input Categorized Type | Ilupur | | | | | | Kobanpatti | | | | | |
|------------------------------|-------------------|-------------|-------------------|-------------|-------------------|-------------|-------------------|-------------|-------------------|-------------|-------------------|-------------|
| | None | | Dealers | | Local | | None | | Dealers | | Local | |
| | No. of Members | % of all | No. of Members | % of all | No. of Members | % of all | No. of Members | % of all | No. of Members | % of all | No. of Members | % of all |
| Fertilizer | 1 | 40 | 1 | 10 | 3 | 75 | 1 | 40 | 1 | 33 | 1 | 40 |
| Pesticide | 4 | 8 | 0 | 0 | 1 | 10 | 0 | 0 | 3 | 6 | 1 | 10 |
| P | 1 | 25 | 0 | 0 | 1 | 25 | 0 | 0 | 0 | 0 | 1 | 25 |
| None, P | 4 | 1 | 2 | 2 | 1 | 10 | 2 | 4 | 2 | 2 | 1 | 10 |
| None | 1 | 50 | 1 | 10 | 1 | 25 | 0 | 0 | 0 | 0 | 1 | 10 |
| Total | 11 | 100 | 11 | 100 | 4 | 100 | 3 | 100 | 11 | 100 | 5 | 100 |

Most of the member farmers of Dhan KTL promoted PCs didn't use both the bio-inputs viz. biofertilizers and biopesticides. Kobanpatti PC has the largest %age of non-users of biofertilizers (92%) followed by Thechikulil PC (91%) and Ilupur PC (84%). Local farmers were the most important source of procurement of bio-fertilizers for Ilupur PC (13%), followed Thechikulil PC (9%) and Kobanpatti PC (8%). 15 % of the Ilupur PC members were purchasing from dealers with no member farmer of Kobanpatti PC and Thechikulil PC were reported to be purchasing from dealers. In case of biopesticides, the non-users were highest in the case of Thechikulil PC (100%) followed by Kobanpatti PC (92%) and Ilupur PC (83%). 43 % and 8 % of Ilupur and Kobanpatti PC members were reported to be purchasing from dealers (Table 6.65).

Table 6.56: Distribution of Dhara KTL members by Source of Bio Inputs

| Source of Bio Inputs | Members | | | | | | Expenses | | | | | |
|----------------------|----------------|-------|----------------|-------|----------------|-------|----------------|-------|----------------|-------|----------------|-------|
| | Rajpi | | Illupur | | Thoothukudi | | Rajpi | | Illupur | | Thoothukudi | |
| | No. of Members | Value | No. of Members | Value | No. of Members | Value | No. of Members | Value | No. of Members | Value | No. of Members | Value |
| Barley | 2 | 162 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Grains | 2 | 160 | 1 | 105 | 1 | 305 | 0 | 0 | 0 | 2 | 0 | 0 |
| PC | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 654 | 1 | 200 | 0 | 0 |
| Wheat | 7 | 658 | 0 | 0 | 0 | 0 | 0 | 545 | 0 | 0 | 0 | 0 |
| Total | 11 | 1000 | 0 | 105 | 1 | 305 | 0 | 1199 | 0 | 200 | 0 | 0 |

The cropping intensity was the lowest in the case of Thoothukudi PC (1.00) followed by Kotampatti PC (1.04) and Illupur PC (1.23).

Kharif was the major season in terms of number of crops grown. Both Thoothukudi and Illupur PC members grew black gram which was 5% of the kharif acreage. Chill was grown in 5% kharif area of Thoothukudi PC members. Coconut was grown in 5% and 12% kharif area of Illupur and Kotampatti PC members, respectively. Fodder was grown in 3% of the kharif area of Illupur PC members occupying 5% of the total area. Green was a major crop grown by Kotampatti PC members with 25% of kharif area and 21% of GCA. Similarly, green gram was a major crop for Thoothukudi PC members covering 10% of both the kharif area and total area. Groundnut was grown in 15% of Kotampatti PC members kharif area covering 25% of the GCA. In case of Illupur PC members, the kharif coverage of groundnut was 7%. Similarly, mango also occupied 7% and 5% of the kharif and total area, respectively. 25% of the kharif and total area of Thoothukudi PC members area was under millet. Paddy was a major crop for Illupur and Kotampatti PC members covering 67% and 36% of the kharif acreage. Sunflower was grown in 12% of both the kharif and total area of Thoothukudi PC members (Table 6.57).

No member farmer of Thoothukudi PC cultivated any rabi crop. Black gram and groundnut were reported to be major crops grown by Kotampatti PC members both occupying 50% of the kharif area and one percent of GCA. Similarly, paddy was a major crop reported for Illupur PC members. The share of paddy was 67% of the rabi area and 7% of the total area while in case of ragi it was 50% of the rabi area and 3% of the total area (Table 6.58).

Table 6.58: Rabi Cropping Pattern of Dhan/KL members

| PC | Elapur | | | | | Kotampati | | | | | Thoothurudi | | | | |
|------------|--------|-----------|---------------|-----------|---------------|-----------|-----------|---------------|-----------|---------------|-------------|-----------|---------------|-----------|---------------|
| | Area | Grain (%) | Ag. waste (%) | Grain (%) | Ag. waste (%) | Area | Grain (%) | Ag. waste (%) | Grain (%) | Ag. waste (%) | Area | Grain (%) | Ag. waste (%) | Grain (%) | Ag. waste (%) |
| Black Gram | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 25 | 30 | 14 | 0 | 0 | 0 | 0 | 0 |
| Groundnut | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 10 | 50 | 14 | 0 | 0 | 0 | 0 | 0 |
| Paddy | 1 | 4 | 40 | 40 | 62 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ragi | 1 | 45 | 45 | 525 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | | 65 | | | 141 | | 2 | | | 275 | | 0 | | | 0 |

None of the Thoothurudi PC members grew any crop in summer season. In case of Kotampati PC members, only cotton crop was grown covering 100% of the kharif area and 1% of GCA. Black gram and millets were two major crops grown in summer season by Elapur PC members each occupying 46% and 5% of the summer area and total area. Sorghum was another crop reported in case of Ilupur PC members occupying 0% of the kharif area and 1% of the total area.

75% of Ilupur PC members knew the correct name of the PC. This was followed by Thoothurudi PC members (43%) and Ilupur PC members (39%). 44% of the Kotampati PC members did not know the name of the PC which was the highest followed by Ilupur PC members (37%) and Thoothurudi PC members (25%). No member/farmer of Ilupur PC gave the wrong name of PC. In case of Thoothurudi PC and Kotampati PC it was 36% and 33% (Table 6.59).

Table 6.59: Distribution of KUL/DNAI PC members by knowledge of PC Name

| PC | Elapur | | Kotampati | | Thoothurudi | |
|--------------|-----------|----------|-----------|----------|-------------|----------|
| | Know Name | % of all | Know Name | % of all | Know Name | % of all |
| Correct Name | 0 | 75.0 | 5 | 38.9 | 3 | 6.0 |
| Don't know | 3 | 22.5 | 8 | 61.1 | 2 | 4.0 |
| Wrong Name | 0 | 0 | 2 | 15.6 | 4 | 8.0 |
| Total | 0 | 100 | 15 | 100 | 9 | 100 |

38% of Ilupur PC members along with 23% PC members and 15% PC members provided the name of promoting agency when asked about the name of PC owner. Thoothurudi PC (25%) had the highest share among the number of farmers who provided PC employer name followed by Kotampati PC (23%) and Ilupur PC (15%). 35% Ilupur PC members provided name of BOD while 25% Kotampati PC members and 3% PC members provided the name of farmers. 36% Thoothurudi PC members followed by Ilupur PC members (27%) and Kotampati PC members (23%) did not provided any name when asked about the name of PC owner. But, paradoxically, the Ilupur PC had no farmers reporting it belonged to them (Table 6.70).

Table 6.70: Distribution of KTL-Ofac members by knowledge of PC Owner

| PCs | Know | | Unknow | | Total | |
|-----------------|----------------|---------|----------------|---------|----------------|---------|
| | No. of Farmers | % of 20 | No. of Farmers | % of 20 | No. of Farmers | % of 20 |
| Female | 0 | 0 | 3 | 21.00 | 3 | 100 |
| SOI | 2 | 100 | 0 | 0 | 2 | 100 |
| Training Agency | 4 | 20.00 | 3 | 22.50 | 7 | 100 |
| PC Employees | 2 | 100 | 3 | 22.50 | 5 | 100 |
| Don't Know | 3 | 22.5 | 3 | 22.50 | 6 | 100 |
| Private Company | 0 | 0 | 1 | 100 | 1 | 100 |
| Total | 11 | 100 | 12 | 100 | 23 | 100 |

6.4.3 ESAP PCs

All the PCs had some women members under PCs in the north Indian states (See Rajaratnam (Table 6.71). The average age of two PC members was 59 and 45 years but one had particularly high average age i.e. 54 years in case of Kodai Hills which was into plantation crop.

Table 6.71: Distribution of ESAP PC members by gender

| PC | Males | | Females | | Unknow | |
|--------|----------------|---------|----------------|---------|----------------|---------|
| | No. of Farmers | % of 20 | No. of Farmers | % of 20 | No. of Farmers | % of 20 |
| Male | 3 | 33.33 | 11 | 82.26 | 0 | 14.00 |
| Female | 0 | 0.00 | 1 | 5.4 | 5 | 61.43 |
| Total | 3 | 100 | 12 | 100 | 5 | 100 |

Male member farmers proportion was the highest in the case of Kodai Hills PC member respondents (93%) followed by Udaipatti PC members (82%) and Periyakulam PC members (83%). The largest share of female member farmers was in the case of Periyakulam PC members (67%) followed by Udaipatti PC members (45%) and Kodai Hills PC members (7%) (Table 6.71).

Large number of member farmers of ESAP promoted PCs had farming as the primary occupation. In case of Kodai Hills PC members, 40 the member farmers had farming as the primary occupation followed by Udaipatti PC members (82%) and Periyakulam PC members (84%). 44% of the Periyakulam PC members had animal husbandry as the primary occupation while one member farmer of Kodai Hills PC and Udaipatti PC had animal husbandry as the primary occupation. None of the Periyakulam and Kodai Hills PC members had poultry as primary occupation while only 9% of Udaipatti PC members were having poultry as primary occupation. 11% Periyakulam PC members and 9% Udaipatti PC members were working as labour for their primary occupation. No member farmer of Kodai Hills PC was reported to be working as labour as a part of its primary occupation (Table 6.72).

Table 6.72: Distribution of ESAP PC members by Primary Occupation

| PC | Perrykulam | | Kodal Hills | | Udampatti | |
|------------------|----------------|----------|----------------|----------|----------------|----------|
| | No. of farmers | % of all | No. of farmers | % of all | No. of farmers | % of all |
| Agriculture | 4 | 44.44 | 14 | 100% | 3 | 33% |
| Animal Husbandry | 4 | 44.44 | 0 | 0 | 0 | 0 |
| Poultry | 0 | 0 | 0 | 0 | 1 | 100 |
| Labour | 1 | 11.11 | 0 | 0 | 1 | 100 |
| Total | 9 | 100 | 14 | 100 | 5 | 100 |

A very large proportion of the member farmers of two ESAP promoted PCs (96% and 64% did not have any secondary occupation and the third one (Kodal Hills) had 93% of member farmers who did not have any secondary occupation. Farming was the secondary occupation for 16% Udampatti PC members and 11% Perrykulam PC members. Similarly, 33% of Udampatti PC members had animal husbandry as secondary occupation followed by Perrykulam PC members (22%). No member farmer of Kodal Hills PC had farming or animal husbandry as secondary occupation as this a plantation crops PC. Many of the member farmers of ESAP promoted PC were working as labour for their secondary occupation. The share was highest in the case of Perrykulam PC members (22%) followed by Udampatti PC members (9%) and Kodal Hills PC members (7%) (Table 6.70).

Table 6.73: Distribution of ESAP PC members by Secondary Occupation

| PC | Perrykulam | | Kodal Hills | | Udampatti | |
|------------------|----------------|----------|----------------|----------|----------------|----------|
| | No. of farmers | % of all | No. of farmers | % of all | No. of farmers | % of all |
| Agriculture | 1 | 11 | 5 | 36 | 2 | 100 |
| Animal Husbandry | 2 | 22.22 | 0 | 0 | 4 | 80% |
| Labour | 2 | 22.22 | 1 | 7% | 1 | 100 |
| None | 4 | 44.44 | 8 | 57.14 | 4 | 80% |
| Total | 9 | 100 | 14 | 100 | 11 | 100 |

The highest %age of illiterates was in the case of Perrykulam PC (94%), followed by Udampatti PC (9%) and Kodal Hills PC (7%). 14% of Kodal Hills PC members were educated up to primary level with no member farmer reported for Perrykulam PC and Udampatti PC. Largest share of member farmers educated up to middle level was reported in the case of Kodal Hills PC (43%) followed by Perrykulam PC (33%) and Udampatti PC (9%). High graduation rate 21% and 25% in the case of Kodal Hills PC and Udampatti PC, respectively. 34% Udampatti PC members and 11% Perrykulam PC members were educated up to higher secondary. The member farmers who were undergraduates were reported for all the PCs ranging from 33% in case of Udampatti PC to 11% in Perrykulam PC and 7% in Kodal Hills PC (7%). But, Kodal Hills PC has 7% member farmers who were graduates while no other PC had graduates member farmers (Table 6.74).

Table 8.74: Distribution of ESAP PC members by Education

| PC | Population | | Total (No.) | | Marginal | |
|------------------|----------------|----------|----------------|----------|----------------|----------|
| | No. of Farmers | % of All | No. of Farmers | % of All | No. of Farmers | % of All |
| Illiterate | 4 | 44.4 | 1 | 7.1 | 1 | 100 |
| Primary | 0 | 0 | 2 | 14.3 | 0 | 0 |
| Middle | 3 | 33.3 | 6 | 42.9 | 1 | 100 |
| High School | 0 | 0 | 3 | 21.4 | 3 | 33.3 |
| Higher Secondary | 1 | 11.1 | 0 | 0 | 4 | 44.4 |
| Undergrad | 1 | 11.1 | 1 | 7.1 | 2 | 22.2 |
| Graduate | 0 | 0 | 1 | 7.1 | 0 | 0 |
| Total | 9 | 100 | 14 | 100 | 8 | 100 |

Kodal Hills PC members (4.2 acres) had the largest owned land holding followed by Ullampatti PC members (2.7 acres) and Periyakulam PC members (1.1 acres). The operational land holding was also highest for Kodal Hills PC members (4.2 acres) followed by Ullampatti PC members (2.6 acres) and Periyakulam PC members (0.9 acres) (Table 8.75).

Table 8.75: Average owned and operated land of ESAP PC members

| PC | Population | Total (No.) | Marginal |
|----------------------|------------|-------------|----------|
| Average land (acres) | | | |
| Owned | 10 | 42 | 23 |
| Operational | 134 | 130 | 245 |

The share of marginal farmers was the largest of all categories in case of all the three PCs. The highest share was there in the case of Periyakulam PC (71%), followed by Kodal Hills PC (40%) and Ullampatti PC (55%). The small farmers had the highest share for Ullampatti PC (34%) followed by Kodal Hills PC (20%) and Periyakulam PC (22%) which had 48%, 34% and 60% of the owned land holding. The share of semi-medium farmers was the highest among all farmer members in case of Kodal Hills PC (21%) followed by Ullampatti PC (4%). The land ownership was 59% and 17% for Kodal Hills PC and Ullampatti PC, respectively. Also, one of the member farmer of Periyakulam PC and Ullampatti PC had very medium farmers. Only 7% of Kodal Hills PC members were medium farmer which covers 25 % of the land (Table 8.76).

Table 8.76: Category-wise Distribution of ESAP members by Owned land

| PC | Population | Population | | Total (No.) | | | | Marginal | | | | |
|----------|------------|----------------|----------|----------------|----------|----------------|----------|----------------|----------|----------------|----------|-----|
| | | No. of Farmers | % of All | No. of Farmers | % of All | No. of Farmers | % of All | No. of Farmers | % of All | No. of Farmers | % of All | |
| Marginal | 7 | 78 | 4 | 40 | 0 | 0.0 | 13 | 62 | 0 | 145 | 62.5 | 28 |
| Small | 2 | 22.2 | 4 | 50 | 4 | 28.6 | 13 | 76 | 4 | 26.3 | 10.5 | 4.4 |
| Semi-M | 0 | 0 | 0 | 0 | 3 | 21.4 | 11 | 31 | 1 | 21 | 3 | 5.3 |
| Medium | 0 | 0 | 0 | 0 | 1 | 7.1 | 5 | 35.7 | 0 | 0 | 0 | 0 |
| Total | 9 | 100 | 10 | 100 | 14 | 100 | 58.3 | 100 | 8 | 100 | 24.7 | 100 |

In the case of operated land holding, the categorial distribution of farmers was almost like the owned land holding distribution. 90%, 50% and 33% of Pertyaladam PC members, Kodai Hills PC members and Ujalampatti PC members were marginal farmers which owned 73%, 25% and 37% of the land holding. But the highest proportion of small farmers was found in the case of Ujalampatti PC members (36%) followed by Kodai Hills PC members (29%) and Pertyaladam PC members (11%). The share of operational land holding was the highest for Ujalampatti PC (44%) followed by Pertyaladam PC (29%) and Kodai Hills PC (25%). Semi-medium farmers had the highest share in case of Kodai Hills PC (18%) followed by Ujalampatti PC (7%) with a share of 35% and 17% of the total land holding. Only 7% of Kodai Hills PC members were medium farmers who owned 27% of the operational land. (Table 6.77).

Table 6.77: Category-wise Distribution of ESAP members by Operated land

| PC | Pertyaladam | | | | Kodai Hills | | | | Ujalampatti | | | |
|----------|----------------|------------|-------------------|------------|----------------|------------|-------------------|------------|----------------|------------|-------------------|------------|
| | No. of Farmers | % of total | Land Held (Acres) | % of total | No. of Farmers | % of total | Land Held (Acres) | % of total | No. of Farmers | % of total | Land Held (Acres) | % of total |
| Marginal | 8 | 88.89 | 4 | 76.92 | 7 | 38 | 83 | 84.62 | 8 | 54.55 | 62.5 | 36.76 |
| Small | 1 | 11.11 | 25 | 25.00 | 4 | 20.00 | 51 | 26.25 | 4 | 26.36 | 11.5 | 40.00 |
| Semi-M | 0 | 0 | 0 | 0 | 2 | 10.00 | 13 | 24.50 | 1 | 6.36 | 5 | 16.67 |
| Medium | 0 | 0 | 0 | 0 | 1 | 5.00 | 5 | 25.00 | 0 | 0 | 0 | 0 |
| Total | 9 | 100 | 4.5 | 100 | 14 | 100 | 84.5 | 100 | 13 | 100 | 29.25 | 100 |

70% of Pertyaladam PC members owned cows which were 47% of the animal owned by Pertyaladam PC members. While 52% of Ujalampatti PC members owned cows which was 58% of animals owned by Ujalampatti PC members. No member farmer of Kodai Hills PC owned cows. The average number of cows owned was higher for Ujalampatti PC members (4) than Pertyaladam PC members (3). 45% of Ujalampatti PC members owned goats which had the highest share amongst all the PC followed by Pertyaladam PC members (11%) and Kodai Hills PC members (7%) which was 42%, 2% and 10% respectively, of the total animal population. Cows (shared) was owned by 11% of Pertyaladam PC members which was 55% of the total animal population owned by Pertyaladam PC members (Table 6.78).

Table 6.78: Distribution of ESAP members livestock owned

| PC | No. of Farmers | Cows | | | | Goats | | | | Pigs | | | | |
|------------|----------------|-------------|------------|--------------|------------|-------------|------------|-------------|------------|--------------|------------|-------------|------------|----|
| | | No. of Cows | % of total | No. of Goats | % of total | No. of Pigs | % of total | No. of Cows | % of total | No. of Goats | % of total | No. of Pigs | % of total | |
| PC | 8 | 100 | 34 | 600 | 12 | 8 | 6 | 6 | 6 | 14 | 50 | 10 | 100 | 10 |
| PC (Kodai) | 1 | 0 | 0 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PC (U) | 1 | 0 | 0 | 10 | 11 | 1 | 20 | 9 | 80 | 4 | 11 | 60 | 10 | 60 |
| Total | 9 | 100 | 34 | 610 | 23 | 18 | 66 | 66 | 10 | 15 | 70 | 10 | 100 | 10 |

Friends, Neighbours, Relatives was the most important source of general information which provided information to 56% Kodai Hills PC members followed by Pertyaladam PC members (35%) and Ujalampatti PC members (37%). PC, Friends/ Neighbours/ Relatives, Newspapers/

Radio, PC, ADO and Friends/ Neighbours/ Relatives. PC, ADO each was the source of information for 9% of Udaipatti PC members. Coffee Board was reported to be the source of information for 7% Kodai Hills PC members (Table 6.78).

