Transaction Costs in Agriculture inputs Procurement: Evidence from Farmer Producer Companies in Kolar District of Karnataka

ABSTRACT

The present study was undertaken in Kolar district of Karnataka state during 2021-22 to evaluate the economic benefits of members over non-members of Farmer Producer Companies (FPCs) in the purchase of agriculture inputs. A sample of 30 members each from six villages of Masti Venkatesh Iyengar Horticultural Farmer's Producer Company Limited-Malur (MVHFPCL) and Holur Horticulture Farmer's Producer Company Limited (HGFPCL) jurisdiction and 40 non-members from FPC jurisdiction were selected for the study. The findings of the study have shown that the prices of all agriculture inputs supplied by FPCs were less by two to three per cent compared to retailers in the market. The cumulative savings due to transaction costs (distance and time) for the purchase of agriculture inputs by members of HHFPCL and MVHPCL over non-members was ₹752.06 and 428.00 respectively.The incremental benefits realized through the purchase of agriculture inputs from FPCs by the membershave helped reducethe production costto the tune of ₹11,327. FPCs as an institutional model have helped farmers in reducing the transaction costs of the purchase of agriculture inputs.

Keywords: *Agriculture inputs, Transaction Costs, Farmer Producer Companies, Incremental Benefits, Institutional Model.*

1. INTRODUCTION

Subdivision and fragmentation of landholdings in India has led to a continuous decline in the size of operational holdings with every successive generation. About 86.21 per cent of the farmers in India are smallholders (125.86 million hectares). The small and marginal landholders suffer from various constraints such as the absence of economies of scale, access to information, and their inability to participate in the price discovery mechanism. The participation of these categories of farmers is further restricted by limitations like poor vertical and horizontal linkages and limited access to market, training and finance (Fernandez-Stark & Bamber, 2012). Poor information flow along the chain, has also been identified as a vital constraint. The market access problem is even more pronounced for small and marginal farmers. The situation has raised serious questions on the survivability of these smallholders (Pandeyet al*.,* 2010). The National Sample Survey Organization (NSSO) has reported that given the choice, 40 per cent of the farmers, wish to leave agriculture (Murray, 2009).

Under these conditions, the major challenge would be integrating these smallholders with the agricultural markets so that benefits from transforming agriculture, trade environment and growing economy may be optimized and help in realizing higher income for small and marginal farmers and lead to more inclusive growth.Formal orinformal institutional interventions have tried to link smallholders to the input and output markets. These include agricultural cooperatives, self-help groups, commodity interest groups, contract farming groups, direct marketing groups, etc. which can be registered under either the Cooperative Societies Act, Autonomous or Mutually Aided Cooperative Societies Act, Multi-State Cooperative Society Act, Producer Company (PC) or as Mutual Benefit Trusts besides as private or public limited companies. (Singh, 2022a). However, the cooperative structure in India does not give the freedom to operate in complex environments for large-scale co-operatives.Due to political interference, corruption, elite capture, and similar issues, the co-operatives soon lost their vibrancy and became known for their poor efficiency and loss-making ways with a few exceptions (Singh, 2022b). Capital constraints due to the withdrawal of financial support by the government, high competition from other players in the market, and lack of access to credit (capital) and technology are the other problems faced by cooperatives (Singh, 2008).

Looking at the deficiencies and inadequacies in these systems, a committee setup by Government of India under the Chairmanship of Dr Y K Alagh recommended for incorporation of Producer Companies (Alagh, 2007) under the Companies Act. Accordingly, an amendment was