Table 6.78: Distribution of ESAP members by source of general agricultural information

| PCs | Periyakulam | | Kodai Hills | | Udaipatti | |
|--|----------------|----------|----------------|----------|----------------|----------|
| | No. of Farmers | % of all | No. of Farmers | % of all | No. of Farmers | % of all |
| Friends/ Neighbours/ Relatives | 7 | 20.0 | 32 | 65.7 | 6 | 22.3 |
| PC | 0 | 0 | 0 | 0 | 1 | 5.9 |
| Friends/ Neighbours/ Relatives, PC | 2 | 22.22 | 1 | 24 | | |
| Friends/ Neighbours/ Relatives, Newspapers/ Radio, PC, ADO | 0 | 0 | 0 | 0 | 1 | 5.9 |
| Friends/ Neighbours/ Relatives, PC, ADO | 0 | 0 | 0 | 0 | 1 | 5.9 |
| Coffee Board | 0 | 0 | 1 | 24 | | |
| Total | 9 | 100 | 34 | 100 | 9 | 100 |

Dealers were a major source of seeds for ESAP promoted PCs. 72% of Udaipatti PC members, 33% of Periyakulam PC members and 7% of Kodai Hills PC members were purchasing from dealers. Local farmers were the largest source for Kodai Hills PC members (24%) followed by Periyakulam PC members (21%) and Udaipatti PC members (9%). Kodai Hills PC members had many sources of seeds. PACE/DCS, Agri dept. dealers and agricultural dept were source for 14%, 7% and 7% Kodai Hills PC members respectively (Table 6.80).

Table 6.80: Distribution of ESAP members by Source of Seeds

| PCs | Periyakulam | | Kodai Hills | | Udaipatti | |
|--------------------------|----------------|----------|----------------|----------|----------------|----------|
| | No. of Farmers | % of all | No. of Farmers | % of all | No. of Farmers | % of all |
| Dealers | 2 | 22.2 | 7 | 24 | 6 | 72.3 |
| Local Farmers | 1 | 11.1 | 2 | 6.3 | 1 | 11.8 |
| PACE/ DCS | 0 | 0 | 2 | 6.3 | 0 | 0 |
| PC | 0 | 0 | 0 | 0 | 1 | 11.8 |
| Agri Dept | 0 | 0 | 1 | 3.1 | 1 | 11.8 |
| Dealers, Agri Dept | 0 | 0 | 2 | 6.3 | 0 | 0 |
| Local Farmers, PC | 0 | 0 | 1 | 3.1 | 0 | 0 |
| Local Farmers, Agri Dept | 0 | 0 | 1 | 3.1 | 0 | 0 |
| None (From board) | 2 | 22.2 | 4 | 11.8 | 0 | 0 |
| Total | 9 | 100 | 29 | 100 | 8 | 100 |

32% of Udaipatti PC members purchased from dealers followed by Periyakulam PC (23%) and Kodai Hills PC (20%). PACE was the source of chemical fertilizers for 7% Kodai Hills PC

members and 9% Uthirampatti PC members. 29% and 7% of Kodai Hills PC members were purchasing chemical fertilizers from PC and agriculture department respectively. No other member farmers of any other PC was purchasing from PC and agriculture department. 67% Periyakulam PC members, 29% Kodai Hills PC members and 9% Uthirampatti PC members were not purchasing chemical fertilizer. In case of chemical pesticides, 75% Periyakulam PC members, 67% Kodai Hills PC members and 18% Uthirampatti PC members were reported to be not purchasing chemical pesticides. Dealers was the major source of chemical pesticides for member farmers of PCs promoted by ESAF: 65% Uthirampatti PC members, 67% Kodai Hills PC members and 22% Periyakulam PC members purchased from dealers. 16% of Uthirampatti PC members and 7% of Kodai Hills PC members purchased from PC and agriculture department respectively. No member farmer of all the three PCs was purchasing from PACT (Table 6.51).

Table 6.51: Distribution of ESAF members by Source of Chemical Inputs

| Input Category | Fertilizer | | | | | | Pesticide | | | | | |
|----------------|----------------|-------|----------------|-------|----------------|-------|----------------|-------|----------------|-------|----------------|-------|
| | Dealers | | Local Farmers | | Government | | Dealers | | Local Farmers | | Government | |
| | No. of Members | % | No. of Members | % | No. of Members | % | No. of Members | % | No. of Members | % | No. of Members | % |
| Dealers | 3 | 23.08 | 4 | 28.57 | 5 | 35.71 | 2 | 22.22 | 5 | 25.78 | 7 | 42.86 |
| PCs | 0 | 0 | 1 | 7.14 | 1 | 7.14 | 0 | 0 | 0 | 0 | 0 | 0 |
| PC | 0 | 0 | 4 | 28.57 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 11.76 |
| Agr Dept | 0 | 0 | 1 | 7.14 | 0 | 0 | 0 | 0 | 1 | 24 | 0 | 0 |
| None | 0 | 0.00 | 4 | 28.57 | 1 | 7.14 | 7 | 77.78 | 0 | 0.00 | 2 | 11.76 |
| Total | 3 | 100 | 14 | 100 | 6 | 100 | 9 | 100 | 14 | 100 | 8 | 100 |

Majority of the member farmers of ESAF promoted PCs did not purchase any bio-inputs: 59% Periyakulam PC members, 66% Kodai Hills PC members and 64% Uthirampatti PC members did not purchase any bio fertilizers while 99% of Kodai Hills PC members and all the members of Periyakulam PC members and Uthirampatti PC members didn't purchased any biopesticides. In case of bio fertilizers, 11% Periyakulam PC members purchased from dealers, 14% Kodai Hills PC members purchased from purchased from local farmers and 36% Uthirampatti members purchased from PC. But in case of biopesticides, only 7% of the member farmers of Kodai Hills PC were reported to have purchased from the local farmers (Table 6.52).

Table 6.52: Distribution of ESAF members by Source of Bio Inputs

| Input Category | Fertilizer | | | | | | Pesticide | | | | | |
|----------------|----------------|------|----------------|-------|----------------|-------|----------------|-----|----------------|--------|----------------|--------|
| | Dealers | | Local Farmers | | Government | | Dealers | | Local Farmers | | Government | |
| | No. of Members | % | No. of Members | % | No. of Members | % | No. of Members | % | No. of Members | % | No. of Members | % |
| Dealers | 1 | 7.14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Farmers | 0 | 0 | 2 | 14.29 | 0 | 0 | 0 | 0 | 1 | 24 | 0 | 0 |
| PC | 0 | 0 | 0 | 0 | 4 | 28.57 | 0 | 0 | 0 | 0 | 0 | 0 |
| None | 0 | 0.00 | 12 | 85.71 | 7 | 50.00 | 9 | 100 | 13 | 100.00 | 8 | 100.00 |
| Total | 1 | 100 | 14 | 100 | 4 | 100 | 9 | 100 | 14 | 100 | 8 | 100 |

Large %age of member farmers of ESAP promoted PCs knew the correct name of PC. The share was reported to be highest in case of Udalampatti PC (73%) followed by Periyakulam PC (44%) and Kodai Hills (43%). But, 36%, 43% and 37% of Periyakulam PC members, Kodai Hills PC members and Udalampatti PC members did not know have any knowledge of the name of PC. But in the case of Kodai Hills PC members, 14% of member farmers provided the wrong name of PC. (Table 8.53).

Table 8.53: Distribution of ESAP PC members by Knowledge of PC Name

| PC | Periyakulam | | Kodai Hills | | Udalampatti | |
|--------------|----------------|------------|----------------|------------|----------------|------------|
| | No. of members | % of total | No. of members | % of total | No. of members | % of total |
| Don't know | 5 | 55.56 | 2 | 42.86 | 1 | 20.0 |
| Wrong Name | 0 | 0 | 2 | 42.86 | 0 | 0 |
| Correct Name | 4 | 44.44 | 3 | 62.86 | 4 | 80.0 |
| Total | 9 | 100 | 7 | 100 | 5 | 100 |

36% Periyakulam PC members, 36% Kodai Hills PC members and 3% Udalampatti PC members did not have the knowledge of PC owner. The name of promoting agency was given by many of the member farmers which was in the range of 23-36%. The name of board of directors was given in only one case by 14% of Kodai Hills PC members. The name of the PC employee was also provided on response to the name of PC which was in the range of 23-27%. None of the member farmers provided the name of private company when asked about the name of PC owner. (Table 8.54).

Table 8.54: Distribution of ESAP PC members by Knowledge of PC Owner

| PC | Periyakulam | | Kodai Hills | | Udalampatti | |
|------------------|----------------|------------|----------------|------------|----------------|------------|
| | No. of members | % of total | No. of members | % of total | No. of members | % of total |
| BOB | 4 | 44.44 | 2 | 42.86 | 0 | 0 |
| Don't Know | 3 | 55.56 | 3 | 62.86 | 1 | 20.0 |
| Farmers | 1 | 11.11 | 1 | 21.43 | 2 | 40.0 |
| PC Employees | 0 | 0 | 3 | 64.29 | 3 | 60.0 |
| Private Company | 0 | 0 | 0 | 0 | 0 | 0 |
| Promoting Agency | 1 | 11.11 | 3 | 64.29 | 4 | 80.0 |
| Total | 9 | 100 | 7 | 100 | 5 | 100 |

6.5 Goat PC comparison Theni and Pandhara (12 and 10 members each respectively)

So far as Theni Goat PC was concerned, it was a stand alone PC, the only one promoted by the NGO and was keen on leveraging the Theni goat breed for its need.

A comparison of the PC member profile with the goat PC (both all women) showed that age profile was similar (42 vs 41 for MF goat PC) and Theni goat PC women were more literate (55% high or higher secondary school and only 17% illiterate) than their MF goat PC (Pandhara) members of whom 77% were illiterate. Further, 92% of them reported govtary as primary occupation compared with only 50% in case of MF goat PC who reported it as secondary occupation in 40% cases (table 6.88 and 6.86).

The Theni goat PC relied on friends, and friends and pc and Pw and media groups (36, 17 and 17% each) for information, compared with only PC in case of 60% in case of MF PC. The land ownership and operational land profiles were similar with average owned and operated land being 1.52 and 1.55 acres for Theni and 1.47 and 1.6 acres for MF PC. In fact, 67% of Theni PC member were marginal with 29% land and rest 33% small with 71% of owned land. The operated land was also mostly marginal and small and only 3% farmers had semi-medium farms which had 53% of operated land with 37% and 10% being with marginal and small operators respectively. As against this, though 60% of MF PC members were marginal owners and rest 20 and 10% each being small and semi-medium but their operated lands were marginal in 60 %cases and 30% and 10% being small and semi-medium with 12%, 38% and 31% of operated land respectively. (tables 6.87 and 6.85).

More importantly, the number of goats per households for Theni member was large at 20 goats with 92% owning goats and goats being 57% of livestock owned by the households. (table 6.89). This was in sharp contrast to the MF goat PC whose average ownership size was 10 goats though 97% households owned them and they were 55% of livestock owned by such households. In fact, the MF PC members also reported buying some inputs like bus fertilisers through the PC.

The cropping intensity of members in both cases was similar at 1.59 in case of Theni and 1.5 in case of MF PC though cropping pattern differed. Millet and cotton were major crops in terms of area in rabi and kharif and some pulses in summer season in case of Theni, it was wheat in rabi, sorghum in kharif in case of MF goat PC members.

The awareness of PC was lower among Theni PC members with 38% not knowing the name of the PC (table 6.90) as they were perhaps more familiar with SHGs of women they were first members of and only 15% thought PC was owned by farmers (table 6.91), another 15% thinking PC employees owned it and rest another 17% thought it was owned by promoting agency. This was in sharp contrast to the 97% members knowing the name of PC in MF and 60% knowing it is owned by farmer members. This despite the fact that the MF PC was younger by many years compared with the Theni goat PC.

Table 6.85: Distribution of Goat PC members by Primary Occupation

| PC | Female | | Total | |
|-------------|----------------|----------|----------------|----------|
| | No. of members | % of all | No. of members | % of all |
| Agriculture | 5 | 30 | 8 | 40 |
| Goatry | 5 | 50 | 8 | 40 |
| Labour | 0 | 0 | 0 | 0 |
| Total | 10 | 100 | 16 | 100 |

Table 6.86: Distribution of Goat PC members by Secondary Occupation

| PC | Female | | Total | |
|-------------|----------------|----------|----------------|----------|
| | No. of members | % of all | No. of members | % of all |
| Agriculture | 2 | 20 | 3 | 37.5 |
| Goatry | 4 | 40 | 5 | 31.25 |
| Labour | 2 | 20 | 3 | 18.75 |
| Other job | 0 | 0 | 1 | 6.25 |
| None | 2 | 20 | 2 | 12.5 |
| Total | 10 | 100 | 16 | 100 |

Table 6.87: Category-wise distribution of Goat PC members by Owned land

| PC | Female | | | | Total | | | |
|-------------|----------------|----------|--------------|----------|----------------|----------|--------------|----------|
| | No. of members | % of all | Land (Acres) | % of all | No. of members | % of all | Land (Acres) | % of all |
| Marginal | 2 | 20 | 1.25 | 22.22 | 4 | 25.0 | 5.25 | 29.77 |
| Small | 2 | 20 | 4.5 | 44.44 | 4 | 25.0 | 10 | 71.42 |
| Semi-medium | 1 | 10 | 5 | 33.33 | 0 | 0 | 0 | 0 |
| Total | 10 | 100 | 10.75 | 100 | 12 | 100 | 15.25 | 100 |

Table 6.88: Category-wise Distribution of Goat PC members by Operated land holding

| PC | Female | | | | Total | | | |
|-------------|----------------|----------|--------------|----------|----------------|----------|--------------|----------|
| | No. of members | % of all | Land (Acres) | % of all | No. of members | % of all | Land (Acres) | % of all |
| Marginal | 0 | 0 | 2 | 32.69 | 3 | 25 | 4.75 | 50.0 |
| Small | 3 | 30 | 9 | 36.36 | 2 | 16.67 | 4.5 | 29.23 |
| Semi-medium | 1 | 10 | 5 | 32.25 | 1 | 8.33 | 5 | 32.71 |
| Total | 10 | 100 | 16 | 100 | 12 | 100 | 24.25 | 100 |

Table 6.89: Distribution of Goat PC members of Livestock owned

| PC | Pondicherry | | | | | Tamil | | | | |
|-------|----------------|----------|----------------|----------|-------|----------------|----------|----------------|----------|-------|
| | No. of members | % of all | No. of members | % of all | Range | No. of members | % of all | No. of members | % of all | Range |
| Cow | 4 | 40 | 8 | 20 | 2 | 3 | 250 | 3 | 150 | 100 |
| Goat | 5 | 50 | 10 | 100 | 500 | 10 | 100 | 200 | 2000 | 2000 |
| Don | 2 | 20 | 4 | 200 | 2 | 0 | 0 | 0 | 0 | 0 |
| Sheep | 0 | 0 | 0 | 0 | 0 | 1 | 100 | 10 | 1000 | 1000 |
| Total | | | 10 | | | | | 100 | | |

Table 6.90: Distribution of Goat PC members by knowledge of PC Name

| PC | Pondicherry | | Tamil | |
|--------------|----------------|----------|----------------|----------|
| | No. of members | % of all | No. of members | % of all |
| Correct Name | 3 | 30 | 2 | 16.67 |
| Don't Know | 1 | 10 | 4 | 33.33 |
| Wrong Name | 0 | 0 | 2 | 16.67 |
| Total | 10 | 100 | 12 | 100 |

Table 6.91: Distribution of Goat PC members by knowledge of PC Owner

| PC | Pondicherry | | Tamil | |
|------------------|----------------|----------|----------------|----------|
| | No. of members | % of all | No. of members | % of all |
| Don't know | 2 | 20 | 2 | 16.67 |
| Earners | 4 | 40 | 3 | 25.00 |
| PC Employees | 0 | 0 | 1 | 8.33 |
| Providing Agency | 0 | 0 | 2 | 16.67 |
| RO | 0 | 0 | 2 | 16.67 |
| Total | 10 | 100 | 12 | 100 |

On the output side, whereas in case of Tamil PC in Tamil Nadu, the number of farmers selling goats to PC increased from nil to 3 over last three years i.e. 80% farmers were selling through the PC now (sold 11 goats in all) with some of them reporting selling maize and millet crops also through the PC. In case of MP goat PC (Pondicherry), it was 30% farmers who were selling through the PC, (total of 14 goats) and one of them also reported selling sorghum to the PC.

6.6 Summary

As the PC data show there were wide variations in performance of PCs in Tamil Nadu across PCs and within each geographic PCs. Some were vibrant (like BEEDS club) and others struggling (Dhan and KIL) while some others non-starters (one of the ESAP promoted). Of the 105 members interviewed in Tamil Nadu across 9 PCs, 46% were women farmers despite just many PCs studied being Women PCs except one in govt. This is quite different from that found in other state PCs.

The average owned land of members was not too small with 5.12 acres and operated land being 5 acres per household. The members were mostly marginal, small and semi medium farmers (90%) of the total owning 52% of land. However, in terms of operated land, they accounted for only 52% of all farmers and 45% of the operated land. Though 45% had owned groundwater resource for irrigation still other 55% were rainfed which was the highest across states. Therefore, average cropping intensity of the members was only 1.16 but still crop diversity was very high.

The SEEDS PC members were much larger than their other Dhan KTL and EBAF PC member counterparts. There was no small farmer among Seeds promoted PC members while EBAF promoted and Dhan KTL promoted PC each had 35% small member farmers having 16% and 36% respectively of the total owned area member farmers of these PC. But the cropping intensity was the highest for EBAF PC members (1.45) followed by Dhan KTL PC members (1.09) and the lowest for Seeds PC members (1.05).

The members were more aware of PC name than the non-members (57% versus 24%). Further, only 12% member farmers thought or knew the PC belonged to farmers with other marketing PC employees (24%) or promoting agency (22%) as the owners. There was no difference in this across three promoters' PCs. There was hardly any awareness of PC ownership among non-members.

The input interface of PCs showed that among the members, dealers emerged as the major source of seed purchase with 32% buying from them. Only 17% farmers bought it from the PC with another 11% from both PC as well as dealers. The reliance on dealers was even higher in case of chemical inputs at more than 40% with only 22-30% farmers buying it from the PC. In fact, even PACs did not figure as a major source for even fertilizer purchase. The top inputs which were used by the very small percentage of farmers was bought more from the PC ranging from 71% in case of bio pesticides and 51% in case of bio fertilizers. Only 2% non-members bought seeds and chemical inputs from PCs.

The highest dependence on dealers for seeds was reported by Seeds PC members (54%) followed by EBAF PC members (47%) and Dhan KTL PC members (11%).

31% members has no dislike for any of the services of the PCs 60% had not received any subsidy or information about it from PC while 19% had received subsidised inputs and 4% various farm equipments like MIS or implements. 57% even reported receiving loans from through the PCs. 45% reported monthly meeting and 34% attended it every time. 59% wanted to continue being members as it was beneficial. 77% also were keen to encourage others to join the PC as members as it brought benefits. While 59% did not suggest any new product or services, others suggested loans and input supply, procurement and market linkage for farm produce, timely supply of inputs and more training of farmers and value addition to farm produce. A few others also suggested expanding the membership of the PC and making staff more accountable to members.

The only major expansion in crop area was groundnut due to the intervention of PC and yields had improved in cotton and many other pulses, cereals, grains. Major price benefits were realised in pulses, groundnut, cotton and maize. In terms of channels of sale 39% of the farmers sold 39% of their produce through the PCs, mainly in the crops of black gram, coffee, cotton, green gram and maize. Only two and three farmers each of the P1 reported selling black gram and green gram to the PCs whereas there were none and only one each three years before respectively.

This was mainly a shift from wholesale channel to the PC channel in most cases. This was in sharp contrast to the non-member impact where only in one crop green gram, there were some sales by the non-members through the PCs.

In terms of area shift due to the intervention of PCs there was significant increase reported in groundnut, black gram, and, to some extent, coffee.

Appendix A3

SEEDS NGO PC

Seeds NGO was in existence since 1998 and started PC intervention in 2014. It had promoted 11 PCs so far in TN with a total turnover of Rs. 30 crore in 2018-19 covering eight districts, 60 self-help groups, 10000 members and 14099 PC members. Of these stakeholders, 61% were women and 75% small and marginal farmers. These members cultivated 45000 acres. It also engaged in crop insurance and cattle insurance for its members. The NGO is supported by SFAC and NABARD and works with Samunnati Finance, Ananya Finance, Aranya Finance, PVVBL, South Indian Bank and Indian Overseas Bank besides State Bank of India and EVA Karma Finance on the financing side, and Tota Harvest Pvt. Ltd. on the output side. The 11 PCs together had share capital of Rs. 1.75 crore and SFAC has provided matching equity grant of Rs. 10 lakh each to six of them. Some of the PCs were recognised by NABARD and Access Foundation and Robo Bank. The major focus crops of the PCs include: pulses in one case, millets and coriander in two cases each, coconut and paddy in the case of two other PCs each, and Banana, chilly and maize in case of one each. The NABARD support was Rs. 7.5 lakh for three years and Rs. 40 lakh was from SFAC. The NGO (SEEDS) has two wings: Seeds 21 (resource institution of SFAC) and Seeds Agro. Both of them had 5 and 4 staff each whereas 21 also worked as POPI of NABARD besides doing trademark and Non-Pesticide Management (NPM) Practices (growing crops without use of chemical pesticides) promotion. The Seeds Agro focused on coffee exports and rural distribution of various products.