made to the Companies Act, 1956 in 2003 in India, to include Producer Companies (PCs). The innovative institutional mechanism promoted under the Companies act helps aggregate farmers into FPO's/FPC's and innovation in agricultural marketing channels (Bhanot et al., 2021, Singh, 2021b).The purpose of these organizations was mainly to foster technology penetration, improve productivity, enable improved access to inputs and services and increase farmer incomes, thereby strengthening their agriculture-based livelihoods and also offeringawide range of benefits as compared to other forms of farmer's institutions prevailing in India (GoI, 2013a). FPOs help realize better output prices (Roy & Thorat, 2008) improve technology adoption, and get better credit terms (Patibandla & Sastry, 2004; Kumar et al., 2013; Kumar et al., 2018; Verma et al., 2019) and help appropriate a part of the value created in the chain by the private sector, for their members (Gersch, 2018). FPCs also offer infrastructure arrangements such as storage, processing, packing and branding (Singh, 2002;Onumah et al., 2007) technology support such as extension services and advisories and provision of quality inputs (Barham, 2009; Dev, 2012); and credit support such as during harvesting and sowing seasons (Reardon et al. 2009; Poulton et al. 2010; Dev, 2012). Economic welfare may be enhanced by FPO led marketing through several channels, enhance employment generation in farm and non-farm activities (Kumar et al., 2015; Singh et al., 2018), and better extension services that may lower input costs and enhance productivity (Rondot & Collin, 2001).

Reduction in transaction costs associated with transport, handling, and supervision have been highlighted by Lee et al. 2012 and Singh & Singh 2013. However, empirical studies show that the benefits due to the reduction in transaction costs in the production and marketing of member farmers produce through FPCs are limited. Hence, it is important to understand the reduction in transaction costs associated with producing and marketing agricultural produce and their plausible impact on farmers' welfare. This paper examines the economic benefits of the reduction in transaction costs of agriculture input procurement and the marketing of produce through FPCs in Karnataka with the following objectives; to assess the economic benefits of procuring agricultural inputs by farmer-members through farmer producer companies and economic benefits due to reduction in transaction cost of agriculture input purchase from FPCs.

2. METHODOLOGY

2.1 Sampling and Data

Kolar district in Karnataka was purposively selected for the study as there are seven FPCs promoted by the DoH-GoK and NABARD. Also, as the district has the highestarea under horticulture crops hence is hypothesized that there would be more demand for inputs for crop cultivation. Out of the seven FPCs, two FPCs, Masti Venkatesh Iyengar Horticultural Farmer's Producer Company Limited-Malur (MVHFPCL) and Holur Horticulture Farmer's Producer Company Limited-Holur (HHFPCL), promoted by Department of Horticulture were specifically as they were actively engaged in agriculture input business.

HHFPCL had about 25 villages under its jurisdiction with 1000 members as shareholders while MVHFPCL covered 18 villages with 1000 members as shareholders. After the selection of FPCs in the first stage, three villages namely Holur, Janapanahalli, and Gattahalli from HHFPCL location and three villages namely Rajenahalli, Gollahalli, and Doddakallahallifrom MVHFPCL were randomly selected in the FPC jurisdiction. A total of 60member farmers from two FPC with 10 member farmers each from the selected villages were randomly chosen for eliciting information on agriculture inputs purchase and output sales to FPC. To compare and contrast, 40 non-member farmers from four villages in the FPC jurisdiction were randomly selected for the study. Together, both member and non-member farmers constituted a total sample size of 100 farmers. The primary data were collected through a personal survey method through a well-designed and pre-tested structured schedule. The data were collected for the agriculture year 2021–22.Statistical tests (t & z) were performed out to test significance of the results between FPC and non-FPC farmers.

3. RESULTS AND DISCUSSION

3.1 Socio-economic Characteristics and Landholding of the Sample Respondents

The socio-economic characteristics of member farmers and non-member farmers of the farmer producer company presented in Table 1 show that the majority of respondents among the member farmers from HHFPCL were in the age group of 35-50 years (56.66 %), followed by those above 50 years (33.34 %) and those above 35 years were 10.00 per cent while in MVHFPCL the member farmers were between the ages of 35-50 years (53.34 %) followed by those >50 years (30 %) and those above 35 years were 16.66 per cent. On the education status of the sample respondents, in HHFPCL and MVHFPCL the percentage of illiterate member respondents was 33.34 and 20.00 per cent, respectively, while 37.50 per cent of non-member respondents were illiterates. The respondents with primary school education and high school education were 33.34, 16.66, 43.33

and 20.00 per cent for HHFPCL and MVHFPCL, respectively. The family size and its composition showed that the majority of the sample farmers from HHFPCL had a family size of four to six members (60 %) followed by less than four family size and families with nine and three members respectively.