Its model of PC organization includes a CEO, administration manager, and procurement and marketing officers under him and inventory controller and salespersons under each of them besides the various committees to help them with business and day to day management of the PC affairs. Altogether, the 11 PCs have 11 CEOs, ten procurement and marketing staff, seven agronomists, ten administration staff and 30 credit officers. The 11 PCs focused on millets (2), pulses (1), coriander (1), coconut (5), banana (1), paddy (2), chilly (1), and maize (1). The NGO also had previous scores eight other models in central, west and east India besides Tamil Nadu as it was a partner of the DRLF for two years (2018-21) for the purpose of organizing farmers around NPM. The number of stakeholders across PCs range from minimum of 20 to as many as 2400 in the case of the PC under case study (SEEDS Farmer PC). The share capital of the PCs ranges from minimum of Rs.2 lakh to a high of Rs.14 lakh (case study PC). It had already received matching equity grant for five PCs – three supported by NABARD and two by SFAC. The various PCs were availing credit from Samunnati Finance since 2017-18 and some credit also from Ananya Finance. Interestingly, most of the loans across various PCs during 2018-19 had gone for livestock (60%) and equally for farm investments and working capital (15% each).

The Seeds Agro production services pvt. Ltd registered in 2013 mainly worked with Tota Tea Global Beverages (TTGB) for its CSR scheme – Soor chai which started in 2011 in Tamil Nadu under which this PC implements in Virudhunagar district. It had turnover of Rs. 23 crore. Over the years, it has expanded to 15 districts and 1761 villages with 426 outlets and 84 rural distributors employing 34 rural youth. Its coffee business involves domestic sales Rs. 12.56 crore and exports of the order of Rs. 6.76 crore. It had an agreement with Tota coffee

curing works in Wayanad in Kerala, and Aro processing for its coffee for export, besides other suppliers like Thomas and Sons, TM Traders and Sunshine Enterprises.

The PCs had market linkages with Nambocoms in Kerala, Nilm in Pune, Phalada and Natural Remedies, and Himalaya Drug Company in Bangalore and BIPCOPS, Central besides Gati Harvest, Hydrosab. One of its PCs had brought crop insurance since 2016-17 and 2017-18 covering 3000 and 6000 farmers with 4500 and 15000 acres insured with the AIC of India. It claims that its farmers have been able to receive Rs 800-1000 per quintal higher price across crops than the local market price. It claims that the cattle population has doubled, and goat population increased four times in the areas of intervention. It calculates the net worth of Seeds PC at 1.05 crore which is third highest among PCs and Rs 0.47 crore in the case of Nizuthugal which is one of the lowest among all PCs.

Each PC had an administrative manager and finance manager each and procurement, processing, marketing and credit officers under whom there are inventory controller (who addition incharge and sale persons besides a community development officer who in turn worked with the procurement, agronomists, marketing and finance committees of the PCs. The Seeds has 11 CEOs across 12 PCs, 30 credit officers, 10 procurement and marketing staff, 7 agronomists and 10 administrative staff. It had 7 PCs supported by SFAC and 4 by NABARD across 9 districts. It started with 4 PCs supported by NABARD in 2015-16 and engaged in 7 more PCs supported by ERAC in 2016-17 and 2017-18. It had partnerships with Bharat Rural Livelihoods Foundation (BLFF) for promoting NPSI in 9 states targeting one lakh farmers during 2013-21. These states were mostly in central, western and eastern India besides Tamil Nadu.

The shareholders for the 11 PCs range from 450 (SFAC) to as many as 834 (NABARD PC). The share capital ranges from Rs. 4.5 lakh to as high as Rs. 34 lakh (Seeds PC NABARD). 6 out of 11 PCs which were more than 3-year-old have even received matching equity grant from SFAC of Rs. 10 lakh each. 75% of its loan portfolio from 2018-19 was made up of Samanya Finance loans and other 24% of Aranya Finance loans. It had been able to channelize credit to 63% its member farmers across PCs. For 2 of its PCs, it had leveraged various government schemes for value addition and processing. These schemes included major SFAC, MDA, NFSI and NADP mainly for creating land, building and machinery assets. It had an agri-business centre at its main office which sells produce to member farmers.

Some of the best practices followed by its PCs included, direct procurement from farmers and payment at farm gate, no involvement of intermediaries in the transactions, and supply of quality inputs. It plans to set up 50 more PCs in 2019-20 for NABARD (25) and SFAC (25) from the existing four and seven each respectively. The farmer coverage would go up from 14700 to 48700 and area covered from 69000 acres to two lakh acres and villages from 700 to 2500.

SEEDS FPC

Seeds FPC was registered in 2014 with 475 members, 35% of whom were women and 25% landless and others mostly marginal and small farmers with more than 60% being SC/ST.

category. They were spread across 70 panchayats and 117 villages across its blocks of the district of Virudhunagar and Madurai. The PC had authorized capital of Rs. 50 lakh and paid up capital of Rs. 47.15 lakh (Table 8.1). It had 10 Board members and only three of them were women despite most of the members being women, and three of the board members were from reserved categories. The PC had various inputs licenses and FSSAI license. It had taken 60 farmers on five training and exposure visits to zero budget child farming and millet value addition training. The SoDs were taken on two training programmes at Kodakkal on strategic business planning and PC management. The CEO attended five training programmes across various training centres besides exposure to the business of Saini Harvest Private Ltd (SHPL). The PC had three-year business plan covering pulses, chick and millet crops and their procurement, processing, grading, packing, trading and marketing.

This PC had a CEO who was assisted by administration and marketing manager each and an agronomist. The PC had an MoU with SHPL, under which the latter procured various commodities worth Rs.1.47 crore with the condition that these commodities would be supplied with proper primary value addition and SHPL paid 5% of the expected value of procurement in advance for the same.

Table 8.1: Profile and Performance of SEEDS PC

| Key Parameters | 2016-17 | 2017-18 | 2018-19 | 2019-20 |
|---------------------------------|---------------------------|--------------|-------------|---------|
| Authorized capital (Rs. lakh) | 50 | 50 | 50 | 50 |
| Paid up capital (Rs. lakh) | 47.15(94.3%) ¹ | 47.95(95.9%) | 48.4(96.8%) | 48.5 |
| Revenue (Rs. lakh) | 52 | 55 | 22.1 | 49.2 |
| Profits (Rs. lakh) | 23 | 0 | 1.8 | 5.7 |
| Reserves and surplus (Rs. lakh) | - | - | 14.0 | 22.4 |
| Assets (Rs. lakh) | - | - | 6.7 | 12.7 |
| Shareholders | 303 | 340 | 270 | 340 |

Note: ¹ share capital mobilised as %age of authorized capital

The PC originated from farmers clubs promoted by NABARD which numbered 11 with 20 farmers each and also Self-Help Groups (130) promoted under SFHM which initially started with micro finance. The PC had 549 members across 117 villages of three blocks of two districts. It initially started with Rs. one lakh authorized capital which was later increased to Rs.10 and Rs.50 lakh. 27 staff work with the PC. It claimed that 7% members knew that PC belonged to them. It had given away share certificates to SHG members but had not yet paid any dividend. The office of the PC was rented in from ASEFA-NGO @Rs. 2500 per year. Most of its inputs business included sale of seeds, cattle feed and fertilizers where 70% of the buyers were members and 20% of the members bought exclusive help from the PC. Its major input sales came from cattlefeed supply to 36 farmers which accounted for more than 60% of the turnover, the rest mainly coming from fertilizers sold to over 200 farmers.

It had a warehouse constructed with a loan from NABARD. It also ran 2 vegetable markets

which were originally set up and run by ASEFA NGO since 2015 on a weekly basis. It had five retail shops. It had discouraged the growing of a medicinal plant in five villages as it was harmful for soil and health and had moved these farmers to black gram and millets with high yielding varieties. It had been selling increasingly higher volumes to SHPL ranging from Rs. 50 lakh in 2015-16 to Rs. 152 lakh in 2017-18 and Rs. 311 lakh in 2019-20. It claimed that 90% of the farmers followed NPSD practices.

It had also undertaken organic produce contract farming for PICAL-ADA Agro in the past and supplied to hotels in Madurai directly. It claimed that 50% of its input buyers were members and 70% output business came from the members. Its major loan portfolio also consisted of loan for livestock including goats to 2663 members (60% of the total) accounting for 45% amount disbursed.

It claimed that its member farmers had been able to receive Rs. 400 per quintal higher price than the market in Barisvadi millets, Rs. 300 per quintal in black gram and green gram, Rs. 400 per quintal in coriander, Rs. 500 per quintal in chilli, and Rs. 200 per quintal in maize and Rs. 400 per quintal in red gram. For the year 2018-19, its procurement was mainly made up of black gram, green gram, and chillies. The total procurement was Rs.2.68 crore.

It had trained its Board members twice. It felt that value addition to farm produce and selling in rural markets besides promotion of NPSM practices were best practices which should be taken up by other PCs. It planned to scale up, do more value addition besides producing ready to eat foods. It had trained 20 farmers in livestock management with the help of KVAFS, 155 farmers in millet value addition with the help of TNAAU, 85 in kitchen gardening with the help TNAAU, 250 in crop, animal, and life insurance and 125 in vermicompost and bee keeping.

The business plan of the PC for 2019-20 included credit needs of Rs. 20 crore for new shareholders, fertilizer sale of Rs. 28 lakh, procurement of various crops of the order of Rs. 10-25 crore and home products of Rs. one crore besides cattle feed sales and grocery sales of Rs. 40 lakh each.

Vizhuthugal agri farmer PC

The PC registered in 2013 across 45 villages and 31 panchayats had a membership of 1894 in 2018-19 and shareholding of 1537 in 2019-20 out of whom 45% were women and most of the farmers were marginal and small farmers and 11% were landless. The PC had 39 FICs and 10 JIGs. The PC has authorized capital of Rs.20 lakh and share capital of Rs.12.87 lakh (Table 6.2). It had also received equity grant from SFAC for Rs. 10 lakh. The PC made loans of Rs.2.1 crore to 482 farmers and goat loans of the order of Rs.1.3 crore to 287 farmers besides cattle and agri allied loans to another 122 and 77 farmers respectively, totalling Rs.4.24 crore across 920 farmers. Computer served more than 900 farmers for agri business transactions and 700 farmers for credit.

38% of the members were active, 60% of the business in farm inputs came from members

and 40% members bought exclusively from PC. It had a warehouse and a processing facility besides running a retail outlet. It had only sold to private and corporate in wholesale. Of the Board members, one was a woman and four also promoting members.

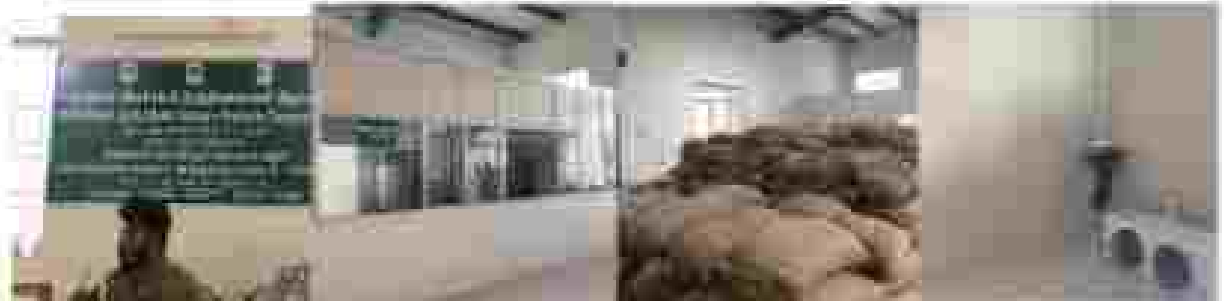


Photo 8.1: TNSCA provided office, warehouse and cold room at Vichittalur APFC

The PC supplied mostly fertilizers and transacted in the procurement of chillies, okra and black and green gram. The major crops dealt in by the PC included pulses, maize, and chillies. 90% of its turnover came from output transactions. The value addition was also mostly in these commodities.



Photo 8.2: A chilli processing facility and a retail outlet of Vichittalur APFC

The PC had, besides the CEO, an administrative and finance manager each and a procurement and marketing officer at the next level who were helped by various committees like purchase and marketing committee. The finance portfolio was managed by a credit manager with the help of CDCs and finance committee. It had provided training to Board directors of two days each locally and to the CEO at IICD Bangalore for three days.

It had been allotted a primary processing centre (PPC) from the Government of Tamil Nadu under TN Supply Chain Management (TNSCM) project. Its business model revolved around scaling up and value addition besides diversification into new products. It still faced problems of getting adequate markets for farmers produce and the dryland conditions and lower MSP on the external front as the major challenges.



Photo 6.2: Dry chillies at the local APMC market yard

As a future strategy, it planned to remain focused on NPM and engage in edible oil and various spices. The PC also tried to rope in large farmers as they were the opinion leaders whom small farmers imitate. The SoD is of the view that more export thrust was needed, and high value enterprises like poultry and goatery should be added to the PC business for the benefit of women farmers. They were also concerned that many of the govt. scheme benefits go mostly to large farmers. Therefore, PC should focus on small farmers. The PC had been allotted an office in the APMC complex under the TNSCM project which also included a primary processing centre. The market which was 30 years old cotton and chilli market had 3000 square feet unit leased out for three years extendable by two years. The PC had total staff of 11, including a CEO, two marketing managers and one credit and administration manager each. 60% of the processing capacity was used for member produce. The processing facility also carried out job work for the members on payment basis in all spices and flour.

Table 6.2: Profile and performance of VAFPC

| Year | 2015 | 2016 | 2017 | 2018 |
|-------------------------------|-------------------------|----------|--------|------------|
| Authorized capital (Rs. Lakh) | 20 | 20 | 20 | 20 |
| Paid up capital (Rs. Lakh) | 6.58 (32%) ^a | 12 (60%) | 10.00% | 6.53 (32%) |
| Revenue (Rs. Lakh) | 6 | 44 | 64 | |
| Profit (Rs.) | 0 | 107 | 102 | |

Note: ^a share capital mobilized as %age of authorized capital

Dhain/KTL PCs

Thevathukudi jeevar PC

KTL promoted 10 PCs supported by NABARD, SEAC and Tamil Nadu SEAC in Tamil Nadu. This PC, promoted by KTL - a for-profit arm of the Dhain Foundation which has promoted five SEAC and seven Tamilnadu SEAC supported PCs in the state, was registered in 2015. It is an all women member PC with 52 farmer interest groups (IGs) across 22 villages of two blocks of the district. It had 1000 members who are either owner cultivators or tenant farmers. 8%

of the members were illiterate and 80% members were ailing. The PC had wrongly categorised its former members into marginal and small corporates besides large where it mistakenly categorized marginal as small and small as marginal as against the official categorization of farmers in India. The authorised capital of the PC was Rs. 25 lakh and paid up capital Rs. 20 lakh (Table 8.3). Besides, it had received a matching equity grant of Rs. 10 lakh from the SFAC. It has all the input sale licences and the APJMC licence. Any farmer has to have support of 100 farmers to become the members of the BoD. It has a manager, one accountant, one procurements unit manager, and two Local Resource Persons (LRPs), besides the CEO. It had a warehouse in the regulated market yard and one processing unit besides its own brand – Khantal Brooch. The office complex also had a retail outlet. It had five members of the Board of Directors of whom only one was woman and there was an advisory committee of 13 persons.

Various inputs were bought mostly by non-members upto the extent of 70% while only 300 members bought exclusively from the PC. On the output side, its bought various crop produce like pearl millet, (Oven), minor millets, spices like chilli, and coriander besides maize from a few members each worth Rs. 20 lakh per year. The farmers sold to it because of the field pick up and cash payment. It had earlier procured various pulses from 470 farmers at MSP for NAFED for which it received 1% commission. 50% of its turnover it made up of inputs and the rest from output handling. It had paid bonus of Rs. 300 per share last year for three years. It has also received a grant of Rs. 40 lakh for seed processing plant from the state (70) SFAC. It has a cash credit limit of Rs. 45 lakh from Canara Bank. The BoDs had been trained for three days in 2015-16 at the Tata Dhan Academy by Dhan Foundation. They were also taken to an exposure visit at Multharoor Cooperative in Andhra Pradesh. The CEO and other professionals of the PC were also given three days training by the Dhan Foundation. The present CEO is a former employee of Dhan Foundation and he had no professional business training. The PC considered contract seed production by 20 farmers for NSC and the bio-input business as the best practices. It believed that the best way to help farmers was to intervene in the open market for better realization of price for the benefit of the farmers. It faced problems with governance wherein three members of BoD were removed as they defaulted on payments. On the external front, it felt lack of government support for bio-inputs and competition as major challenges.

Table 8.3: Profile and performance of Theothakudi pulses PC

| Key Parameters | 2014-15 | 2015-16 | 2016-17 | 2016-18 |
|---------------------------------|-----------------------|----------|-----------------------------------|----------|
| Authorised capital (Rs. lakh) | 25 | 25 | 25 | 25 |
| Share capital (Rs. lakh) | 19 (76%) [*] | 19 (76%) | 21 (84%) (Rs. 20000 by KIL) | 20 (80%) |
| Turnover (Rs. lakh) | 415 | 713 | 512 | 558 |
| Profit (Rs.) | 177 | 4020 | 2501 | 4101 |
| Reserves and Surplus (Rs. lakh) | 32977 | 33950 | 39 | 132 |
| Assets (Rs. lakh) | 408 | 447 | 620 | 437 |

Note: *; share capital notified as %age of authorised capital

Box: Safe harvest private Limited

Safe Harvest Private Ltd (SHPL) founded in 2005 as a SE, was conceptualised by a group of eight grassroots NGOs with the twin objectives of strengthening the NPM (Non Pesticide Management NPM) of agriculture movement by enabling farmers shift to sustainable agriculture by creating a market for their pesticide free produce, and offering consumers a safe and affordable alternative to food produced through conventional farming. SHPL aimed to provide remunerative market for one lakh small and marginal farmers by reaching out to one million consumers by 2015.

After facing challenges both in procurement and sales in its initial years, it was now in its third-year phase, with sales improving from just Rs 1.25 crore in nearly Rs 18 crore since inception. SHPL partnered with about 25 producer organisations comprising of farmers' collectives with a membership base of about one lakh farmers across eight II states, to procure 50 commodities in the 5 categories of cereals, millets, pulses, spices, and livestock worth more than Rs 25 crore (2016-17).

The eight founding partners of the NPM movement were:

- 1) Sarvag Pragati Sahajog (SPS), Madhya Pradesh
- 2) Ching, Uttarakhand
- 3) Wasteland Support Service and Activities Network (WASSAN), Andhra Pradesh
- 4) Samarthak Samit, Rajasthan
- 5) Chitra Organic, Hyderabad
- 6) The Covenant Centre for Development (CCD), Karnataka
- 7) Samaha, Karnataka
- 8) Satvik, Gujarat

The partners formed the NPM Network to promote pesticide free sustainable agriculture of grassroots. Ford Foundation, a USA based environmental philanthropic organisation provided interest in supporting NPM. The grant funding from Ford Foundation was extremely critical to the NPM movement as it catalysed the NPM Network's partner organisations efforts to help farmers switch to practicing pesticide free sustainable agriculture.

To retail the 'pesticide free' produce to consumer markets, VK Madhavan, Ganesan Balasubramanian, Mahalingadurai Nagamalai, Shubhash Vyas, and Rajesh Sahadevan each posted Rs 2000 and registered Safe Harvest Private Limited as a for-profit company in 2005. Ganesan Balasubramanian, former head of Ford Foundation, India played a unique role in SHPL, first as an investor and later as a chairman of the company's Board. VK Madhavan, who headed Ching, one of the founding partners of the NPM movement, joined SHPL in its formative years.

The Vision of SHPL is to: 1) boost the NPM movement of grassroots and pesticide farmers' switch to sustainable agriculture by creating a market for their 'pesticide free' produce, and to offer urban consumers a safe, credible and affordable alternative to food produced through conventional, input intensive agriculture.

Almost all partner farmer Producer Companies (FPCs) of Safe Harvest were accessing organised markets for the very first time. Some of the FPCs produced by founding NGOs (e.g. SPS, Sarvag, Chitra Organic) had the ability to produce commodities at scale, but were not conversant with the workings of organised retail. It was therefore evident for each FPC to deliver its own farmers' quality of goods and demand higher prices. This put SHPL at a disadvantage in the highly competitive consumer markets.

Rampal Das joined as CEO in 2011 when SHPL was at the verge of closure. It was during this time that the board was able restructured. The shareholders of SHPL included one individual with 12.4%, another private limited entity with 36.2%, two individuals with 4.9% and 2.3% and FPCs with 44.2% share as of March 2016.

SNPL had been able to make a mark on platforms of emerging e-commerce players such as Grofers, Big Basket and Flipkart. Likewise, SNPL had been able to negotiate better terms of trade with multiple trade partners and also been able to intensify its presence in existing and new General Trade outlets across geographies. Further confined to southern Indian urban markets SNPL expanded its operations to NCR (Delhi). In 2016, SNPL also entered into a 'co-branding' agreement with Metro Cash & Carry, an international retail giant and had successfully established a niche pesticide-free category in their stores.

With a monthly sales turnover of over Rs. 2 crore and with a retail presence in Bengaluru, Hyderabad, Chennai and NCR, Tale Harvest today was recognised brand in the safe food category.

SNPL also trained and provided handholding support to partner FPOs in the following areas: a) Best practices to be followed during aggregation b) Weighing practices and commodity specific quality parameters c) Safe storage practices d) Grading, cleaning and processing of aggregated commodities to achieve market standards and e) Value addition.

With an improved working capital base and with assistance from Tale Harvest, many of these FPOs were able to move up the agricultural value chain and take up post-harvest activities resulting in higher returns for farmers and enhance efficiency of FPOs supply chains.

Recognising that farmer organisations can learn from each other and also contribute to the larger policy environment SNPL revised and expanded the NFM Network. The Network in 2017 comprised 33 farmer organisations, agricultural research institutions and policy makers committed to further the agenda of NFM in Indian agriculture.

Asanya Finance was the first direct lender to the company and their loan to them allowed the company to make timely procurement from FPOs. Asanya moved many steps forward when it decided in partnership with Tale Harvest to advance credit to partner organisations so that procurement could take place on behalf of Tale Harvest by the FPOs. Tripartite agreements are signed between Asanya, FPO partner and Tale Harvest which allows FPOs to transfer custody of aggregated agri-commodities to Tale Harvest with the promise that SNPL would pick up the rest of finance. Such agreements based primarily on trust had no preconditions. 2016-17 onwards SNPL had built similar partnerships with Reddies and Aarav Finance which helped the company to not only scale up its operations in terms of volume and its reach but it also helped in bringing down its cost of finance.

SNPL procured more than 50 pesticide-free commodities from about 25 partner organisations spread across 10 states. Since different commodities were grown in different states and the same commodity is harvested during different times of the year, procuring from different geographies reduced the inventory and ensured the quality of the produce.

SNPL sourced its products in three different ways:

1. From founding partners and organisations who had been working on NFM for long. These organisations were relatively well-versed in procurement, storage and transportation of aggregated commodities. Farmers associated with these organisations also only require virtual meetings to continue procuring NFM.
2. From organisations located in regions where farmers, by default, practice pesticide-free agriculture. If they exist, these partners were not experienced in aggregation and processing. SNPL therefore builds the capacities of these organisations by providing technical, financial and managerial support before procuring from them.
3. From organisations who shared the same belief in NFM's potential to positively impact farmers and the environment. SNPL trained the farmers associated with these organisations on NFM practices and accelerating their switch to pesticide-free sustainable agriculture. SNPL procured from these farmers once they had become consistent with practices and protocols of NFM.

SNPL procured in all three cropping seasons with kharif being the most important. The aggregation season starts in October and ended during December and January when paddy was procured. In 2016-17, it procured worth Rs. 25.26 crore. And its sales were of the order of Rs. 1283 crore.

Every batch of produce Tale Harvest procured from its partner FPOs was tested in FSSAI (Food Safety and Standards Authority of India) accredited laboratories for the pesticide compounds listed in the Food Safety and Standards (Contaminants, Residues and Additives) Regulations, 2016.

Sale Harvest was the only organisation in the Indian sub-leaf segment to make the Maximum Residue Limit (MRL) test reports publicly available for all its products. By testing the wet product, Sale Harvest ensured the pesticide-free nature of the agro-commodities and effectively addressed the growing trust deficit in the sub-leaf space.

1) Pricing & Procurement

Sale Harvest drew up a Memorandum of Understanding with its partner FPOs in which the detailed terms and conditions regarding quantity, quality, price, timing, etc. were specified. After representative samples (drawn randomly) of the commodity tested negatively for pesticide residues, prices were pegged to the prevailing rates in the nearest APMC (Agricultural Produce Market Committee) market (mandi) in partner locations. Sale Harvest offers these prices to farmers (who, due to the remoteness of their location, are often at a considerable disadvantage) at the farm gate and eliminated the role/costs associated with transporting the material to the Mandi. The weighing mechanisms followed by Sale Harvest were fool proof, transparent and open to scrutiny. Sale Harvest also provided for the storage bags during procurement. Furthermore, the promise of almost an instant, year on year procurement gave farmers sufficient time to make suitable sowing and land use plans.

2) Payment - Enabling partners access timely working capital

Many FPOs faced the problem of inadequate working capital. A lack of sufficient capital made procurement during the peak season very difficult. Those cash-strapped FPOs often had to compete with speculative traders whose ability to pay the farmer quickly gave them a considerable edge. Since most of Sale Harvest's partner FPOs worked with small and marginal farmers, their equity base was small, even with schemes like matching equity from the government being available. Recognising this critical problem, SHFL often extended the receivable amount as advance to the partners or paid them within a maximum of 2-3 weeks of the delivery of goods.

It had majority of independently owned stores (23% 40%) and 75% modern trade stores in Bangalore, 33 independent stores (23%) in Chennai, 60(6%) such independent stores and 80% modern stores in Hyderabad and 4 urban stores each in Bangalore, Chennai and Hyderabad such

Modern Trade 'brick and mortar' retail partners of SHFL included: Spencer's, DMart and Aditya Birla Retail Online retail partners of SHFL included: Big Basket, Grofers, Flipkart and Amazon. Sale Harvest had also negotiated a co-branding deal with Myntra Cash & Carry (an international retail giant) to introduce the pesticide-free range of products under their own brand label True Life 360.

The share capital increased from Rs 1 lakh in 2009-10 to about Rs 12.50 crore in Jan 2015, while the long term debt has increased from Rs 25 lakhs in 2009-10 to more than Rs 7 crore in Jan 2015. Net losses are Rs. 108 crore in 2014-15.

The various advantages that accrue to the farmer due to their partnership with SHFL were as follows:

1. A premium for their 'pesticide free' produce.
2. Savings on commissions (1-2%) that would have otherwise been charged by agents in the APMC market.
3. Savings in cost of transportation of produce to APMC markets.
4. Savings in loading and unloading and those arising from following fair weighing practices.
5. Prompt payment (7-15 days) (adapted from Feb. 2015).

Illupur PC

This PC registered in 2015 and promoted by KTL had its origins in 30 agricultural produce groups (APGs) involving 750 male and 260 female members. In 2019, there were 71 groups, including 20 all-women groups, with a membership of 1000 farmers across 7 villages of one block of the Pudukkottai district. All the members farmers had land holdings and most of them (95%) were marginal or small farmers. In general, 40% of the income of a farmer in the local area came from labour and 30% each from paddy and animal husbandry. In this region, farmers earned equally from crop cultivation, allied activities and wage labour.

Of the total members, 330 (65%), actively transacted with the PC. PC had authorized as well as paid up capital of Rs. 10 lakh besides reserves of Rs. 1.55 crore (Table 8.4). The PC had seeds selling (seeds and farm produce handling) stores and facilitated credit for agricultural and livestock activity.

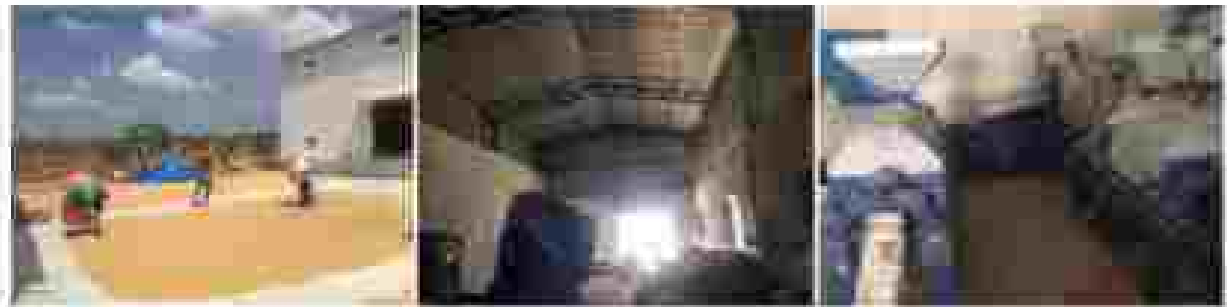


Photo 8.4: A drying yard, warehouse and grinding and processing machines at Ilupur PC

In 2019, the PC had 5 board members. The eligibility conditions for becoming a member of PCO included: represent a group, attend the most of the group meetings, had formal transaction with the PC (minimum Rs. 5000 per year) and no default on loan, besides having various ID proofs. The PC had 9 regular and 28 part-time staff. Among the regular, there were three enterprise managers and one accountant.

The PC sold seeds only to very few members but on the output side, which was 100% organic it dealt with more than 100 members who are given a premium price. It claimed that 100% members are aware that they own the company. It had procured pulses for NAFED in 2019 worth Rs. 2.5 lakh. It sells paddy and pulses to wholesale traders. It moreover included 60% from paddy, 30% from milk, 10% from pulses and 10% from country chicken. 300 farmers supplied 1000 litres of milk 60% of which was sold in retail. The chicken supplies came from 50 farmers. The PC had a chicken hatchery and poultry farm on its campus.



Photo 8.5: A poultry farm and free-range birds at Ilupur PC complex.

The PC was focused on organic and traditional food products and milk and country chicken as the high value products for its business scale up and viability. The PC had not paid any dividend so far as it did not want sleeping members to benefit from it. The major problems faced by the PC included low volume of business and shortage of working capital especially

loans for crop production at the farmer level. It was also looking at other product options in livestock and honey.

Table 6.4: Profile and Performance of Mupur PC

| Key Parameters | 2013-14 | 2014-15 | 2015-16 | 2016-17 |
|--------------------------------|------------|----------|----------|----------|
| Authorised capital (Rs. lakh) | 12 | 11 | 11 | 10 |
| Share capital (Rs. lakh) | 10(100%) * | 10(100%) | 10(100%) | 10(100%) |
| Turnover (Rs. lakh) | 4806 | 6220 | 1662 | 6606 |
| Profit (Rs.) | 640 | 153 | 653 | 58198 |
| Reserve and Surplus (Rs. lakh) | 131 | 155 | 177 | 1837 |
| Assets (Rs. lakh) | 110 | 100 | 115 | - |

Note: * share capital utilised as %age of authorised capital

Surprisingly, the PC had made large number of loans to individual members for animals with CSR grants. It also had large inventories of grains of the order of Rs. 3.37 lakh in 2017. It had also obtained an income of Rs. 1.57 lakh from its model farm and secured Rs. 11.89 lakh subsidy from the TNSEAC for a pulses processing mill. Paddy and pulses turnover mainly came from 500 members each. Most of these farmers were engaged in most of their crops and allied sector enterprises thus being pluri-active households. Its major fixed assets included land and building accounting for 99% of the total value of the assets. The PC had 27 staff of whom 18 were casual.



Photo 6.6: A view of the office and storage complex provided by TNSEAC project of the GoT

2/3 of the members of the PC were active, 22% scheduled caste, 75% of the members were women. It claimed that it had introduced a new variety of Paddy and pulses in the area. 100% of the organic farmers bought inputs from PC. 18-30% of the non-members also sold regularly to PC. 100 to 125 farmers sell all their produced only to PC. Organic produce fetched premium price and was purchased directly. It was estimated that 35% of the farmers produce is sold

through the PC. It had registered itself under E-NAM but it was not aware of the features of the market. 80% of its turnover was from output side where 200 members farmers participated in it. It claimed it had been able to increase farmers' income by 25% with 15% from price benefit and 10% from cost saving. It brought buyers to the doorstep of the farmers and makes spot payment besides fair weighing. This was important as there was no regulated market in Tamil Nadu and no MSP purchases in the area. It had trained the BoD in PC management and business planning at the state agricultural university. The BoD had been trained multiple times by various agencies like DNE, FFAC, TNAU, SRTC, APF and ALC. Besides the CEO had been leading three PCs earlier and had received many trainings therein.

Kottampatti PC

This PC started its operations in 2015 and is promoted by Chan Foundation. It had its origin in the Tank Farmers' Association (TFA) which was a collective of water users' groups. There were 200 associations in the block across 90 villages involving 11500 farmers. The TFA had SHGs/APGs and 58 such groups across 55 villages have membership in this PC at individual level amounting to 1000 farmers, 60% of whom were women. This PC represented 60 FCGs across six clusters with a membership of 1000 and cultivated area of 2400 acres. This PC was promoted with support from NABARD and any farmer could become a member of the TFA and of the PC. In fact, 30% of the PC members were not members of APGs. The major crops grown by the member farmers included coconut, paddy, groundnut, pulses and vegetables. Of the 1000 members of the PC, 90% were marginal and small operators and 5% even landless. Only 25% of the members are active. PC had authorized capital of Rs. 25 lakh and paid up capital of Rs. 10 lakh in 2017-18 (Table 8.1). The PC had no sources to deal in any of the inputs and the output products. The District had 140 PACs which provided crop loans to individual farmers.

Among the 10 Directors of the Board, two were women, and most of the promoters were members of BoD who were nominated by producer groups from their areas. Besides the CEO position, which was vacant, there were five support staff and 70% of their cost was still borne by promoter by POPT (Chan Foundation). The PC sold only fertilizers and only 100 farmers bought exclusively from it.

In 2017-18, the sales of the PC were of the order of Rs. 4.41 lakh which increased to Rs. 6.22 lakh in 2018-19. The major inputs being traded by the PC included 1000kg garden seed used by 450 farmers and pesticides used by 420 farmers. On the output side, most of the revenue came from sale of coconut copra, and coconut shell. The other big business came from purchase and sale of millets involving 110 members and paddy involving 25 members. The PC claims that the farmers received Rs 0.3 higher price per mt than the market price and in paddy and groundnut, it was Rs 100 and Rs 170 higher than the market price per bag.

Majority of inputs sales were to non-members but most of the produce (80%) was bought from members. 10 farmers sold regularly to the PC. 95% of its turnover came from output handling. On the output side, it had a retail outlet in its office where 50% of the revenue came from members. It also bought copra from farmer members (50) for sale to buyers like Marico besides

handling some groundnut and paddy produce. It claimed that it has promoted hybrid variety of coconut among its members. The handling of copra had given it large jump in turnover and matching equity from SPAC of the order of Rs. 10 lakh had been very significant. It had also facilitated loans of Rs. 40 lakh from Aardh Bach to its farmer members through the Federation.

The BoDs and staff of the PC had been trained by the promoter and other local agencies in Madurai. It had provided seven trainings to the CEO and five to the Board of Directors besides running farmer field schools (FFS) for paddy multiple times for 34 farmers and a coconut certificate course from a KVAFSU for 21 farmers.

It believed that eliminating intermediaries on the output side was one of its major best practices leading to better price realization for farmers. It had never bought for the government at MSP as there was a direct purchase centre for paddy and also market prices were generally higher than MSP. It was focused on black gram and paddy processing for scale up of its business.

The PC had availed warehouse loans and was able to sell paddy at fair price. It had planned processing of coconut into copra and groundnut shelling as additional activities for scale up and viability.

However, it faced problems of lack of storage space and lack of working capital for payment of advance to farmers as done by private market players. On the external side, it faced the challenges in locating relevant market for farmers produce. It claimed that 70% of the members and more of male members appreciated that PC was owned by them.

Table 6.5: Profile and Performance of Kottampatti PC

| Key Performance | 2015-17 | 2017-18 | 2018-19 |
|---------------------------------|----------------------|------------------------------|----------------------------------|
| Authorized capital (Rs. lakh) | 10 | 25 | 25 |
| Share capital (Rs. lakh) | 1 (10%) ¹ | 11 (44%) | 10 (40%) |
| Turnover (Rs. lakh) | 120 | 2 (including final dividend) | 50.45 (21.7% avg. loss incurred) |
| Profit (Rs. lakh) | 120 | -1 (20) | 0.5 |
| Reserves and Surplus (Rs. lakh) | 10000 | 47 | -420 |
| Assets (Rs. lakh) | 1 | 0 | 10.4 |

Note: ¹ share capital mobilised as %age of authorized capital

Ullampatti PC

This PC originated from 25 PIGs and 8 FLGs under 7 panchayat level federations promoted by ESAP and covered 25 villages under 5 Panchayats in one block of the district. It had 307 farmer members most of whom were small and marginal landowners and 20 even families. 60% of the members were women and 30% of total members were still active. The PC had authorized capital Rs. 20 lakh and paid up capital of only Rs. one lakh in 2015-17.

It had five members of the BoD, including one woman. Besides the CEO, it had a purchase manager and one field staff.

80% of the members had livestock and therefore, its major business on the input side was sale of cattle feed, 58% of which was sold to members and these sales accounted for 33% of total input sales. The other significant product sold by the PC was biofertilisers most of which were again sold to members. About 100 farmers purchased cattle feed and about 60% biofertilisers. It had received a NABARD grant of the order of Rs. 4.25 lakh for capacity building and similar amount was still pending. The CEO and the BoD had been exposed to business planning by the promoter twice.

The PC did no business for the first two years. Around 30% of its members were also members of the state's (Aavin's) dairy co-operative society (DCS) which made them default on milk deliveries. It was reported by the promoting agency staff that two of its own Board members were milk vendors and they didn't want PC to succeed. In fact, the milk collection centre of the PC was found to be closed on the day of the visit of the study team and it seemed it had not been functioning for a long time. The PC planned to buy maize and vegetables from its members to sell to bigger buyers.

Table 8.5. Profile and performance of Talimpatti PC

| Key Parameters | 2015 | 2016 | 2017 | 2018 |
|--------------------------------|-------|-------|------|------|
| Authorised capital (Rs. lakh) | 0 | 0 | 0 | 0 |
| Share capital (Rs. lakh) | 1000* | 1,000 | 1000 | 1000 |
| Reserve (Rs. lakh) | 0 | 0 | 0 | 0 |
| Profit (Rs. lakh) | 0 | -0.2 | -0.5 | -1.5 |
| Reserve and Surplus (Rs. lakh) | 0 | -0.2 | -0.5 | -1.4 |
| Assets (Rs. lakh) | 0 | 0 | 0 | 100 |

Note: * share capital mobilised as 50% of authorised capital

Periyakulam mango and veg PC

This PC registered in 2016 by 10 member promoters had 100 farmers who were members of 71 FICs which were earlier farmer clubs (FC) promoted under NABARD scheme. These members were spread across 28 villages of five Woda of Than District. PC was supported by ESAP (the PCFI) for three years (2016-18).

A farmer to become member needed to be a practicing agriculturist. 50% of the farmers were marginal, small or semi medium. 33% of the members were men and 50% of all members were active. The PC had authorised as well as paid capital of Rs. 10 lakh in 2017-18 (Table 8.7). It had not undertaken any transactions in input or output markets so far. It had tried mango sales for one year, but it did not make money and now looks at mango (drought-tolerant seeds) for value addition into drinkable power for supplying to various food and pharma companies.



Photo 6.7: A locked milk collection centre of the PSV PC in a village

One out of its five members of the Board was a woman and the only condition to become a member of the BoD was that the member should be active in PC. The PC had 9 staff including the CEO besides the CEO which include two marketing managers, one purchase manager, four dairy centre staff and one Accountant and administrative staff each. It had been given a 20 ton warehousing facility and a primary processing centre by TNSCM. The PC had also facilitated contract farming of geshkins with 42 members which has been fairly successful for two years. The PC received 10% commission for the facilitation. It had directly sold to wholesalers, drumstick seeds, its leaves, garlic, turain, mango, coconut, and milk. Very large part of its turnover came from milk and high value produce like garlic and drumstick. Its sold milk procured from 200 farmers to Godrej. The PC had not paid dividends to its members and had capitalized them as share capital. It had availed loans from NABARD and Anam's finance at 14% interest for lending milk cattle at farm level. The BoD and staff had been mostly exposed to business planning and day to day management of the PC by the promoter and at BIRD Bengaluru. The major problems faced by the PC include Directors losing interest in the PC, and lack of awareness among the GAs about the PC Act and rules. The PC planned to engage into direct exports with its own brand and set up a resource centre for PC trading with the help of state govt.

Table 6.7: Profile and performance of Periyakolam PC

| Key Performance | 2014-15 | 2015-16 | 2016-17 |
|---------------------------------|---------|---------|---------|
| Authorized capital (Rs. lakh) | 10 | 10 | 10 |
| Share capital (Rs. lakh) | 400%* | 1000% | 1000% |
| Turnover (Rs. lakh) | 2500 | 400 | 2500 |
| Profit (Rs.) | 100 | 125 | 100 |
| Reserves and Surplus (Rs. lakh) | 100 | 120 | 120 |
| Assets (Rs. lakh) | 100 | 120 | |

Note: * share capital notified as %age of authorized capital.