The average dry and irrigated land for respondents of HHFPCL and MVHFPCL was 2.85, 3.25, 1.05, and 1.03 acres, respectively. In the case of non-FPC respondents, it was 2.72 (71.85 %) and 1.06 (28.05 %), respectively. In both the samples, dry land makes up for a larger fraction than irrigated land. The primary source of irrigation was bore wells and since a majority of the sample farmers were small and marginal and could not drill borewells and hence the percentage of irrigated land was low compared to dryland. The difference in land holdings between members of FPC and non-FPC members was statistically not significant.

Table 1. Socio-economic characteristics and landholding of the sample respondents in the study area

Characteristics	Member farmers of FPC (n=60)				Non-member farmers of FPC (n=40)	
	HHFPCL		MVHFPCL			
	Number	Percent	Number	Percent	Number	Percent
Age (years)						
< 35	03	10.00	05	16.66	04	10.00
35-50	17	56.66	16	53.34	25	62.50
> 55	10	33.34	09	30.00	11	27.50
Educational qualifications						
Illiterate	10	33.34	06	20.00	15	37.50
Primary school education	10	33.34	13	43.33	13	32.50
High school education	05	16.66	06	20.00	07	17.50
College education and above	05	16.66	05	16.66	05	12.50
Family size (number)						
< 4	09	30.00	05	16.66	10	25.00
4-6	18	60.00	19	63.34	24	60.00
> 6	03	10.00	06	20.00	06	15.00
Average land holding (acres)						
Average Dry land	2.85	73.07	3.25	75.93	2.72	71.95
Average Irrigated land	1.05	26.93	1.03	24.06	1.06	28.05
Average land holding	3.90	100	4.28	100	3.78	100

3.2 Profile of Sample FPCs in Kolar district of Karnataka

The company profile of Holur Horticulture Farmer Producer Company Limited (HHFPCL) and Masthi Venkatesh Iyengar Horticulture Farmer Producer Company Limited (MVHFPCL) is presented in Table 2. Both HHFPCL and MVHFPCL promoted by the Department of Horticulture, Government of Karnataka were located in Holurof Kolar *taluk* and Rajenahalli village of Malur*taluk* respectively and were registered under the Companies Act in the year 2017.

Table 2. Profile of selected FPCs for study in Kolar, Karnataka

Parameters	**Name of the FPCs**	
	HHFPCL	**MVHFPCL**
Year of establishment	2017	2016
CIN number	CINU01100KA2017PTC101507	CINU01400KA2016PTC086414
Total number of villages covered	28	18
Number of Board of Directors	10	9
Number of shareholders	1000	914
Number of women shareholders	136	215
Number of men shareholders	864	699
Total number of FIGs formed	52	40
Equity mobilized (₹)	10,00,000	10,00,000
Share amount per member	1100	1100
Total number of employees	03	04

The authorized capital of the HHFPCL and MVHFPCL was₹ 10 lakhs and member's subscription to share capital was ₹ 1100 each. The total number of villages covered by HHFPCL was 28 with 52 farmer interest groups and MVHFPCL covered 18 villages. The HHFPCL was managed by 10 Board of Directors (BOD) while it was nine for MVHFPCL. For both the FPC, the day-to-day activities were managed by a Chief Executive Officer (CEO) and two employees appointed by BOD. The major crops grown by the members of the HHFPCL were tomato, chili, potato, and capsicum while the members of MVHFPCL grew mango, tomato, and vegetables. The main activities undertaken by HHFPCL were the supply of agriculture inputs, dissemination of production and marketing information, and the sale of members' produce. HHFPCL established linkages with the collection centers of organized retail shops for better price realization for the member's produce. MVHFPCL undertook activities aboutthe supply of agriculture inputs to members, output procurement,

dissemination of production, and market information. The MVHFPCL also provided storage and transportation facilities to members.