Kodai Hills Crops PC

This PC originating from 36 FIGs across 75 villages in three blocks of Dindigul district had 501 shareholders. 30% of the members of this PC promoted by ERAF and supported by NABARD were in active. The PC had authorized capital of Rs. 10 lakh and paid up capital Rs. 6.11 lakh (Table 6.8). The PC had only one staff at the level of CEO. 90% of the PC members are also members of the local PACE. Two of its FIGs run custom hiring Centres (CHCs) of farm machinery. It had been sanctioned a 500 metric tonne warehouse. 70% of its input sales were to the members and it had one retail shop. It had mostly bought coffee and pepper from the farmers and sold that to exporters receiving 2% commission. It had been into profit from the beginning and has applied for matching equity grant from SFAC. It had received Rs. 4.5 lakh grant from NABARD for capacity building and obtained loans of Rs. 45.5 lakh for working capital from Nabhikam. It had exposed its BoCs to the mechanisms for increasing farmer income at various places facilitated by the POPL.

Table 6.8: Profile and performance of Kodai Hills PCs

| Key Parameters | 2015-17 | 2017-18 | 2018-19 |
|-------------------------------|------------------|---------|---------|
| Authorized capital (Rs. lakh) | 10 | 10 | 10 |
| Share capital (Rs. lakh) | 611 ^a | 3000 | 6700 |
| Revenue (Rs. lakh) | 11 | 14 | 14 |
| Profit (Rs.) | 520 | 58 | 128 |
| % of Shares held by promoters | 100 | 11 | 70 |

Notes: ^a share capital mobilised as %age of authorized capital.

In 2017-18, the list of shareholders showed that at the end of the year, three shareholders had more than ten shares each, going upto 36, another six had ten shares each and 24 members had shares ranging between two and four. These 34 members held 150 shares out of the 622 shares of the PC.



Photo 6.10: Coffee plantation, and wet and dry coffee beans in the PC area (near Ittappan)

By early 2019, it had 501 members and Rs. 5.74 lakh share capital collected. It had fixed assets of Rs. 6.27 lakhs. It had also obtained two loans of Rs. 35 lakhs and Rs. 25.7 lakhs from NABARD in 2015 and 2018 respectively. It had also received a grant from NABARD for capacity building which was Rs. 4 lakh. It had most of its stocks which amounted to Rs. 26.48 lakh was composed of mainly coffee (Rs. 33.57 lakh) and pepper (Rs. 4.29 lakh). It found its location is disadvantageous and did not have qualified staff to manage the PC.

Theni Goat PC

69% of landholders in Theni district were marginal. The district produced pulses, vegetables and fruits and was also known as the cardamom city due to high quantity of cardamom production besides grape production throughout the year. It was also an agri-export zone (AEZ) for mangoes. The major crops grown were paddy, millets, pulses, sugarcane, oilseeds, coconut, cotton, fruits, vegetables, silk, spices and tea and coffee. 67% of the workers were farm labourers and 10% cultivators. 24% of the district's rural population was SCs which was higher than the state average (Kumar and Kulkarni, 2018).

Vidyal (meaning 'dawn') – an NGO which was set up in 1966 and had promoted 70 PCs in 11 districts, had been promoting SHGs of women since 1975 and they were aggregated into village level federations from 1997 and then into Panchayat level federations since 1998. The federations were the apex bodies of the Taluk level, village level and self-help group (SHG) structures and engaged in on-lending of loans to the members of the SHGs through the Block level and the village level federations.

The NGOs had organized 450 women in 250 self-help groups across 25 villages under a federation called Vidyal in 2000. This federation had further panchayat level and village level groupings going down to the SHGs with 12 to 20 members each. The federation provided credit to the groups who in turn gave it to the members. The groups retained 6% interest. The federation shared 3% interest with the VLF and PLF each.

The other federation (Varan) which represented 70 JLGs with 1000 members had panchayat level sub-federations and then 5 to 10 members with each JLG at the primary level. The PC had membership from both these federation members. Each member of the JLG contributed Rs. 100 as entry fee and deposited Rs. 2000 as contribution leading to Rs. 2.1 lakh one-time contribution and annual member subscription of Rs. 30, group maintenance of Rs. 100 per month and Rs. 100 per month for each PLF leading to 1.32 lakhs contribution.

The loans obtained by the federation at 12% rate of interest were lent out to the SHG members at 24% interest which included 2% each as a service charge for two federations at taluk and village level and 6% for the SHG for purchase of 10 goats and one mobile or purchase of two cows and one mobile phone. IFCO Kisan Sanchar Limited provided free mobile phone services. These loans were repaid within three years and each member made an earning of Rs. 1.5 lakh. Most of the members were marginal or small land and livestock owners and 25% were landless. 80% of the members of the SHGs availed of loans.

This PC, with support from CCD (technical) and NABARD (repayment waiver) under Commonwealth of Learning (CoL) was set up in 2013, had 1650 mostly women shareholders (only 33 men) from 77 FICs with 50,000 goats ranging from 20-200 goats per member and most of the members were small and marginal landholders and 1/3 completely landless. There were more than 5000 farmers in goat rearing in the district. For becoming a member of the PC, goat rearing was a must. All five of goat rearsers were non-migrant. 35% of all members were active. The PC had authorised capital of Rs. 20.5 lakh and paid up capital Rs. 10.5 lakh. It had reserves of Rs. 4 lakh. It bought cattle feed to supply its members and had 10 franchisees to rural areas to sell goat meat.



Photo 8.11: Their goat and goat pups in a village in PC area.

It had 10 members on the Board including two men and had a part time CEO and other marketing and accounts staff. It sold various farming inputs mostly to its members and 5% of them bought exclusively from the PC which had a retail shop on its premises. It also sold goats to its members and bought back goats mostly from the members and also the non-members and sold them further for profit as animals (200-400 per month) in six districts including Their and other markets like Paludom, or Kalinguram as well as whole meat through the franchised shop.

It had one franchised meat shop which sold three kinds of goat meat and skin was sold separately. 3-4 goats meat was sold daily. The differentiating factors for PC shop were hygiene and doing goat health check up before slaughter on the day of butchering besides freshness of meat. The meat shop opened only for a few hours in the morning and worked instead part time in it. It had introduced weight based purchase of animals unlike the observation based purchase by the private traders, and made instant payments. It also participated in community goat market which was held weekly. The weekly goat markets were issued out to private players by the government on the basis of tenders. The franchisees paid 10% royalty to the PC on sale of meat. 90% of its turnover was made up of goat and its meat sales.



Photo 6.20: A retail outlet of the PC at its office complex

It had already received matching equity grant of Rp. 10 billion from EFAC. It had received financial support from NABARD of the order of 7x. Each for three years in 2015. The members were trained by in-crop seed production by 70 To Tr with 30% of them being women and have trained more than 2100 farmers including 1257 women. The PC was the only goat PC in the district known for special breed of goat (Thani). The PC intended to study the meat market for its potential and focus on hygienic supply of meat. The SOC members and the staff were taken on exposure visits to various PCs before the registration of this PC. The PC claimed that all the members knew that they owned the PC.

Table 6.9: Profile and performance of Thani Goat PC

| Item | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|---------------------------------|---------|---------|---------|---------|
| Authorized capital (Rs. lakh) | 0 | 765 | 765 | 765 |
| Share capital (Rs. lakh) | 100000* | 2567000 | 2567000 | 2567000 |
| Turnover (Rs. lakh) | 379 | 147 | 2538 | 545 |
| Profit (Rs.) | 118 | 05 | 04 | 164 |
| Reserves and Surplus (Rs. lakh) | 00 | 00 | 00 | 107 |

Note: * - share capital provided as 10% of authorized capital

In 2016-19 more than 50% of the revenue came from sale of goat meat and 20% from sale of groceries and 10% from sale of pulses. In the previous year, more than 50% of the turnover came from the sale of groceries. Even during 2016-17 and 17-18, groceries sales accounted for more than 50% of the total sale of the PC.

The members of the PC obtained bank loan of Rs. 40,000, with own contribution of Rs. 4,500 for a period of five years at the rate of 12% interest. However, they repaid the loan in three years and made a profit of Rs 1.3 lakh each because 50% of the goats had doubled kidding and 10% even triple. The expenditure for raising these goats for three years included medical expenses besides insurance leading to a total of Rs 94400 per batch of 7 female goat and one male buck. On the other hand, these goats with less than 1% mortality and sale price of Rs 3000 for 60 goats led to revenue of Rs 2.4 lakh besides earning Rs 7200 from the sale of manure and milk. This led to a net earning of Rs 1.525 lakh.

A study of the effectiveness of its operations by an external agency which covered 48 borrowers for goat rearing across six villages in two blocks which had 245 borrowers revealed that the survival rate of the kids had significantly improved as reported by 24% and 48% of the respondents which ranges from more than 50% (substantial) and between 25 to 50% (significant) improvement, respectively. Similar responses were received on the number of goats born with 30% reporting more than 50% and 47% reporting 25 to 50% increase. Even the weight of goat was reported to have improved substantially and significantly by one-third of the respondents each. More importantly, 58% and 35% respondents reported substantial and significant improvements in the market value of goat. Forty percent also reported significant income increase from droppings. It has also found that the net returns from goat activity improved with increase in the level of education of the borrower. The birth of kids which was eleven in 2009 increased to 23 in 2011 and a borrower sold on an average 21 goats in 2013 compared with 15 in 2011. Overall, the net returns increased from Rs 9454 in 2009-10 to Rs 32161 in 2012-13. Majority of the women, after the loan, owned minimum of 30 to 40 goats worth Rs 1-1.2 lakh besides what they had sold by then. From the second year of the loan, each rearer had sold 12 to 15 goats for Rs 30000 and those with herd size of 40 also earned Rs 1000 per month from selling dung/goat droppings (Kumar and Kulkarni, 2013).

Overview, Conclusions and Recommendations

This chapter brings together the findings across all states, promote and PCs together in section 7.1, highlights the major problems of PC in section 7.2, examines best practices in section 7.3 and makes a few relevant recommendations in section 7.4.

7.1: Overview

As seen in previous chapters (2-6), the PC performance and impact varies widely depending on the PC, the promoter, and the location. Therefore, it is important to get an overall assessment of how PCs are doing at the aggregate level as revealed by this set of case studies. As table 7.1 shows the PC members were generally larger land holders unlike their non-member counterparts both in owned and operated land. In fact, the gap widened in operated land compared with owned land. These means were also statistically different from each other at both 1% and 5% level of significance for paired t-test (Table Appendix 7.1).

However, this is not to say that PCs exclude small farmers as still most of the members were owners and operators of around five acres of land. However, non-members were more close to marginal ownership and operation.

The average land ownership was low in WB and UP as expected both among members and non-members and very high in Rajasthan and very different from those of non-members (2.5 times larger for members). The members everywhere had higher average land holding both owned and operated across all states with large difference only in Rajasthan and Tamil Nadu both of which also had the highest average size of holding across all states (Table 7.1). It was goat rearing households which were landless or marginal landowners or operators which moderated the average size in Tamil Nadu and MP to some extent.

Table 7.1: State-wise Average owned and operated land of PC members and non-members

| State | Members | | Non-members | | Members | | Non-members | | Members | | Non-members | |
|----------|---------|------|-------------|-----|---------|------|-------------|-----|---------|-----|-------------|-----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Owned | 5.3* | 6.4* | 8.2 | 5.9 | 5.3* | 5.9* | 2.8 | 3.5 | 1.8 | 1.2 | 4.5 | 1.0 |
| Operated | 6.0* | 5.3* | 8.3 | 5.8 | 5.3* | 6.0* | 2.9 | 3.5 | 2.2 | 1.8 | 5.4 | 2.8 |

Notes: * including goat PC members/goat members; ** including goat PC members/non-members

It was important to know whether members in any way differed from non-members in their awareness of the PC. This has been an issue in the past in that very small percentage of members were aware of the PC details and its ownership. Therefore, this aspect was explored proactively as it has implications for promotion of the concept and the mobilisation efforts for organising a PC which determines its success or failure. As table 7.3 reveals though more of members knew the name of the PC (62%) compared with non-members (44%), it is still not very high and 17% did not know it at all and another 11% reported it wrong. At the state level, overall awareness of PC name among members hovered around 55% with the exception of UP where it was high at 88%. This was much higher than the knowledge of non-members where only 14% in Tamilnadu to as high as 71% of non-members in UP knew it but it was between 40-60% across the three states of Rajasthan, MP and West Bengal and only 14% in Tamilnadu (Table 7.2). Further, whereas 17% farmers knew PC was owned by farmers compared with only 4% of non-members thinking so, the more worrying part was the large proportion of members saying it was owned by PC employees (13%) and CoD (7%) besides the fact that 21% did not have any awareness of this aspect. 60% of non-members were in this category which is not very surprising.

Table 7.2: State-wise distribution of PC member and non-members by knowledge of PC name

| State | PC | | Members | | Non-Members | | Total | | UP | | Total | |
|--------|------------------|----------------------|------------------|----------------------|------------------|----------------------|------------------|----------------------|------------------|----------------------|------------------|----------------------|
| | Members (No.) | Non-Members (No.) | Members (No.) | Non-Members (No.) | Members (No.) | Non-Members (No.) | Members (No.) | Non-Members (No.) | Members (No.) | Non-Members (No.) | Members (No.) | Non-Members (No.) |
| Andhra | 2 | 333 | 4 | 242 | 2 | 224 | 2 | 224 | 7 | 267 | 11 | 434 |
| AP | 2 | 333 | 4 | 242 | 2 | 224 | 2 | 224 | 9 | 271 | 13 | 495 |
| MP | 0 | 100 | 2 | 20 | 2 | 20 | 2 | 20 | 0 | 0 | 2 | 20 |
| UP | 0 | 0 | 4 | 70 | 4 | 70 | 4 | 70 | 0 | 0 | 4 | 70 |
| Total | 4 | 433 | 10 | 332 | 8 | 318 | 8 | 318 | 16 | 237 | 24 | 554 |

At the state level, with the exception of UP, about 30% members in all states except WB did not know who owned the PC whereas in WB, 45% did not know it. The farmer members in UP, MP and Rajasthan knew that farmers owned it with %age going from 34% in Rajasthan to as high as 45% in MP and 56% in U.P. In WB, 36% thought it was owned by PC employees and that was stated by 24% farmers in Tamilnadu as well. Promoting agency came next in Tamilnadu (22%) and Rajasthan (15%) and MP (11%). A few farmers in all states except Tamilnadu also thought it was owned by government (Table 7.3). On the other hand, 70-90% non-members had no knowledge of PC ownership. In general, mostly farmer members joined PC due to encouragement and persuasion by PC promoters and PC employees (75%) with some others due to their friends advice (Table 7.4).

Even though the performance on ownership of the PC and its ownership is mixed, it is important to know the extent and nature of interface of PCs with their members on the input and output side of their business. On the input side, 85% members were buying seeds from the PC compared with only 8% non-members doing so. Also, a few other members (20%) combined buying from PC with other sources like dealers, PACS and other farmers or government outlets. Only 4% non-members reported such a purchase behaviour (Table 7.5). The reliance on PCs for chemical inputs like fertilisers and pesticides was very high with 51% and 27% buying exclusively from PCs and another 4% and 3% respectively combining it with other sources like dealers and PACS and government outlet (Table 7.6). But, this was much higher compared with non-member purchases from PCs which was only 11% and 8% respectively for fertilisers and pesticides. But, bio-input purchases were very low from PC with only 7% and 5% non-members buying from PC and 3% and 7% non-member farmers buying bio-fertiliser and bio-pesticides from PCs (Table 7.7).

Across states, the seed purchase from PCs varied from a low of 15% in Tamilnadu and WB to a high of 40-56% across MP, Rajasthan and U.P. or a combination of dealers and PCs in about 11-24% cases. Non-members mostly relied on dealers in all states especially MP, WB, and Rajasthan (87-97%) with some non-members buying from PCs as well (6-17% across states). Only about 5-18% members reported buying bio-fertilisers from PCs mostly in MP, U.P. and Rajasthan whereas non-members mostly bought them from dealers though only very small %age of all used them (3-16%). Bio-pesticides were also bought by only 2-12% of members across states (except WB where members bought it from dealers) as most of them did not use the product at all. Reliance of members for chemical fertilisers on PCs was high in MP and U.P. (88% and 71% respectively) and very low in Rajasthan, Tamilnadu and WB (2, 20 and 15% respectively). PACS was important source in MP and Rajasthan for about 28% farmers. On the other hand, majority of non-members bought chemical fertilisers from dealers in WB (78%), U.P. (85%) and Tamilnadu (90%) and 33% in Rajasthan and 42% in MP, with only 20-33% each in U.P., Rajasthan and Tamilnadu buying from PCs. Chemical pesticides were bought by 27-64% members in MP, U.P. and Rajasthan from PCs while non-members mostly bought them in all states (22-88%) from dealers.

Table 2.6: State-wise distribution of PC members by influencer for joining PC

| State | SP | Friends | Family | Others | Others | PC | NA | Total |
|-----------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| State-wise influencers | No. of members | No. of members | No. of members | No. of members | No. of members | No. of members | No. of members | No. of members |
| BEI | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Friends | 0 | 4 | 4 | 0 | 0 | 0 | 0 | 8 |
| PC Promoters | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PC Employees | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| PC employees and others | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| PC Promoters & PC Employees | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Others | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Total | 0 | 5 | 5 | 0 | 0 | 0 | 0 | 10 |
| BEI | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Friends | 0 | 4 | 4 | 0 | 0 | 0 | 0 | 8 |
| PC Promoters | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PC Employees | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| PC employees and others | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| PC Promoters & PC Employees | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Others | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Total | 0 | 6 | 6 | 0 | 0 | 0 | 0 | 12 |

Table 15: Distribution of PC members and non-members by source of Seeds

| Category/ Farmer's Source | Members | | Non-Members | |
|---------------------------------|----------------|---------------|----------------|---------------|
| | No. of farmers | Value of seed | No. of farmers | Value of seed |
| ADD | 7 | 28 | 4 | 120 |
| ADD, Dealers | 4 | 18 | 2 | 60 |
| ADD, Local Farmers | 1 | 60 | | |
| ADD, PMS | | | 1 | 60 |
| ADD, PC | 4 | 120 | | |
| Dealers | 8 | 2400 | 10 | 360 |
| Dealers, Local Farmer | 3 | 24 | 2 | 120 |
| Dealers, Local Farmer, ADD | 1 | 60 | 1 | 60 |
| Dealers, PMS | 9 | 27 | 4 | 180 |
| Dealers, PMS, PC | 1 | 60 | | |
| Dealers, PC | 15 | 607 | 21 | 60 |
| Local Farmers/PMS | 2 | 60 | 1 | 60 |
| Local Farmers | 17 | 18 | 20 | 18 |
| Local Farmers, PC | 3 | 60 | 2 | 60 |
| Military | | | 1 | 60 |
| Other FPO | 1 | 60 | 2 | 60 |
| PMS | 6 | 18 | 3 | 60 |
| PMS, PC | 1 | 60 | | |
| PC | 16 | 1251 | 25 | 78 |
| Doesn't buy | 24 | 12 | 4 | 18 |
| Total | 112 | 700 | 141 | 600 |

In case of black gram and green gram there was increase in the number of farmers selling to the PC after three years. However, in the case of maize, the number of farmers and output remained the same as was the case with paddy or potato. In soyabean, wheat and yellow gram, there was no change in the number of farmers which was a few even after three years among the non-members.

On the other hand, the number of farmers selling through the PCs increased from 3 to 13 in black gram and from 3 to 12 in cotton and even in black gram came to 2 to 3 besides red gram from 1 to 4. There was also substantial increase in numbers to green gram and groundnut from 2 to 3 and 3 to 7 respectively. In fact, the biggest increase in numbers was in maize which increase from 6 to 19 farmers and in millets from 1 to 4 farmers over 3 years. Paddy also had a big increase in number of farmers selling through the PC from 1 to 3 as was the case in soyabean, where it increased from 4 to 11 and in wheat from 7 to 12. Among the members, there were also cases of contract farming in avocado, coconut, brinjal, and in the case of non-members, there was contract farming in chilli, and vegetables besides potato contract farming through the PC by five farmers (Table 15).

Table 2.6: Distribution of PC members and non-members by source of chemical inputs

| Chemical inputs Category/ Membership Source | Terraces | | | | Paddy | | | |
|--|-------------------|---------------|-------------------|---------------|-------------------|---------------|-------------------|---------------|
| | Members | | Non-Members | | Members | | Non-Members | |
| | No. of Members | % of Total | No. of Members | % of Total | No. of Members | % of Total | No. of Members | % of Total |
| ADO | 2 | 0.60 | 7 | 2.00 | 3 | 0.80 | | |
| Dealer | 10 | 2.70 | 163 | 46.00 | 18 | 5.00 | 36 | 10.00 |
| Dealers, PMS | 3 | 0.80 | 1 | 0.30 | | | 1 | 0.30 |
| Dealers, Local Farmers, PMS | | | 1 | 0.30 | | | | |
| Dealers, PMS, PC | 1 | 0.30 | | | 1 | 0.30 | | |
| Dealers, PC | 11 | 3.10 | 5 | 1.50 | 4 | 1.10 | 1 | 0.30 |
| Local Farmers | 2 | 0.60 | 6 | 1.80 | 1 | 0.30 | 7 | 2.00 |
| PMS | 56 | 15.80 | 24 | 6.80 | 3 | 0.80 | 2 | 0.60 |
| PC | 103 | 29.00 | 36 | 10.00 | 30 | 8.30 | 18 | 5.00 |
| PC, ADO | 1 | 0.30 | | | 1 | 0.30 | | |
| PC, Other farmer groups | | | 1 | 0.30 | | | | |
| PC, PMS | 1 | 0.30 | | | | | | |
| Don't Buy | 10 | 2.80 | 85 | 24.00 | 67 | 18.50 | 39 | 11.00 |
| Total | 332 | 100 | 333 | 100 | 332 | 100 | 333 | 100 |

Table 2.7: Distribution of PC members and non-members by source of fertilizer inputs

| Type of Input Category/ Membership Source | Terraces | | | | Paddy | | | |
|--|-------------------|---------------|-------------------|---------------|-------------------|---------------|-------------------|---------------|
| | Members | | Non-Members | | Members | | Non-Members | |
| | No. of Members | % of Total | No. of Members | % of Total | No. of Members | % of Total | No. of Members | % of Total |
| ADO | 1 | 0.30 | 1 | 0.30 | 1 | 0.30 | | |
| Agri-Devt | | | | | | | | |
| Dealers | 14 | 4.20 | 26 | 7.80 | 14 | 4.20 | 16 | 4.80 |
| Dealers, PMS, PC | 1 | 0.30 | | | | | | |
| Dealers, PC | | | 1 | 0.30 | | | | |
| Local Farmers | 10 | 3.00 | 10 | 3.00 | 7 | 2.10 | 7 | 2.10 |
| PMS | 7 | 2.10 | 7 | 2.10 | 3 | 0.90 | | |
| PC | 24 | 7.20 | 16 | 4.80 | 24 | 7.20 | 11 | 3.30 |
| Don't Buy | 10 | 3.00 | 76 | 22.50 | 60 | 18.00 | 28 | 8.40 |
| Total | 332 | 100 | 333 | 100 | 332 | 100 | 333 | 100 |

Across states, majority of the farmers (60-83%) and average of 73% did not receive fertilizer

of subsidy information from PC of which they were members (Table 7.9) and only some in Tamil Nadu and WB reported getting subsidized inputs, (15%), equipment (8%) and loans (5%) respectively. In UP, just 4% farmers reported getting subsidized inputs and in Rajasthan, though 25% reported it but no details could be obtained (Table 7.10). In Tamil Nadu, 52% reported special loans for members and in Rajasthan 23% reported receiving input subsidies. In other states, there was no such special subsidies for any significant number of members where 94–96% reported receiving no special subsidy with overall response being negative for 30% members across states.

On the value placed by members on various services offered by PCs, about 22% members disliked them ranging from poor access to some services, lack of timely and adequate availability and so on, poor procurement of farm produce. The problem of poor procurement was particularly reported in UP (18%) (Table 7.11).

Box: Non-PC FPOs: Satpuda and Saptarishi

Member profiles and interface

Whereas Satpuda members co-operative (formed by PRASAN is MP) had all women members and Saptarishi Trust (by Chhattisgarh MIO) all male members as respondents, Satpuda members were also younger in age on an average 26 years versus 32 years. Further majority of Satpuda members were illiterate (20%) while majority of Satpuda were high school or middle pass (54%).

All of them in Saptarishi had farming as primary occupation but 20% in Satpuda mentioned machine cultivation as their primary occupation. For 70% of them farming was secondary occupation. As against this, 70% of Saptarishi members had no secondary occupation. Both FPO members were generally marginal farmers of less than one acre and operated with average being 1.6 and 1.8 acres for Satpuda and 1.5 and 1.7 acres in Saptarishi as owned and operated land respectively. Some of the Satpuda members did not even cultivate their owned land. Thus, 60% of Satpuda members were marginal and 60% each owned land were medium while 60% of Saptarishi were marginal owners and operators. But, Satpuda members had more livestock on an average of 4.1 heads with average of 2.3 buffaloes or cows or goat and even 0.9 goats per ha. But Satpuda farmers were by majority cattle rearer in case of Saptarishi.

Saptarishi member had higher cropping intensity (2.85 versus 1.51 of Satpuda) and a cropping pattern dominated by paddy, potato and groundnut compared with that of Satpuda which was dominated by maize, wheat, paddy and gram. Whereas all Satpuda members bought modern seeds from FPO (Co-op), the Saptarishi members mostly bought seeds from dealers and other sources including MCD and FPO, but, farm inputs like chemical fertilizers and were bought from dealers in both cases but 50% in both cases relied on FPO for agr. information.

Both the FPO members were aware of the FPO name with 51% in case of Saptarishi and 60% in case of Satpuda but a higher proportion in Saptarishi (64%) did not know who owned the FPO unlike the Satpuda members where only 20% did not know while 40% knew that former members owned it which was only 2% in case of Saptarishi. Only 20% in case of Satpuda thought it was owned by promoting agency (MIO) while in Saptarishi members thought it was owned by Govt. FPO employees or BDO other than 6% who said it was former member owned.

Governance and participation

Another major inclusion issue is the participation of women in PCs. As the data in table 7.8A reveals other than in TN (89%), MP and Rajasthan (25% each), there was hardly any women members among the respondents though there were separate all-women member PCs in states like Rajasthan, MP, and Tamilnadu. Rajasthan Page B reasonable because one of the PCs was a milk PC which had substantial proportion of women members. This is largely due to the fact that most of the time membership for a farmer PC is based on land ownership which is generally in the name of the male member's and also socio-cultural operations on women in these states especially among upper and middle castes. However, even the BoD of most PCs in Rajasthan and UP (with the exception of the milk PC in Rajasthan) had only one women member each if they were not all-women PCs. Even NDOB promoted milk PC in UP, did not have any woman BoD member.

Generally, members reported meetings being held monthly in majority cases across states (66%) followed by quarterly meetings (39%) with only 30% members attending them regularly and others only sometimes (25%) or occasionally (10%) with 15% never attending any of the meetings. This varied from only 35% attending regularly in UP to 65% doing so in Rajasthan (Tables 7.12 and 7.13). This is also corroborated by an exploratory study of 18 FPCs in Maharashtra which stated that in 54% PCs meetings of the BoD were monthly but only 13-70% shareholders across PCs attended AGMs held annually (Sakarya et al. 2013). However, most of the members across states (87% ranging from 70-100%) wanted to continue as members. The lowest was in MP (70%) and the highest in Rajasthan (100%). Further, 50% also were willing to encourage others to become member of the PC ranging from 21% in WB and UP to as high as 88% in Rajasthan (Tables 7.14 and 7.15).

A majority of members (83%) across states (87-94%) suggested interventions to procurement, (31%) better, timely, and lower cost input supply and procurement (3%) and rental of farm machinery and equipment (3%). Tamilnadu members were keen to get loans and input subsidies (11%) and see procurement happening (11%) while those in WB, wanted more of better input supply (8%) and their timely availability (3%) and farm improvements support (3%) besides procurement (8%). The UP PC members were particularly keen on better procurement (14%) and farm machinery rental (14%) and storage and warehousing facility (4%) besides lower cost and timely input supply and procurement at the same time (13%). The MP PC members also emphasised better inputs and extension advice, (14%), procurement (3%) and lower cost and timely input supply along with better procurement (7%). Similarly, Rajasthan farmers were keen on procurement (15%) better price realisation (6%), value addition (5%), new crops (4%), crop insurance (4%) and lower cost, inputs and procurement (4%) (table 7.16). This clearly shows output interventions were lacking in most cases and that is what matters the most for farmers as even if they produce at lower cost or higher output from same piece of land, if they are not able to sell it well, the farmer benefit goes missing.

The members suggested various ways to improve governance of the PCs which included more members, more professional resources, better governance at the BoD level and better trust among members about PC and more bonding especially in the case of Rajasthan. Co-

the management of the PC, in general, farmer members suggested expansion of membership, better communication among members and PC, and trained and professional staff for business management. The accountability to members came up as a big suggestion in Tamilnadu along with membership expansion while in WB, it was more about better communication and in U.P. more employee support for PC and more frequent meetings. In M.P. too, membership expansion was the main suggestion while some members also mentioned better business plans for making the PCs viable, while in Rajasthan, it was all about better professional management of the PCs (tables 7.17 and 7.18). In fact, out of nine PCs in M.P., 5 had some business plan, only one out of 4 had one in Rajasthan (excluding milk PC), and two out of 4 in U.P. (excluding milk PC). In W.B., it was just one PC out of five which had a business plan and in Tamilnadu, out of 3, no one had a business plan. Thus, only 17% of PCs had a business plan each.

It is also important to understand what makes some farmers join the PC while others don't. An examination of the factors which can be associated with farmers becoming members of PCs as against non-members, the logit regression results suggested that literacy ($p < 0.01$), ownership of livestock ($p < 0.01$), and being a member of any other farmer collectives like PACE, ERG, or another PC ($p < 0.01$) had a significant association with the membership of a PC/FPO. However, other factors included in the regression model like operated land and gender were not associated with the membership of a PC.

7.2 Organising models and Best practices in management and governance of PCs

Interestingly, there was not much variation across promoters and PCs so far as their organising levels and forms were concerned. In U.P. and WB, it was FPGs, WUGs and in one case farmer clubs which were the smallest levels of a PC membership. Since both JDS and BKSL in WB and BCTS and BKSL in U.P. as promoters were a part of the same family of BAFSN, they both followed the same approach. In M.P. too, it was all about ERGs and FPGs across PCs organised by different promoters which led to evolution of the PC structures. In Tamilnadu too, it was TLGs, FPGs, APGs across various promoters and also PCs. This happened as government agencies like BBAC and NABARD also recommended and supported such evolution and local NGOs anyway followed such local level mobilisation strategies for their work besides the fact that PCs based on such structures seemed more stable and sustainable (Singh and Singh, 2014).

An assessment of the best practices of PCs across states revealed a varied picture and not so many PCs being confident about calling their practices best practices.

In WB, major best practices across PCs were contract farming, value addition, building for rural Bangla, crop insurance new crops, and market linkages. In Rajasthan and U.P. a few innovative best practice were no credit club, new crops, and contract farming.

In Tamilnadu in case of PCs promoted by BEEDS NGO, some of the best practices followed by the PCs included direct procurement from farmers and payment at farm gate, no involvement of intermediaries in the transactions, and supply of quality inputs. In the case of Theodhambadi PC, the PC considered contract seed production by 20 farmers for NSC and bio-input business as

the best practices. It believed that the best way to help farmers is to intervene in the open market for better realization of price. Kottampatti PC also believed in eliminating intermediaries on the output side as one of its major best practices leading to better price realization for farmers. It also brought new hybrid variety of coconut to the member farmers and had corporate linkage for sale of nuts. Seeds PCs also provided crop and livestock insurance which was innovative as it reduced risk. They also sold to institutions and even arranged loans for members. These goat PC trading in goat markets and also franchising meat shop were important innovative best practices.

In MP, ASA promoted Banapur Mahila PC stated that its seed production intervention was very successful. Its other innovations included scaling up and branding of produce. The AIRSFI promoted Nivall PC ran its own brand in bio-inputs and focus on output marketing as best practices. The other innovations included: decentralized procurement and quality seed production. On the process innovations, organic farming practices in coffee and other crops in the same farms including facilitation of market with private market linkages for 7000 of its 10000 farmers in MP, out of whom 3000 were fully organic across PCs was important innovation.

The Panjmana goat PC treated own production and marketing of some of the inputs as best practice. Besides that it also considered weight based purchase of goats and other animals as process innovation. Similarly, Thana goat PC using franchisees for meat selling was also an innovation. On the other hand, Citra Women Coop PC had best practice innovations which included seed contract farming, direct market trading, and introduction of mechanical grading. The Ram Rahim PPC making use of warehouse receipt based loans for storing its produce in its own warehouses and participation in futures markets were its innovations and best practices.

NDDB's model of promoting milk PCs was based on certain rules of governance to enhance patronage, cohesiveness and governance and operating effectiveness which are: (i) they would do business with only members, (ii) new members could join only during specific windows in each year and only those with minimum supplies of milk could join. They had to maintain a ratio of 1:1 fresh to lean milk supply and they have to increase their thresholding after one year; (iii) there were classes of membership and face value of the share is revalued periodically and old members could leave the PC and retire their equity capital at present valuation besides 20% of the directors being co-opted experts. The elected members of the Board were forbidden from holding any political office and have staggered terms where one third retire every year; (iv) two year. This good governance is reflected in the scale of the milk PCs which were stable level.

However, it is also important to discuss other possible best practices for member co-ops which are relevant within India. First of all, equity mobilisation should be higher in such entities to create member stakes and interest over business entities in undertaking business with these companies. It is possible to mobilise more equity from within the membership. For example, (i) the PCs have attempted variation in shareholding related patronage to mobilise capital. One had voting rights linked to the patronage and another linked patronage to shareholding. Others had minimum patronage in terms of sale or purchase transactions annually with the PC

to remain members (NABARD, 2011). Further, dividends can be used to build equity. Since PCOs are income tax exempt now for five years, they should create reserves instead of passing on all the profits as prize benefit. The PCOs also need to define their boundaries in terms of member treatment versus non-member treatment and membership should be awarded more than non-members. Further, PCOs can make voting rights proportionate to member business in order to encourage more involvement of members of the PCO (Chakrabarti, 2015).

The PCOs also need to choose their activity portfolio carefully keeping in mind the member centrality. For this, they should do adequate value chain mapping of the relevant commodity sector before undertaking any intervention for farmer benefit. It is possible to identify new activities in local areas which are valuable for small farmer, e.g. custom hiring of farm machinery and equipment which they can't afford to buy but can rent in. This is being done in some parts of India visibly by private entities and PACS.

Large member base and involvement is crucial as also suggested by NODS experience across states to achieve economies of scale and scope and obtain member centrality and patronage. PCOs can also be made more gender inclusive by making both spouses (or one male and another female member) from the same household. Further, like the NCCs, they can also restrict membership by byelaws to remain viable and not become unwieldy in terms of membership size.

Further, though PCOs are generally focused on small producers to achieve inclusiveness, there is some merit in mixed member PCOs in terms of farmer base as that helps achieve scale and mobilise more equity. It is also argued that if they are composed of only small and marginal producers, they find it difficult to break even sooner, and later, due to small scale of their operations, bringing in larger farmers at a later stage creates problems of governance as it was originally designed with patronage cohesiveness.

Initial spade-work in member mobilisation is a must with wide stakeholder consultations, and settle pre-existing structures of collectivisation like WUAs. FPOs are helpful as it takes time to make farmers appreciate that they are building their own enterprise.

PCOs can be supported by various types of stakeholders like government, development NGOs, alternative trading agencies, donors, or private agribusinesses, but the promoter should have a definite time bound withdrawal strategy for PCOs to become self-sustaining. It is also important to have the basic units of producer company organization at a local level legally structured which can also undertake some business activities. Therefore, only informal collectives building up to the producer company may not be desirable.

In order for PCOs to achieve producer risk reduction (production and market), they should involve in contract farming, and crop insurance facilitation and even base their member economic relations on contract farming type of structure as in a competitive market it is important to have assured and reliable supplies from members.

For milk PCs, value addition was the strategy for their success. Further, they made payments directly into the bank accounts of the members. The milk procurement is managed by a single person called *sahayak*, and the companies have an asset light business model of owning few fixed assets and maintaining high asset turnover. Most importantly, member equity dominated capital structure and healthy retention of earnings is practiced to build reserves and raise creditworthiness (Bhah, 2016).

So far as professionalization of PCs is concerned, despite limitations of ability to hire competitive staff, the provision of expert Directors in BoD should be used to bring in skills and market knowledge for both cost and quality competitiveness.

On the financing front, the FIVTB role in their financing of PCs needs to be appreciated as they have designed innovative products for PCs since 2011 and today they have financed 50 such FPCs, mostly PCs in terms of working capital to PCs, Co-ops and societies for procurement of output, credit services to members, input supply, and infrastructures with best practices dominating the loans. The loans were of the order of Rs. 24 crore in 2017-18 and total financing since 2011-12 has been of the order of Rs. 41 crore. Every year, 20-30 PCs are supported with Rs. 5-10 crore loans at the interest rate of 13-14% and for a maximum of 18 months (FIVTB, 2016). The banks and NBFCs need to learn from this and design more innovative FPO related loan products.

Another best practice includes the entry into new trade channels by some PCs in groundnut in Gujarat and coffee in Karnataka wherein their produce is going into processing by well recognised companies in India. More of such markets should be explored as a part of global and national value chains and networks to capture value for member producers.

Good business plans and strategy is a must to compete in a globalised market and to attract funding. Therefore, adequate attention need to be paid to this aspect where special support can be provided to help PCs come up with robust business plans which need not be based only on existing crops and local enterprises of members.

There are cases of some PCs in Maharashtra creating FV value-added for seeds and animal capital which is quite innovative and gives leads to others to follow due to overcome capital and other constraints. Some well established PCs can take first route. Also, franchising is a mechanism to cut costs and reach larger markets for farm inputs and services and even output handling. Many PCs and Agri startups are using this to some tune now and this needs to be adopted by more PCs.

Table 7.6: Crop and channel-wise sale of output by all EC members across five states (2018 v/s 3 years before)

| Crop/Channel | 2018 | | | | | 2015 | | | | | 2012 | | | | |
|--------------|------|-------|------------|-------|--------|------|-------|------------|-------|--------|------|-------|------------|-------|--------|
| | Area | Yield | Production | Value | Export | Area | Yield | Production | Value | Export | Area | Yield | Production | Value | Export |
| Wheat | 1.14 | 100 | 114 | 11400 | 114 | 1.14 | 100 | 11400 | 11400 | 114 | 1.14 | 100 | 11400 | 11400 | 114 |
| Rice | 0.14 | 100 | 14 | 1400 | 14 | 0.14 | 100 | 1400 | 1400 | 14 | 0.14 | 100 | 1400 | 1400 | 14 |
| Maize | 0.14 | 100 | 14 | 1400 | 14 | 0.14 | 100 | 1400 | 1400 | 14 | 0.14 | 100 | 1400 | 1400 | 14 |
| Barley | 0.14 | 100 | 14 | 1400 | 14 | 0.14 | 100 | 1400 | 1400 | 14 | 0.14 | 100 | 1400 | 1400 | 14 |
| Other | 0.14 | 100 | 14 | 1400 | 14 | 0.14 | 100 | 1400 | 1400 | 14 | 0.14 | 100 | 1400 | 1400 | 14 |
| Total | 1.56 | 100 | 156 | 15600 | 156 | 1.56 | 100 | 15600 | 15600 | 156 | 1.56 | 100 | 15600 | 15600 | 156 |
| Wheat | 1.14 | 100 | 114 | 11400 | 114 | 1.14 | 100 | 11400 | 11400 | 114 | 1.14 | 100 | 11400 | 11400 | 114 |
| Rice | 0.14 | 100 | 14 | 1400 | 14 | 0.14 | 100 | 1400 | 1400 | 14 | 0.14 | 100 | 1400 | 1400 | 14 |
| Maize | 0.14 | 100 | 14 | 1400 | 14 | 0.14 | 100 | 1400 | 1400 | 14 | 0.14 | 100 | 1400 | 1400 | 14 |
| Barley | 0.14 | 100 | 14 | 1400 | 14 | 0.14 | 100 | 1400 | 1400 | 14 | 0.14 | 100 | 1400 | 1400 | 14 |
| Other | 0.14 | 100 | 14 | 1400 | 14 | 0.14 | 100 | 1400 | 1400 | 14 | 0.14 | 100 | 1400 | 1400 | 14 |
| Total | 1.56 | 100 | 156 | 15600 | 156 | 1.56 | 100 | 15600 | 15600 | 156 | 1.56 | 100 | 15600 | 15600 | 156 |