3.3 Economic benefits of procuring agricultural inputs by member farmers through farmer producer companies

The FPCs in both locations have established backward linkages for procurement of agriculture inputs such as seeds, fertilizers (organic and inorganic), pesticides, bio-control agents, sprayers, and mulching paper from agriculture input agencies for supply to its member farmers. An attempt is made in the section below to highlight the incremental benefits for member farmers of FPC in the purchase of agriculture inputs from FPC compared to market prices and non-members of FPC.

The purchase of all agriculture by members and non-members of FPC is presented in Table3. The members of HHFPCL and MVHFPCL procured seeds at average price of ₹403.00 and 386.00 per kg, respectively, while the market price for one kilogram of seed was₹458.00. Members who purchased seeds from HHFPCL and MVHFPCL saved about ₹ 55.00 and ₹ 72.00 per kg of seeds, respectively compared to non-members who purchased seeds from market. The incremental benefits realized by members of FPC for seed purchase from FPC was 12-16 per cent.

On purchase of fertilizers (organic and inorganic), the average purchase price of fertilizers by members of HHFPCL and MVHFPCL was₹1407.50 and 1377.75 respectively for a bag of 50 kg while the non-members purchased fertilizers at ₹1475.58 per bag of 50 kg from the market. The incremental benefit for the purchase of fertilizers by members of FPC over non-members was 5-6 per cent. Similarly, members of HHFPCL and MVHFPCL purchased organic fertilizers (neem cake and pongamia cake) at ₹1233.33 per 50 kg and ₹1183.33 per 50 kg, respectively, while the market price for 0 kg of organic fertilizers was ₹1458.33. Members of FPC were able to save₹225.00 and 275.00 for 50kg of organic fertilizers with an incremental benefit of15-19 per cent.

For pesticides, members of HHFPCL and MVHFPCL purchased pesticides at ₹14225.00 per liter and ₹13920.00 per liter, respectively from FPC while the market price was around ₹15750.00 per liter. Members of FPC were able to save ₹1525.00 and 1830.00 per liter of pesticides an incremental benefit of 10-11 per cent. Biocontrol agents were purchased at an average price of ₹138.50 and 142.50 per kg, respectively by HHFPCL and MVHFPCL members. Whereas, a kg of biocontrol agents' costs was sold in the market at ₹ 165.00. Members saved ₹26.50 and 22.50 per kg of biocontrol agents by purchasing from HHFPCL and MVHFPCL, respectively. The incremental benefits for members for purchase of bio-control agents from FPC was 16-19 per cent.

The members of HHFPCL and MVHFPCL purchased mulching paper for ₹ 2900.00 and ₹ 2950.00 per piece, respectively. The market price for a piece of mulching paper was ₹3150.00 and hence members of HHFPCL and MVHFPCL saved ₹250.00 and 200.00 per piece of mulching paper, respectively. The incremental benefits for members for the purchase of mulching paper was 6-8 per cent. Similarly, sprayers were purchased by members of HHFPCL and MVHFPCL at ₹ 3100.00 and ₹ 3150.00 per piece, respectively. The market price for a single sprayer was ₹ 3550.00 and hence members of HHFPCL and MVHFPCL saved ₹ 450.00 and ₹ 400.00 per piece of sprayer, respectively with an incremental benefit of 11 to 12 per cent.