| Country | 2016 | | | 2017 | | | 2018 | | | 2019 | | |
|--------------------|-------------|------------|--------|-------------|------------|--------|-------------|------------|--------|-------------|------------|--------|
| | Revenue | Profit | Margin | Revenue | Profit | Margin | Revenue | Profit | Margin | Revenue | Profit | Margin |
| China | 100,000,000 | 10,000,000 | 10% | 120,000,000 | 12,000,000 | 10% | 140,000,000 | 14,000,000 | 10% | 160,000,000 | 16,000,000 | 10% |
| Indonesia | 80,000,000 | 8,000,000 | 10% | 95,000,000 | 9,500,000 | 10% | 110,000,000 | 11,000,000 | 10% | 125,000,000 | 12,500,000 | 10% |
| India | 120,000,000 | 12,000,000 | 10% | 135,000,000 | 13,500,000 | 10% | 150,000,000 | 15,000,000 | 10% | 165,000,000 | 16,500,000 | 10% |
| USA | 200,000,000 | 20,000,000 | 10% | 220,000,000 | 22,000,000 | 10% | 240,000,000 | 24,000,000 | 10% | 260,000,000 | 26,000,000 | 10% |
| UK | 150,000,000 | 15,000,000 | 10% | 165,000,000 | 16,500,000 | 10% | 180,000,000 | 18,000,000 | 10% | 195,000,000 | 19,500,000 | 10% |
| Germany | 180,000,000 | 18,000,000 | 10% | 198,000,000 | 19,800,000 | 10% | 216,000,000 | 21,600,000 | 10% | 234,000,000 | 23,400,000 | 10% |
| France | 160,000,000 | 16,000,000 | 10% | 176,000,000 | 17,600,000 | 10% | 192,000,000 | 19,200,000 | 10% | 208,000,000 | 20,800,000 | 10% |
| Japan | 220,000,000 | 22,000,000 | 10% | 242,000,000 | 24,200,000 | 10% | 264,000,000 | 26,400,000 | 10% | 286,000,000 | 28,600,000 | 10% |
| South Korea | 190,000,000 | 19,000,000 | 10% | 209,000,000 | 20,900,000 | 10% | 228,000,000 | 22,800,000 | 10% | 247,000,000 | 24,700,000 | 10% |
| Italy | 170,000,000 | 17,000,000 | 10% | 187,000,000 | 18,700,000 | 10% | 204,000,000 | 20,400,000 | 10% | 221,000,000 | 22,100,000 | 10% |
| Spain | 140,000,000 | 14,000,000 | 10% | 154,000,000 | 15,400,000 | 10% | 168,000,000 | 16,800,000 | 10% | 182,000,000 | 18,200,000 | 10% |
| Canada | 210,000,000 | 21,000,000 | 10% | 231,000,000 | 23,100,000 | 10% | 252,000,000 | 25,200,000 | 10% | 273,000,000 | 27,300,000 | 10% |
| Australia | 180,000,000 | 18,000,000 | 10% | 198,000,000 | 19,800,000 | 10% | 216,000,000 | 21,600,000 | 10% | 234,000,000 | 23,400,000 | 10% |
| Brazil | 130,000,000 | 13,000,000 | 10% | 143,000,000 | 14,300,000 | 10% | 156,000,000 | 15,600,000 | 10% | 169,000,000 | 16,900,000 | 10% |
| Mexico | 110,000,000 | 11,000,000 | 10% | 121,000,000 | 12,100,000 | 10% | 132,000,000 | 13,200,000 | 10% | 143,000,000 | 14,300,000 | 10% |
| Argentina | 90,000,000 | 9,000,000 | 10% | 99,000,000 | 9,900,000 | 10% | 108,000,000 | 10,800,000 | 10% | 117,000,000 | 11,700,000 | 10% |
| Colombia | 70,000,000 | 7,000,000 | 10% | 77,000,000 | 7,700,000 | 10% | 84,000,000 | 8,400,000 | 10% | 91,000,000 | 9,100,000 | 10% |
| Peru | 60,000,000 | 6,000,000 | 10% | 66,000,000 | 6,600,000 | 10% | 72,000,000 | 7,200,000 | 10% | 78,000,000 | 7,800,000 | 10% |
| Venezuela | 50,000,000 | 5,000,000 | 10% | 55,000,000 | 5,500,000 | 10% | 60,000,000 | 6,000,000 | 10% | 65,000,000 | 6,500,000 | 10% |
| Chile | 40,000,000 | 4,000,000 | 10% | 44,000,000 | 4,400,000 | 10% | 48,000,000 | 4,800,000 | 10% | 52,000,000 | 5,200,000 | 10% |
| Ecuador | 30,000,000 | 3,000,000 | 10% | 33,000,000 | 3,300,000 | 10% | 36,000,000 | 3,600,000 | 10% | 39,000,000 | 3,900,000 | 10% |
| Costa Rica | 20,000,000 | 2,000,000 | 10% | 22,000,000 | 2,200,000 | 10% | 24,000,000 | 2,400,000 | 10% | 26,000,000 | 2,600,000 | 10% |
| Panama | 15,000,000 | 1,500,000 | 10% | 16,500,000 | 1,650,000 | 10% | 18,000,000 | 1,800,000 | 10% | 19,500,000 | 1,950,000 | 10% |
| Dominican Republic | 10,000,000 | 1,000,000 | 10% | 11,000,000 | 1,100,000 | 10% | 12,000,000 | 1,200,000 | 10% | 13,000,000 | 1,300,000 | 10% |
| Honduras | 8,000,000 | 800,000 | 10% | 8,800,000 | 880,000 | 10% | 9,600,000 | 960,000 | 10% | 10,400,000 | 1,040,000 | 10% |
| Nicaragua | 6,000,000 | 600,000 | 10% | 6,600,000 | 660,000 | 10% | 7,200,000 | 720,000 | 10% | 7,800,000 | 780,000 | 10% |
| Paraguay | 4,000,000 | 400,000 | 10% | 4,400,000 | 440,000 | 10% | 4,800,000 | 480,000 | 10% | 5,200,000 | 520,000 | 10% |
| Uruguay | 3,000,000 | 300,000 | 10% | 3,300,000 | 330,000 | 10% | 3,600,000 | 360,000 | 10% | 3,900,000 | 390,000 | 10% |
| Guatemala | 2,000,000 | 200,000 | 10% | 2,200,000 | 220,000 | 10% | 2,400,000 | 240,000 | 10% | 2,600,000 | 260,000 | 10% |
| Belize | 1,500,000 | 150,000 | 10% | 1,650,000 | 165,000 | 10% | 1,800,000 | 180,000 | 10% | 1,950,000 | 195,000 | 10% |
| El Salvador | 1,000,000 | 100,000 | 10% | 1,100,000 | 110,000 | 10% | 1,200,000 | 120,000 | 10% | 1,300,000 | 130,000 | 10% |
| Haiti | 500,000 | 50,000 | 10% | 550,000 | 55,000 | 10% | 600,000 | 60,000 | 10% | 650,000 | 65,000 | 10% |
| Jamaica | 400,000 | 40,000 | 10% | 440,000 | 44,000 | 10% | 480,000 | 48,000 | 10% | 520,000 | 52,000 | 10% |
| Cuba | 300,000 | 30,000 | 10% | 330,000 | 33,000 | 10% | 360,000 | 36,000 | 10% | 390,000 | 39,000 | 10% |
| Dominican Republic | 200,000 | 20,000 | 10% | 220,000 | 22,000 | 10% | 240,000 | 24,000 | 10% | 260,000 | 26,000 | 10% |
| Honduras | 150,000 | 15,000 | 10% | 165,000 | 16,500 | 10% | 180,000 | 18,000 | 10% | 195,000 | 19,500 | 10% |
| Nicaragua | 100,000 | 10,000 | 10% | 110,000 | 11,000 | 10% | 120,000 | 12,000 | 10% | 130,000 | 13,000 | 10% |
| Paraguay | 80,000 | 8,000 | 10% | 88,000 | 8,800 | 10% | 96,000 | 9,600 | 10% | 104,000 | 10,400 | 10% |
| Uruguay | 60,000 | 6,000 | 10% | 66,000 | 6,600 | 10% | 72,000 | 7,200 | 10% | 78,000 | 7,800 | 10% |
| Guatemala | 40,000 | 4,000 | 10% | 44,000 | 4,400 | 10% | 48,000 | 4,800 | 10% | 52,000 | 5,200 | 10% |
| Belize | 30,000 | 3,000 | 10% | 33,000 | 3,300 | 10% | 36,000 | 3,600 | 10% | 39,000 | 3,900 | 10% |
| El Salvador | 20,000 | 2,000 | 10% | 22,000 | 2,200 | 10% | 24,000 | 2,400 | 10% | 26,000 | 2,600 | 10% |
| Haiti | 15,000 | 1,500 | 10% | 16,500 | 1,650 | 10% | 18,000 | 1,800 | 10% | 19,500 | 1,950 | 10% |
| Jamaica | 10,000 | 1,000 | 10% | 11,000 | 1,100 | 10% | 12,000 | 1,200 | 10% | 13,000 | 1,300 | 10% |
| Cuba | 8,000 | 800 | 10% | 8,800 | 880 | 10% | 9,600 | 960 | 10% | 10,400 | 1,040 | 10% |
| Dominican Republic | 6,000 | 600 | 10% | 6,600 | 660 | 10% | 7,200 | 720 | 10% | 7,800 | 780 | 10% |
| Honduras | 4,000 | 400 | 10% | 4,400 | 440 | 10% | 4,800 | 480 | 10% | 5,200 | 520 | 10% |
| Nicaragua | 3,000 | 300 | 10% | 3,300 | 330 | 10% | 3,600 | 360 | 10% | 3,900 | 390 | 10% |
| Paraguay | 2,000 | 200 | 10% | 2,200 | 220 | 10% | 2,400 | 240 | 10% | 2,600 | 260 | 10% |
| Uruguay | 1,500 | 150 | 10% | 1,650 | 165 | 10% | 1,800 | 180 | 10% | 1,950 | 195 | 10% |
| Guatemala | 1,000 | 100 | 10% | 1,100 | 110 | 10% | 1,200 | 120 | 10% | 1,300 | 130 | 10% |
| Belize | 800 | 80 | 10% | 880 | 88 | 10% | 960 | 96 | 10% | 1,040 | 104 | 10% |
| El Salvador | 600 | 60 | 10% | 660 | 66 | 10% | 720 | 72 | 10% | 780 | 78 | 10% |
| Haiti | 400 | 40 | 10% | 440 | 44 | 10% | 480 | 48 | 10% | 520 | 52 | 10% |
| Jamaica | 300 | 30 | 10% | 330 | 33 | 10% | 360 | 36 | 10% | 390 | 39 | 10% |
| Cuba | 200 | 20 | 10% | 220 | 22 | 10% | 240 | 24 | 10% | 260 | 26 | 10% |
| Dominican Republic | 150 | 15 | 10% | 165 | 16.5 | 10% | 180 | 18 | 10% | 195 | 19.5 | 10% |
| Honduras | 100 | 10 | 10% | 110 | 11 | 10% | 120 | 12 | 10% | 130 | 13 | 10% |
| Nicaragua | 80 | 8 | 10% | 88 | 8.8 | 10% | 96 | 9.6 | 10% | 104 | 10.4 | 10% |
| Paraguay | 60 | 6 | 10% | 66 | 6.6 | 10% | 72 | 7.2 | 10% | 78 | 7.8 | 10% |
| Uruguay | 40 | 4 | 10% | 44 | 4.4 | 10% | 48 | 4.8 | 10% | 52 | 5.2 | 10% |
| Guatemala | 30 | 3 | 10% | 33 | 3.3 | 10% | 36 | 3.6 | 10% | 39 | 3.9 | 10% |
| Belize | 20 | 2 | 10% | 22 | 2.2 | 10% | 24 | 2.4 | 10% | 26 | 2.6 | 10% |
| El Salvador | 15 | 1.5 | 10% | 16.5 | 1.65 | 10% | 18 | 1.8 | 10% | 19.5 | 1.95 | 10% |
| Haiti | 10 | 1 | 10% | 11 | 1.1 | 10% | 12 | 1.2 | 10% | 13 | 1.3 | 10% |
| Jamaica | 8 | 0.8 | 10% | 8.8 | 0.88 | 10% | 9.6 | 0.96 | 10% | 10.4 | 1.04 | 10% |
| Cuba | 6 | 0.6 | 10% | 6.6 | 0.66 | 10% | 7.2 | 0.72 | 10% | 7.8 | 0.78 | 10% |
| Dominican Republic | 4 | 0.4 | 10% | 4.4 | 0.44 | 10% | 4.8 | 0.48 | 10% | 5.2 | 0.52 | 10% |
| Honduras | 3 | 0.3 | 10% | 3.3 | 0.33 | 10% | 3.6 | 0.36 | 10% | 3.9 | 0.39 | 10% |
| Nicaragua | 2 | 0.2 | 10% | 2.2 | 0.22 | 10% | 2.4 | 0.24 | 10% | 2.6 | 0.26 | 10% |
| Paraguay | 1.5 | 0.15 | 10% | 1.65 | 0.165 | 10% | 1.8 | 0.18 | 10% | 1.95 | 0.195 | 10% |
| Uruguay | 1 | 0.1 | 10% | 1.1 | 0.11 | 10% | 1.2 | 0.12 | 10% | 1.3 | 0.13 | 10% |
| Guatemala | 0.8 | 0.08 | 10% | 0.88 | 0.088 | 10% | 0.96 | 0.096 | 10% | 1.04 | 0.104 | 10% |
| Belize | 0.6 | 0.06 | 10% | 0.66 | 0.066 | 10% | 0.72 | 0.072 | 10% | 0.78 | 0.078 | 10% |
| El Salvador | 0.4 | 0.04 | 10% | 0.44 | 0.044 | 10% | 0.48 | 0.048 | 10% | 0.52 | 0.052 | 10% |
| Haiti | 0.3 | 0.03 | 10% | 0.33 | 0.033 | 10% | 0.36 | 0.036 | 10% | 0.39 | 0.039 | 10% |
| Jamaica | 0.2 | 0.02 | 10% | 0.22 | 0.022 | 10% | 0.24 | 0.024 | 10% | 0.26 | 0.026 | 10% |
| Cuba | 0.15 | 0.015 | 10% | 0.165 | 0.0165 | 10% | 0.18 | 0.018 | 10% | 0.195 | 0.0195 | 10% |
| Dominican Republic | 0.1 | 0.01 | 10% | 0.11 | 0.011 | 10% | 0.12 | 0.012 | 10% | 0.13 | 0.013 | 10% |
| Honduras | 0.08 | 0.008 | 10% | 0.088 | 0.0088 | 10% | 0.096 | 0.0096 | 10% | 0.104 | 0.0104 | 10% |
| Nicaragua | 0.06 | 0.006 | 10% | 0.066 | 0.0066 | 10% | 0.072 | 0.0072 | 10% | 0.078 | 0.0078 | 10% |
| Paraguay | 0.04 | 0.004 | 10% | 0.044 | 0.0044 | 10% | 0.048 | 0.0048 | 10% | 0.052 | 0.0052 | 10% |
| Uruguay | 0.03 | 0.003 | 10% | 0.033 | 0.0033 | 10% | 0.036 | 0.0036 | 10% | 0.039 | 0.0039 | 10% |
| Guatemala | 0.02 | 0.002 | 10% | 0.022 | 0.0022 | 10% | 0.024 | 0.0024 | | | | |

Table 2.9: State-wise distribution of PC members by schemes and subsidies information provided by PCs

| Scheme/ Subsidy | IA | | 7 | | 10 | | 10 | | 10 | | 10 | | 10 | |
|---------------------------------|------------|-------------|-----------|------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|
| | PCs | Members | PCs | Members | PCs | Members | PCs | Members | PCs | Members | PCs | Members | PCs | Members |
| Agri-Mechanics | 4 | 156 | 3 | 236 | 1 | 148 | | | | | | | | |
| Animal and Poultry | 3 | 637 | 2 | 131 | | | | | | | | | | |
| Agri-Mechanics-irrigation | 3 | 385 | 3 | 208 | | | | | | | | | | |
| Drumstick farming | 2 | 657 | 2 | 71 | | | | | | | | | | |
| Restoration and Forecature | 1 | 238 | 1 | 38 | | | | | | | | | | |
| Cap and water supply | 3 | 142 | 2 | 18 | 3 | 988 | | | | | | | | |
| Soil and crops | 22 | 838 | 17 | 877 | 2 | 122 | 3 | 595 | | | | | | |
| PM Kisan (PM-KISAN) | 4 | 161 | 4 | 48 | | | | | | | | | | |
| Loan Management during Pandemic | 1 | 18 | | | 1 | 18 | | | | | | | | |
| Total | 44 | 1524 | 3 | 236 | 18 | 1627 | 1 | 137 | 4 | 1728 | 17 | 1728 | 23 | 2148 |
| Male | 304 | 7228 | 45 | 93 | 48 | 7228 | 41 | 8239 | 27 | 8272 | 38 | 8272 | 38 | 7861 |
| Female | 382 | 808 | 34 | 439 | 48 | 908 | 4 | 555 | 6 | 908 | 6 | 908 | 6 | 100 |

Table 2.10: State-wise composition of membership of PCs (excluding all women PCs) by gender

| Scheme/ Subsidy | IA | | 7 | | 10 | | 10 | | 10 | | 10 | | 10 | |
|-----------------|-----------|-------------|-----------|------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----|---------|
| | PCs | Members | PCs | Members | PCs | Members | PCs | Members | PCs | Members | PCs | Members | PCs | Members |
| Female | 1 | 215 | 11 | 280 | 16 | 242 | 1 | 18 | 18 | 867 | 28 | 178 | | |
| Male | 37 | 882 | 30 | 252 | 31 | 768 | 31 | 982 | 37 | 883 | 22 | 822 | | |
| Total | 38 | 1100 | 41 | 530 | 48 | 1010 | 32 | 1000 | 65 | 1850 | 50 | 1000 | | |

Table 220: State-wise Distribution of PC members by subsidy availed

| Subsidy | TN | | TR | | MH | | AP | | MP | | Odisha | |
|-------------------------------|----------------|------------|----------------|------------|----------------|------------|----------------|------------|----------------|------------|----------------|------------|
| | No. of members | % of total | No. of members | % of total | No. of members | % of total | No. of members | % of total | No. of members | % of total | No. of members | % of total |
| Boat subsidy | 14 | (3.9) | 3 | (2.8) | 33 | (11) | 1 | (1.2) | 5 | (1.7) | 0 | (0) |
| Loan | 35 | (10) | 3 | (2.8) | | | | | | | | |
| Boating and fishery subsidies | 3 | (0.8) | 2 | (1.9) | 10 | (3.5) | 1 | (1.2) | 76 | (23.2) | 15 | (4.6) |
| Bo | 32 | (9.2) | 30 | (27.2) | 100 | (35) | 40 | (46) | 100 | (30) | 31 | (9.4) |
| Total | 302 | (88) | 106 | (100) | 300 | (100) | 41 | (100) | 100 | (100) | 31 | (100) |

Table 221: State-wise Distribution of PC members by their perception of frequency of meetings of the PC

| Frequency | TN | | TR | | MH | | AP | | MP | | Odisha | |
|------------|----------------|------------|----------------|------------|----------------|------------|----------------|------------|----------------|------------|----------------|------------|
| | No. of members | % of total | No. of members | % of total | No. of members | % of total | No. of members | % of total | No. of members | % of total | No. of members | % of total |
| Weekly | 38 | (11.2) | 1 | (0.9) | 48 | (16) | 3 | (7) | 1 | (1.5) | 4 | (12) |
| Bi-weekly | 21 | (6.3) | 3 | (2.8) | 45 | (15) | 3 | (7) | 1 | (1.5) | 4 | (12) |
| Monthly | 26 | (7.8) | 10 | (9) | 104 | (35) | 12 | (28) | 1 | (1.5) | 6 | (18) |
| Quarterly | 23 | (6.9) | 4 | (3.7) | 120 | (40) | 21 | (48) | 0 | (0) | 12 | (36) |
| Annually | 0 | (0) | 2 | (1.9) | 10 | (3) | 1 | (2) | 1 | (1.5) | 1 | (3) |
| Don't know | 27 | (8) | 12 | (11) | 23 | (8) | 1 | (2) | 1 | (1.5) | 2 | (6) |
| Total | 302 | (88) | 106 | (100) | 300 | (100) | 41 | (100) | 100 | (100) | 31 | (100) |

Table 23: State-wise Distribution of PC members by their frequency of attendance in meetings of the PC

| Frequency | TN | | UP | | MP | | Bihar | |
|-----------|----------------|------------|----------------|------------|----------------|------------|----------------|------------|
| | No. of members | % of total | No. of members | % of total | No. of members | % of total | No. of members | % of total |
| Everytime | 63 | 63.72 | 41 | 41.17 | 44 | 44.44 | 42 | 42.42 |
| Sometimes | 33 | 33.28 | 11 | 11.23 | 20 | 20.20 | 20 | 20.20 |
| Rarely | 3 | 3.03 | 11 | 11.23 | 1 | 1.01 | 7 | 7.07 |
| Never | 12 | 12.17 | 2 | 2.02 | 1 | 1.01 | 11 | 11.23 |
| Total | 111 | 100 | 105 | 100 | 64 | 100 | 60 | 100 |