The HHFPCL and MVHFPCL members purchased sticky traps for ₹45.00 per piece whereas, the market price for a stick trap piece was ₹50.00 per trap. The members of HHFPCL and MVHFPCL saved ₹10.00 per sticky trap compared to market price with an incremental benefit of 20 per cent. On a cumulative basis, the overall reduction in the cost of purchase of inputs from HHFPCL and MVHFPCL for members was to the extent of ₹2609.57 and 2907.32, respectively.

Between HHFPCL and MVHFPCL, the sample members of MVHFPCL realized higher savings at ₹2907.32 compared to HHFPCL at ₹2609.57 an increment benefit of about 11 per cent. Except for mulching paper, the prices of agriculture inputs sold by MVHFPCL were lower than both HHFPCL and market prices. Members of MVHFPCL realized maximum benefit from the purchase of pesticides (19%), bio-control agents (19%) and seeds (16%) as compared to other agriculture inputs. It is reported that pesticides account for a noticeable share of all agriculture inputs sold by different retailers (Singh, 2016). Also, pesticides are expensive when compared to other agricultural inputs. Hence, the share of pesticides in the purchase of agriculture inputs by members was high in the study area as compared to other inputs as FPC sold pesticides at a lower price compared to the market price.However, t-test carried out to analyzethe significant difference in input prices of agriculture inputs purchased by members and non-members of FPC indicated that the purchase price of fertilizers, sprayers, mulching paper and bio-control agents were significant while for pesticide and organic fertilizers, it was non-significant at five per cent level of significance.

Table3. Savings from purchase prices of agriculture inputs by members from FPC

Inputs	**Purchase price by members**			**Member savings to market price**	
	HHFPCL	MVHFPCL	Market price	HHFPCL	MVHFPCL
Seeds (kg)	403.00	386.00	458.00	55.00 (12)	72.00 (16)
Fertilizers (50 kg)	1407.50	1377.75	1475.58	68.07	97.82

				(5.0)	(6.0)
Pesticides (liter)	14225.00	13920.00	15750.00	1525.00 (15)	1830.00 (19)
Organic fertilizers (50 kg)	1233.33	1183.33	1458.33	225.00 (10)	275.00 (11)
Bio-control agents (kg)	138.50	142.50	165.00	26.50 (16)	22.50 (19)
Mulching paper (nos.)	2900.00	2950.00	3150.00	250.00 (8)	200.00 (6.0)
Sprayers (No.)	3100.00	3150.00	3550.00	450.00 (11)	400.00 (12)
Sticky traps (No.)	45.00	45.00	55.00	10.00 (10)	10.00 (10.00)
Total (₹)				**2609.57**	**2907.32**

Figures in the parenthesis indicates percentage to the column total

3.4 Economic benefits due to reduction in transaction cost of agriculture input purchase from farmer producer companies

3.4.1 Distance travelled by the FPC farmers and non-FPC farmers to purchase agriculture inputs

In the study area, the average distance travelled by members of FPC to purchase agriculture inputs to FPC location was 1.73 km whereas the non-members travelled 19.82 km to purchase agriculture inputs from the market. Generally, the location of FPC is decided through discussion among board of directors of FPCs on access, space availability and distance to urban location. Hence, most of the FPCs are strategically located taking into consideration of these parameters. On average, the travel distance saved by FPC farmers to purchase agriculture inputs over non-FPC farmers was 18.09 km. As farmers travel multiple times to purchase agriculture inputs seeds, fertilizers (organic & inorganic) and other agriculture inputs, the cumulative savings in monetary terms due to distance travelled by FPC members over non-FPC farmers was ₹752.06. A study conducted by Shalini et al. (2022) on farmer producer companies in the selected district of Telangana state has indicated that 63 % of the member farmers agreed that through FPC they had realized a reduction in transportation cost to purchase inputs from FPC.

Minten et al. (2013) in their study on last mile (s) in modern input distribution: Pricing, profitability, and adoption in Ethiopia have indicated that increasing transaction and transportation costs over a 35 km distance, along a route mainly accessible to only foot traffic, led to a 50 per cent increase of the price of chemical fertilizer and a 75 per cent reduction in its use. Farmers who live about 10 km from the distribution centre face per unit transaction and transportation costs as high as the costs needed to bring the fertilizer from the international port to the input distribution centre (about

1,000 km). The study findings suggest that tackling the “last mile(s)” costs should thus be a priority to improve modern input adoption and use in these settings. Similarly, Udaykumar et al. (2020) in their study to assess the transaction cost of availing credit, showed that the transaction cost of availing credit was more in formal sources compared to informal sources as rent-seeking cost was the major cost in transaction cost followed by cost of documents and the opportunity cost of time spent. Hence, transaction cost of purchase of agriculture inputs plays a critical role in their adoption and use.

The average time spent by members of FPC to purchase various inputs such as seed, pesticides and fertilizers (organic & inorganic) was 36.75 minutes whereas non-FPC farmers spent 88.67 minutes. The opportunity cost of time imputed by considering labour wage rate in which was ₹ 600 in the study area, was ₹ 400. The difference in time spent by FPC and non-FPC farmers to purchase agriculture inputs was statistically significant. Hence, farmers' time saved in the purchase of agriculture can be effectively utilized for other agricultural activities.

3.4.2 Incremental benefits of FPC farmers over non-FPC farmers from time, distance and purchase price

The primary objective of FPC was to supply quality inputs such as seed, fertilizer, pesticides and other inputs at reasonably lower wholesale rates at farmers door steps. The members benefit through reduced input cost as FPCs are selling agriculture inputs at lower costs compared to retailers in the market. Also, the FPCs earn profits by bulk buying of agriculture inputs and their sales and also facilitating in custom hiring services of farm implements.

Incremental returns to FPC farmers over non-FPC farmers from time, distance and purchase of inputs is presented in Table4&5. The member farmers saved ₹ 470.40, ₹ 3645.79, ₹ 6711.15 and ₹ 500.37 for the purchase of seeds, fertilizers, pesticides and organic fertilizers, respectively from the FPCs. The incremental returns due to savings in transaction cost (travel distance and travel time) of purchase of agriculture inputs is ₹ 1180. On average, the incremental returns to the FPC farmers over non-FPC farmers for the purchase of agriculture inputs was to the tune of ₹ 11327. In other words, the reduction in the cost of cultivation for farmers by purchasing agriculture inputs was to the tune of ₹ 11,327.A study conducted by Annamalai, 2021 in Tamil Nadu hasshown that the establishment of an input store, custom hiring center and advisory services of the FPC has benefitted the member farmers in bringing down the input cost along with reducing unnecessary fertilizer usage.

Table 4. Incremental benefits to FPC farmers over non-FPC farmers from input procurement

Commodity	Total Qty.	Purchase price (Rs.)	Cost incurred	Time spent

					by farmer (Rs.)		(mins)	
	M	NM	M	NM	M	NM	M	NM
Seeds	2.58	2.82	1806.67	1806.67	67.50	67.50	36.08	36.08
Z - value	1.04		1.41		12.19**		11.67**	
Fertilizers	138.50	134.00	6703.33	6703.33	88.67	88.67	38.67	38.67
Z - value	0.51		1.18		12.99**		11.74**	
Pesticides	588.30	523.75	28383.33	28383.33	95.33	95.33	43.91	43.91
Z - value	2.22**		2.12**		14.27**		9.69**	
Organic fertilizers	31.06	29.22	3231.67	3231.67	72.67	72.67	38.16	38.16
Z - value	1.09		0.87		10.54**		10.56**	

Note: M – Member farmers, NM – Non-member farmers. Quantity procured in qtls. &liters
** significance at five per cent level

Table 5. Incremental benefits to FPC farmers over non-FPC farmers from time, distance and purchase of agriculture inputs