Table 24: State-wise Distribution of PC members by intention to continue as members

| Intention to continue as members | TN | | UP | | MP | | Bihar | |
|----------------------------------|----------------|------------|----------------|------------|----------------|------------|----------------|------------|
| | No. of members | % of total | No. of members | % of total | No. of members | % of total | No. of members | % of total |
| Yes | 107 | 100 | 7 | 6.67 | 1 | 1.56 | 24 | 40.00 |
| No | 2 | 1.89 | 1 | 0.95 | 53 | 82.50 | 37 | 61.67 |
| Total | 109 | 100 | 8 | 100 | 54 | 100 | 61 | 100 |

Table 25: State-wise distribution of members by intention to encourage others to become members of the PC

| Intention to encourage others | TN | | UP | | MP | | Bihar | |
|-------------------------------|----------------|------------|----------------|------------|----------------|------------|----------------|------------|
| | No. of members | % of total | No. of members | % of total | No. of members | % of total | No. of members | % of total |
| Yes | 71 | 71.43 | 11 | 11.23 | 41 | 64.06 | 31 | 51.67 |
| No | 28 | 28.57 | 88 | 88.77 | 23 | 36.43 | 57 | 93.33 |
| Total | 99 | 100 | 99 | 100 | 64 | 100 | 88 | 100 |

Table 7.77: State-wise Distribution of PC members by their suggestions for improvement of governance of PC

| Suggestion | IA | | TN | | MH | | UP | | MP | | Adjustment | |
|--|----------------|------------|----------------|------------|----------------|------------|----------------|------------|----------------|------------|---------------|------------|
| | No. of members | % of total | No. of members | % of total | No. of members | % of total | No. of members | % of total | No. of members | % of total | Prop. members | % of total |
| Control that is the PC. | 1 | 0.29 | | | | | 1 | 1.90 | | | 1 | 1.00 |
| More challenges. | 2 | 0.57 | | | | | 1 | 1.90 | | | 1 | 1.00 |
| More areas need to be identified in PC. | 4 | 1.14 | | | | | 1 | 1.90 | 1 | 1.90 | 2 | 2.00 |
| SC members should be notified. | 1 | 0.29 | | | | | | | 1 | 1.90 | | |
| Change Organogram and identify every item. | 1 | 0.29 | 1 | 0.85 | | | | | | | | |
| Professionalise the Organogram Structure. | 1 | 0.29 | 1 | 0.85 | | | | | | | | |
| Identify them about working. | 4 | 1.14 | 1 | 0.85 | 1 | 1.90 | 1 | 1.90 | | | 1 | 1.00 |
| Shorten the process. | 1 | 0.29 | | | | | 1 | 1.90 | | | | |
| Try first with an extra job. | 2 | 0.57 | | | | | 1 | 1.90 | | | | |
| More funding. | 1 | 0.29 | | | | | | | | | 2 | 2.00 |
| More funding. Recruit further members. | 1 | 0.29 | | | | | | | | | 1 | 1.00 |
| None | 303 | 84.06 | 103 | 80.1 | 40 | 66.66 | 38 | 84.4 | 77 | 94.2 | 45 | 64.3 |
| Total | 303 | 100 | 103 | 100 | 60 | 100 | 38 | 100 | 60 | 100 | 30 | 100 |

Table 238: State-wide Distribution of EC members by suggestions for better management of POC

| Problems | AS | | TN | | SR | | MP | | RP | | Total | |
|--|---------------------|-----------------|---------------------|-----------------|---------------------|-----------------|---------------------|-----------------|---------------------|-----------------|---------------------|-----------------|
| | N of suggestions | N of members | N of suggestions | N of members | N of suggestions | N of members | N of suggestions | N of members | N of suggestions | N of members | N of suggestions | N of members |
| Accountability | 2 | 249 | 2 | 249 | | | | | | | | |
| Labour force | 2 | 249 | 1 | 249 | | | | | 2 | 249 | | |
| Buy more quality of inputs | 1 | 249 | | | 1 | 130 | | | | | | |
| Communication regarding marketing | 4 | 174 | 1 | 249 | 2 | 488 | | | | | | |
| Cost decreases in input | 1 | 249 | | | | | | | 1 | 100 | | |
| Find management staff who efficient | 1 | 249 | 1 | 249 | | | | | | | | |
| Include more activities | 1 | 249 | 2 | 249 | | | | | | | | |
| More employees should be on membership | 2 | 249 | 1 | 249 | | | 2 | 249 | | | | |
| More | 1 | 249 | 10 | 952 | 9 | 600 | 48 | 3429 | 73 | 3322 | 46 | 1020 |
| Regional coverage | 1 | 249 | 1 | 249 | | | | | | | | |
| Other things organization may improve | 1 | 249 | 1 | 249 | | | | | | | | |
| Subsidized loans from government, student | 1 | 249 | 1 | 249 | | | | | | | | |
| Transparency | 1 | 249 | | | | | | | | | | |
| Training | 2 | 249 | | | 2 | 488 | | | | | | |
| Total | 302 | 1000 | 408 | 1000 | 24 | 600 | 97 | 1000 | 81 | 1000 | 41 | 1000 |

7.3 State specific problems of PCs and recommendations

The PCs in U.P. other than the milk PC were modest in their profile and performance with one still making small losses. Though most of them had moved out of loss making but that happened after 3-5 years of existence. Still they were small in membership numbers hovering around 1000 each. In case of at least one of the four, revenue was also very small even after 5 years. But, they had good portfolio of contract farming and banana as new crop in at least two cases and other one had tried contract farming unsuccessfully.

Most of the PCs in U.P. suffered shortage of working capital and some of them even shortage of qualified human resources to manage the PCs besides issues of internal governance which included poor member awareness and poor BoD capability to oversee and guide the affairs of the PC. The poor working and fixed capital led to poor coverage of members for farm services and problems in engaging with produce markets.

In Rajasthan, besides the typical problem of shortage of working capital and professional human across PCs, the governance of the PCs was a major concern in terms of leaving BoD or some members dominating the PC. For example, in one PC, multiple members from same village (250) has membership in PC (500 members). This was further accentuated due to the fact that most promoters were not locally based and had promoted the PC as projects for SFAC for limited period. Therefore constant oversight and hand holding from local promoter was missing.

There were also other reported problems in Rajasthan for PCs like high interest loans (13-15%) and lack of storage space as there are only 560 godowns in the state and cold storage exists only in 1% markets, many of which are not covered under warehouse receipts system (GoS, 2017).

M.P PCs also reported working capital shortage and high interest rate for loans in most cases besides the poor member awareness of their status and role in making the PC work. This was reflected in poor awareness of the farmer ownership of PC and poor market orientation of members which are signs about internal governance. The poor handling of PC business like unpaid stocks, competition from private sector and PACS, lack of availability of organic seeds were other reported challenges. In one case, large farmers and their lack of involvement in PC affairs and political affiliation and interference by large farmers also led to decline of the PC.

The PCs in WB faced lack of staff and working capital besides poor governance especially at BoD level and lack of awareness among members emerged as major issues. Most of these were internal challenges, though there were also external challenges like sporadic seed potato supply in one case, local competition and lack of government support for engaging in procurement of MSP in some cases.

Tamilnadu was no different in many of these aspects of PC governance and management and problems included: Shortage of working capital and lack of professional staff, poor BoD governance (manipulative) and lack of engagement, poor member awareness, poor govt.

support for the inputs, lack of infrastructures like storage space, local competition and even locational disadvantage in one case.

Lack of staff was reported as a major problem in the exploratory study of FPCs in Maharashtra where out of 13, 81% did not have any staff other than the CEO and 69% had not appointed any one as CEO where Chairpersons performed this role (Badratta et al. 2019). It also corroborates the working capital problem faced by PCs when it states that 46% of the study FPCs which had applied for cash credit limit (CCL) had been denied it by Public Sector Banks due to lack of solid track record for these years and lack of collateral besides defaulting by some of the BoDs.

One of the concerns which still remains is low equity mobilisation across most of the PCs across states which puts limits on the volume of loans and business they can undertake. This was true of various PCs (13) promoted by three different promoters like NABARD, IFAC and MACF in Maharashtra where the authorised equity was mostly Rs. 10 lakh and mobilised capital remained within 10-61% and more commonly within 50% of authorised capital even after 4-5 years of PC being set up. This was so as share value was only Rs. 100 (Badratta et al. 2019). Though the case study PCs had somewhat better performance on this aspect than those in Maharashtra, it was still small by any measure.

7.4 Policy Recommendations

Given the relatively large size of land holdings of the PC members compared with those of sub-members, there is need to seek membership of marginal and landless categories proactively to make the FPC journey more inclusive and impactful. This does not deny the fact that mixed membership still retains its rationale to gain scale and scope. This is only to highlight that those already excluded from other networks like institutional credit and produce market or traditional co-operatives need to be roped in as they need the FPCs much more than any other category of land owner or rural producer.

One of the most important findings of the study is that the output linkage still remain poor across most PCs and therefore, the impact on farmers is limited. This was also one of the important suggestions by the farmers when asked about how PC performance could be improved and PCs made more useful for them. There were many cases of PCs procuring for the government in pulses and oilseeds and in cereals in some cases but that was more to avail of the MSP and to earn some revenue for the PC and was limited in coverage and volumes. On the other hand, some PCs engaged in contract farming with private agencies like in potato or drumsticks or even weeds and that benefited farmers in terms of growing a new high value crop as well as realising assured and better prices especially because these crops did not have MSP protection. This becomes important in the recent context of the new contract farming Act 2020 implemented by the Union Government which provides a free entitlement for contracting agencies to work with farmers and it is here that PCs can play an important role as intermediaries or facilitators between the farmer members and contracting agencies to make smallholders attractive to such agencies because PC intervention can lower the transaction cost for the PC and bring large number of producers into the contract farming net which is much needed. Even in Maharashtra out of the 13 PCs studied, five were mainly dependent

on SFAC linkage for public procurement of pulses at MSP and also two had developed corporate linkages with agencies like Pepsi for potato and Amul for milk and fresh produce supermarkets for vegetables (Badrath et al, 2015). In fact, PCs should pro-actively engage in contract farming with their members for their own procurement as well as for supplying to processors and exporters until they have those capacities. This can help build more robust supply chains to earn better confidence and also earn farmer goodwill by bringing stable and assured prices to farmer members.

It was also observed that some promoters are too small to make any difference in terms of scale of farmer organization under the PC structure. For example in U.P. there were dozens of promoting agencies which had organized only one or two PCs each. Further, many of the promoters, not belonging to the local areas, unlike the traditional NGOs, did create large number of PCs but since they were not organically linked with local communities and organized these PCs more as projects, the viability and sustainability of such PCs was in question as seen in many cases in Rajasthan, U.P. and M.P.. The recent guidelines on promotion of FPOs with the help of cluster based business organization (CBBOs) can lead to multiplication of such PCs which may not have any one to look after them after the project duration and funding ends though the provision of longer term tax support provided in the guidelines can help prevent such a phenomenon.

Though most of the PCs were composed of very small and marginal landholders and even landless in some cases, there were a few e.g. the one in Madhya Pradesh and another in Rajasthan which had medium and large farmers as members and that was one of the reasons that one of them was a non-starter from the beginning and the other one also could not undertake any major business activity as there was no felt need for such collectivization.

The experience of WB and Tamil Nadu also shows that public support in the form of infrastructure and marketing opportunity can also help PCs pick up and turn profitable sooner or later. This was the case with PCs in West Bengal which had franchise rights of Batai Bangla supermarkets as operational entities which led to many farmers selling vegetables and fruits to these outlets which had very high number of footfalls and turnover. Similarly, in Tamil Nadu, the handing over of Tamil Nadu supply chain management (TNSCM) owned processing and warehouse infrastructure facilities gave a jump start to the PCs. In both cases, this was given on competitive bidding basis.

The new market Acts of the Union Government provide many new opportunities like stocking exemption for food products from the Essential Commodities Act (ECA, 2000) which they can use if they have warehousing facilities. Innovations in warehousing done to growing areas like by starts ups like Ergo and Arca-Collateral Warehousing and even National Collateral Management Limited (NCML) can help PCs help farmers realize better prices and get out of the compulsion of selling immediately after harvest due to the unsmoothed transactions with local traders and moneylenders. The warehouse receipts Act provides for the facility of loans against produce but physical infrastructure was missing earlier though it is still inadequate. The PCs should proactively hire or lease in such warehouses or make locals invest in them as managed by Ergo and PC then can manage them for their members and non-member benefit.

Also, the new Trade and Commerce Act, 2020 also gives FPOs/PCs from any permission and payment of market fee to the local APMCs and they can buy directly from farmers and even undertake contract farming activity to compete with private entities.

To deal with Working capital and investment capital problems of the PCs, working capital provision under priority sector needs to be activated to give loans without collateral for a limited period. The banks should be asked to give collateral free loans to FPOs as they do to the SMEs. The interest charged to FPOs should be priority sector interest rate as applicable to farmer and it should be collateral free upto Rs. 25 lakh. The FSI mandate of extending upto Rs. two crore loans to PCs under priority sector lending as direct agricultural credit and upto Rs. five crore under indirect agricultural finance needs to be enforced. In fact, there could be even sub-targets for FPOs under the FSI norms for indirect finance.

Since FPOs are like MSMEs, it is possible to mandate a part of all government purchases of food and other thru FPOs and even food supermarkets required to buy atleast 25% from FPOs like there is a provision of FDI in retail policy for MSMEs.

The NABARD proposal to set up infrastructure fund guarantee subsidiary for FPOs is welcome and it should also cover crop FPOs, not just animal husbandry and fisheries.

More training and capacity building for members and BoD required to create awareness and engagement and more equity. Professional training for staff is also required. In fact, there could be tie ups with rural management and agribusiness management colleges to train professionals for such roles which is more than simple agribusiness management. The co-operative training colleges at the state level should move to include FPOs under their mandate and train their BoD and executives as now NCDC is also involved in promoting FPOs.

The FPOs can benefit from ECA, 2020 if they have warehouses and are into processing, storage, packing, transport and distribution- any activity which adds value. The FPOs also should proactively make use of ECA, 2020 now to store product in warehouses and avail loans against it from banks. Further, the Farmer Produce Trade and Commerce Act, 2020 provides for e-markets by FPOs. This was earlier allowed in the APMC Acts where private wholesale markets could be set up by such collectives and there a few dozen such markets set up by FPO in Maharashtra already operating under the APMC Act. But, the Trade and Commerce Act, 2020 and the contract farming Act, 2020 both include the FPO under the definition of a farmer. But, no FPO is involved in production at most of them are into pre- and post-production, aggregation, trading and value addition. This needs to be changed to make FPOs buyers of farm produce in their own right and even contracting agencies with many of them see as they undertake seed contract farming with their members.

The state governments need to step in as they are located close to these entities and should frame definite policies and programs for organizing and supporting FPOs so just implement central schemes about it. Some states like Punjab, Kerala and Odisha have moved in this direction with policy and this needs to be encouraged and supported.

The Government of Kerala's 2015 Agricultural Development Policy has a separate chapter on FPO policy and provides for promotion of FPOs and FPOs by bundling them with the provision of an expert for each FPO for professional management and extending all policy benefits at par with co-operatives and also engaging them as agents in public procurement of MSP for various crops and implementing agencies for various government programs. It even provides for restricting the 'rice and coconut' business only to FPOs. Interestingly, it even gives the credit provision only to FPOs for their farmer members for various farm activities and investment like purchase of farm machinery or construction of wells or laying of pipelines, and also of bringing crop insurance and other risk protection for its members. For promotion of FPOs, the state SEAC is proposed as the FI in the state to train both SoD and professional staff for smooth functioning of FPOs and recommends an incubation period of 13-14 months before a PC is registered (GoK, 2015).

Punjab's FPOs policy of 2010 though does not commit any resources for promotion of FPOs from the state government but it has also included private limited and public limited companies under the Companies Act, 2013 also as FPOs which is likely to be abused if not monitored and checked carefully as any family and its members can also start a private limited company and all public limited companies need not adhere to norms of an FPO. Further, it stipulates that no political or electoral interferences would be made in the working of FPO in any way. Again this is reiterated that time. The Policy treats FPOs at par with co-operatives and corporations which is again surprising as no other state policy treats FPOs at par with corporations. Additionally, it also provides for facilitating contract farming between FPOs and bulk buyers. Like other states, it also provides for FPOs acting as procurement agents for MSP based procurement of various crops for FPOs. In fact, it says that it would treat them as 'athiyas' in the mandis and would be given preferences over individuals and other organisations. Further, like other states, FPOs would be allowed as implementing agencies for various agricultural development programs of the central and state government and other organisations. Unfortunately, it makes Punjab Agro-Export Corporation (PAGREXCO) as the nodal agency. Despite the fact that it is an export corporation. This state agency would appoint FPO J-man for helping FPOs on day to day basis for their operations and for preparing business plans. The state level committee would have two nominated FPO representatives while other members include various departmental officials and agricultural and veterinary university vice-chancellors and there is a provision for co-opting other officials. The only definite incentive specified is that all incentives under the state industrial business development policy 2017 would be available to all registered FPOs (GoP, 2010).

Odisha's FPO policy (2015) is very comprehensive and provides for treating FPOs at par with co-operatives and provides for single window clearance system for all approvals at the department of agriculture and home improvement. It even aims to provide land for FPOs at concessional rate for setting up exclusive storage, sorting, grading yards and processing plants. It also advises the state agricultural universities to introduce courses on FPOs in their rural management or agricultural management programs with a provision for one time capital grant of upto Rs. 50 lakh for such course and provision for reimbursement of student fees for such courses upto Rs. 10,000. Besides, there is a provision of 50% course fee reimbursement for FPO course fee for training run by IISD as back ended subsidy. It has also allocated a corpus

fund of Rs. 100 crore per year for promotion of FPOs with maximum seven year time frame.

Directorate of Horticulture is the nodal agency for FPO promotion in the state with each department having its own PI and project management unit (PMU) at district level. Each FPO would be eligible for investment promotion subsidy @ 5% of the value of fixed assets for purpose not specified but relevant. They are also exempted from stamp duty on loan agreements, credit deeds, mortgages and hypothecation for creating loans or lease deeds, lease cum sale and absolute sale deeds for purchase of fields, plots and godowns at the rate of 100% if used for office or retail or wholesale market or godown or processing or grading and sorting yard or similar purpose. The registration charges for loan documents, lease deeds and sales deeds entered into by FPOs are reduced to Rs. 250 per Rs. 1000 irrespective of size of FPO. These two exemptions are also applicable to lands purchased and converted (leased) used by FPOs for various purposes specified and similar activities. Further, interest subsidy of 4% per annum on term loans would be provided to FPOs for period of seven years which would be paid to various financial institutions on behalf of the FPOs, if the FPO does not default on loan repayment or interest on it. The state government would also establish an information and support centre for FPOs at the Directorate of Horticulture. (GoO, 2018)

Some states have started supporting FPOs in a big way even without a policy. For example, Tamil Nadu has provided Rs. 266.7 crore for financing FPOs thru TN SFAC which would have three components- mezzanine capital assistance (Rs. 90 crore), credit guarantee (Rs. 90 crore) and revolving fund (Rs. 166.7 crore). This is to support more than 500 FPOs in the state of which 150 are promoted by the state department of agricultural marketing and apiculture itself. The credit guarantee fund would provide easy access to bank credit for FPOs with 80% guarantee against default by the FPOs which would be written off eventually by the lending agency. This would be available for first 3-5 years of a FPO. The mezzanine capital would be a single fund corpus with a lending agency which would invest in the FPOs in the form of cumulative redeemable long term preferential capital or debentures at nominal rates, redeemable after five years (EIN, November 19, 2017).

Similarly, Karnataka allocated Rs. 60 lakh in 2017-18 for FPO promotion thru the state SFAC which was Rs. 85.89 crore in 2016-17 (GoK, 2018) but there is no separate policy on FPOs in the state which has directly promoted 73 FPOs across the state.

Bihar government has provided for 25% of the project cost as capital subsidy for FPOs as against 15% for individuals, partnerships firms and LLPs provided the project cost is at least Rs. 25 lakh, and it is credit linked. Further, under the PMDFPES, there is grant of 10% of the project cost linked with credit as long as the COOP produces and has been into it for at least three years and has turnover of Rs. one crore but they need to put in margin money (10% of the project cost) for working capital and the scheme is also available for common infrastructure creation. Upto Rs. five lakh can be availed for preparing a branding and marketing DPR with a ceiling of 50% of the total cost. Under the AIF, there is highest subsidy of 2% up to limit of Rs. five crore and a credit guarantee upto this amount under COTMSE scheme (GoB, 2009).

The state governments need to proactively offer APMC licenses to FPOs for commission agency or trading of agricultural produce as well as engage them in setting up farmer consumer market yards (FCMY) as provided in the model APMC Act, 2017.

The state governments can also provide initial seed capital in the form of grants to FPOs for undertaking initial business activities and allocate funds for CHCs under ATDA and other schemes based on need and merit.

Further, the government can incentivise private sector to work with FPOs when it undertakes procurement through contract farming or direct purchase which are now legal. Rather, state governments can incentivise it by not issuing on bank guarantee or the like or not linking contract price in any way to the MSP.

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