Inputs	Incremental returns to member farmers over non-member farmers (₹)			Total (₹)
	Time spent	Distance	Purchase price	
Seeds	108.33	161.25	200.82	470.40
Fertilizers	119.47	186.32	3340.00	3645.79
Pesticides	109.48	184.67	6417.00	6711.15
Organic fertilizers	90.73	219.82	189.82	500.37

FPCs were found to be an effective institutional mechanism for linking small farmers to the external world as they help farmers reap many tangible and intangible benefits, including improved market access, reduced transaction costs, achieving economies of scale, better quality and price realization for the produce and reduce risk (Nikam et al., 2019). According to Torero (2011), FPC plays five potential roles in strengthening markets for commodities produced, bought, and sold by smallholders: reducing transaction costs; managing risk; building social capital; enabling collective action; and redressing missing markets. Hence, the findings of the study also indicate the potential benefits of FPCs in reducing the transaction cost of the purchase of agriculture inputs to its members.

4. CONCLUSIONS

The role and functions of the FPC is to establish backward and forward linkages and provide access to services to its member farmers. Achieving economies of scale in transactions with input suppliers and buyers and improving one's bargaining power in business are the mechanisms to earn profits and distribute dividends to member farmers. Both the FPCs HHFPCL and MVHFPCL couldsell agriculture inputs to farmers' locationsat lowerprices thanretailers in the market. The incremental benefits realized through the members' purchase of agriculture inputs from FPCs have helped reduce production coststo the tune of ₹11,327. FPCs as an institutional model have helped farmers to buy agriculture inputs at a lower cost compared to local retailers and have helped them to reduce

transaction costs (travel and time cost) as FPCs deliver agriculture inputs close to the vicinity of farmers. However, for FPCs to stay in business with low margins, they must compete with retailers in the market who sell agriculture inputs on credit and without sales bills. Additionally, FPCs do not get company dealerships due to high sales targets, inability to produce their own assets, fixed deposits (2-7 lakhs) for purchase, etc. If FPCs get dealership, they can further supply agriculture inputs for an additional 5-7 percent discount to member farmers. Hence, the Government can facilitate dealerships of companies marketing agriculture inputs to FPCs and also facilitate in creation of their own assets which will help FPCs both for backward and forward linkages. Another problem faced by FPC on sales of agriculture inputs is that they are unable to keep adequate stock of farming inputs to be supplied for member farmers. Discussions with FPC office bearers indicated that FPC's lack space, infrastructure, high rentals for Office buildings, warehouse facilities to store inputs and sales outlet and inadequate working capital as reasons for not stocking enough of agriculture inputs. Hence, it is in this context, policy measures have to be undertaken to identify and allot unutilized government spaces such as agriculture produce market committee premises, *raita samparkakendra*(farmers contact centres), *Gram Panchayat*(self-governing unit at village level) land to FPCs to help them reduce operational costs and improve business.

REFERENCES

Alagh YK. Companies of Farmers. *In Transition Strategies for Sustainable Community Systems,* 2007; 8 (6): 289-293.

Annamalai S. For farmers, by farmers. 2021;Accessed December 2021. Available: https://www.thehindu.com/business/agri-business/for-farmers-by-farmers/article7695088.ece

Barham J,Chitemi C. Collective action initiatives to improve marketing performance: Lessons from farmer groups in Tanzania. Food Policy.2009; 34(1): 53-59.

Dev SM. Small farmers in India: Challenges and opportunities. Working paper 2012-014.2012; Indira Gandhi Institute of Development Research.Mumbai, India

Fernandez-Stark K,Bamber P. Inclusion of small and medium producers in the value chain: Assessment of five high-value agricultural inclusive business projects in Latin America Report. 2012;Centre on Globalization, Governance and Competitiveness, Duke University.

GerschI. Producer Organizations and Contract Farming: A Comparative Study of smallholders 'market strategies in South India. ZFW – Advances in Economic Geography, De Gruyter. 2018; 62(1):14-29.http://doi.org/10.1515/zfw-2017-0026.

Hobbs JE. Measuring the Importance of Transaction Costs in Cattle Marketing. American Journal of Agricultural Economics.1997;79:1083–95.

Kumar A, Shinoj P, Jee S. Do Dairy Co-operatives Enhance Milk Production, Productivity and Quality? Evidence from the Indo-Gangetic Plain of India.Indian Journal of Agricultural Economics.2013; 68 (3): 457-468.

Kumar A, Saroj S, Joshi PK,Takeshima H. Does Co-operatives Improve Household Welfare? Evidence from a Panel Data Analysis of Smallholder Dairy Farmers in Bihar, India.Food Policy.2018; 75: 24-36.

Murray EV. Linking farmers producing rainfed crops with markets- A new paradigm. Indian Journal of Agricultural Marketing.2009;23 (3), 168-178.

Minten B, KoruB, StifelD.The last mile (s) in modern input distribution: Pricing, profitability, and adoption. Agricultural Economics, 2013; 44(6): 629-646.

NikamV,Singh P, Ashok A, Kumar S. Farmer Producer Organizations: Innovative institutions for upliftment of small farmers. Indian Journal of Agricultural Sciences, 2019; 89 (9):15-24

Onumah, Davis J, Kleih U, ProctorF. Empowering smallholder farmers in markets: Changing agricultural marketing systems and innovative responses by producer organizationsMPRA Paper No. 25984.2007;University Library of Munich, Germany.

ShaliniV, Prajapati, MR,Vahoniya DR. A study of farmer producer companies (FPCs) in selected district of Telangana State. The Pharma Innovation Journal.2022; 11 (11):508-511.

UdaykumarMS, Umesh KB,Srikantha Murthy PS.Transaction costs in borrowing agricultural credit by farm households across rural-urban interface of Bengaluru. Current Journal of Applied Science and Technology, 2020; 39(39): 20-28.

PandeyT, Krishna N, Vickers V, Menezes A,Raghavendra M. Innovative payment solutions in agricultural value chain as a means for greater financial inclusion. Agricultural Economics Research Review. 2010; 23 (1): 527-534.

Patibandla M, Sastry T. Capitalism and Co-operation: Co-operative Institutions in a Developing Economy.Economic and Political Weekly.2004;2997-3004.

RoyD, Thorat A. Success in High-Value Horticultural Export Markets for the Small Farmers: The Case of MahaGrapes in India.World Development. 2008;36(10): 1874-1890.

Rondot P, Collion MH. Agricultural producer organizations: their contribution to rural capacity building and poverty reduction. Report of a Workshop.2001; World Bank, Washington. D.C.

Singh S. Contracting out solutions: political economy of contract farming in the Indian Punjab. World Development.2002; 30(9): 1621-1638.

Singh SS. Producer Companies as New Generation Co-operatives. Economic and Political Weekly.2008; 43 (20).

Singh SS. Innovative Agricultural Input Marketing Models in India: Performance and Potential. Final Report. 2016. Centre for Management in Agriculture Indian Institute of Management, Ahmedabad.

Singh SS. Gender and Producer Organisations: Case Studies of Performance and Impact of All-Women Member PCs in Central India. Indian Journal of Agricultural Economics. 2022 a;77 (3): 431-447.

Singh SS. Gender and Producer Organisations: Case Studies of Performance and Impact of All-Women Member PCs in Central India. Indian Journal of Agricultural Economics. 2022 b; 77 (3): 431-447.

Torero M. A Framework for Linking Small Farmers to Markets. Paper presented at the IFAD Conference on New Directions for Smallholder Agriculture. 2011;pp. 42. Rome, Italy.

Verma S, Sonkar VK, Kumar A, Roy D. Are Farmer Producer Organisations a Boon to Farmers? The Evidence from Bihar, India.Agricultural Economics Research Review, 2019; 32:123-137.