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Socio-economic determinants of small and marginal farmers' attitudes towards FPO services in South Gujarat

¹Swati Sharma, ²Ruchira Shukla, ³Gautam Parmar and ⁴Kuldeep Choudhary

¹Professor and Corresponding Author, ASPEE Agribusiness Management Institute, Navsari Agricultural University, Gujarat, India

²Professor, ASPEE Agribusiness Management Institute, Navsari Agricultural University, Gujarat, India

³Associate Professor, ASPEE Agribusiness Management Institute, Navsari Agricultural University, Gujarat, India

⁴Senior Scientist, ICAR-National Academy of Agricultural Research Management, Hyderabad, Telangana, India

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Corresponding Author: Swati Sharma

Abstract

The present study examined the participation and attitude of small and marginal member farmers towards Farmer Producer Organizations (FPOs) in South Gujarat, Gujarat, India. A descriptive research design was adopted, and primary data were collected from 450 member farmers selected through multistage stratified random sampling from 15 FPOs. The study aimed to analyse farmers' socio-economic characteristics, assess their attitudes towards FPO services, and determine the relationship between farmer profile and attitude. Results revealed that most respondents were middle-aged, moderately educated smallholders with medium household size, higher credit orientation, and active extension contact. Overall, 63.78% of farmers exhibited a favourable attitude towards FPO services, indicating positive perceptions of institutional benefits, risk reduction, and improved market access. Key service dimensions such as access to government schemes, bargaining power, and transparent payment systems received higher mean scores, although concerns regarding awareness, governance, and decision-making participation were also noted. Correlation analysis showed that education, mass media exposure, experience in FPOs, social participation, and economic orientation had significant positive associations with favourable attitudes, whereas age and risk orientation showed weak or negative relationships. The findings highlight the importance of capacity building, information dissemination, and participatory governance in strengthening farmer engagement. Policy implications suggest enhancing digital literacy, extension support, institutional convergence, and market-oriented interventions to improve service delivery and sustain member participation in FPOs.

Keywords: Farmer producer organization (FPOs), socio-economic profile, attitude, association

Introduction

In recent years, Farmer Producer Organizations (FPOs) have gained prominence as a collective institutional model aimed at improving the livelihoods of small and marginal farmers in India. These farmer-owned entities are designed to function as hybrid institutions, combining the benefits of cooperatives and private enterprises to enhance farmers' access to markets, inputs, infrastructure, and value addition opportunities (Bairwa *et al.*, 2014; Meena *et al.*, 2021) ^[1, 11]. Particularly in agriculturally dominant regions such as Banaskantha district in Gujarat, where rural households often struggle with fragmented landholdings, low bargaining power, and irregular income flows, FPOs represent a promising intervention for inclusive rural development.

The socio-economic characteristics of member farmers play a significant role in determining their level of participation and engagement with FPOs. Attributes such as education, income, landholding size, household type, and social networks influence not only the decision to join but also the perception of benefits and trust in the organization's governance and services (Saxena & Tyagi, 2017; Singh &

Meena, 2019) ^[13, 11, 16]. Educated farmers are more likely to understand the technical, financial, and managerial aspects of FPOs, while joint family structures may offer better labor availability and risk-sharing, enhancing participation (Jaiswal *et al.*, 2019; Sharma & Singh, 2020) ^[8, 14]. Similarly, farmers with higher income levels and diversified livelihoods—such as those involved in animal husbandry or agri-business—tend to demonstrate a more favorable attitude towards FPOs due to their greater exposure to market dynamics and entrepreneurial orientation (Chand *et al.*, 2017; Birthal *et al.*, 2015) ^[5, 4].

Despite the increasing popularity of FPOs across the country, several challenges persist. Issues related to transparency in financial transactions, equitable participation in decision-making, outdated technical support, and limited government convergence continue to affect member satisfaction and trust (Saxena & Tyagi, 2017; Singh, Meena, & Kant, 2021) ^[13, 17, 11]. Moreover, motivation to join FPOs is often driven by peer influence and social networks rather than institutional promotion, underlining the importance of informal channels in shaping

farmer behavior (Sharma & Singh, 2020) ^[14]. Given this context, the present study seeks to explore the socio-economic determinants that shape farmers' attitudes towards FPOs in the Banaskantha district of Gujarat. By examining variables such as education, income, family structure, and duration of membership, this research aims to provide empirical insights that can guide policymakers, development practitioners, and FPO promoters in designing more responsive and inclusive interventions that strengthen farmer collectives and ensure long-term sustainability. The objectives of the study are as follows.

- To study the socio-economic profile of small and marginal member farmers
- To study the attitude of small and marginal member farmers towards the services provided by FPO's
- To find out the association of small and marginal member farmers' profile and their attitude towards services provided by FPO's

Research Methodology

The present study adopted a descriptive research design and was carried out in the South Gujarat region. A multistage stratified random sampling technique was employed to select member farmers from Farmer Producer Organizations (FPOs). Fifteen FPOs were included in the study, and from each FPO, 30 small and marginal farmers were randomly selected, resulting in a total sample size of 450 respondents. Primary data were collected through personal interviews using a well-structured questionnaire developed in line with the specific objectives of the research. Secondary data were gathered from reports, journals, research articles, government publications, and company websites to provide relevant background and support to the study. The collected data were analyzed using appropriate statistical tools. Frequency and percentage analysis were used to describe the distribution of responses, while mean scores were calculated to assess the average perceptions of farmers. A Likert scale ranging from "Strongly Disagree" to "Strongly Agree" was used to measure farmers' attitudes and opinions. Standard deviation (S.D.) was computed to assess data variability. Further, correlation analysis was applied to examine the relationship between the socio-economic characteristics of member farmers and their attitudes towards FPO services. This method helped determine the strength and direction of association between continuous or ordinal variables such as age, education, landholding size, income level, and farming experience, and the attitude scores derived from the Likert scale.

Results and Discussion

The socio-economic and behavioural profile of FPO member farmers presented in Table 1 indicates that a majority of respondents belonged to the middle age group (70.00%) with secondary level education (56.00%), medium household size (42.67%), and small landholdings (54.00%), reflecting the typical target group of FPO interventions aimed at strengthening smallholder participation (BIRTHAL *et al.*, 2017) ^[3]. A considerable proportion of farmers possessed 10-15 years of farming experience (36.67%) and

moderate annual income levels, suggesting economic stability and decision-making capacity. Behavioural characteristics showed higher levels of credit orientation (49.55%), extension contact (43.33%), and innovativeness (45.43%), indicating active institutional linkage and openness towards new practices, which supports earlier findings on adoption behaviour and organizational participation (Rogers, 2003; Trebbin, 2014) ^[12, 19]. Most farmers reported medium levels of training, social participation, market orientation, and scientific orientation, highlighting a gradual shift towards commercialization and collective action. Government or FPO officials emerged as the major motivational source for joining FPOs (36.57%), emphasizing the role of change agents in diffusion processes (Rogers, 2003) ^[12]. The majority had 3-5 years of FPO experience (37.72%), were mainly involved in aggregation activities (60.00%), and were located within 5-10 km of FPOs, suggesting reasonable accessibility. Overall, the findings indicate that middle-aged, moderately educated smallholders with favourable behavioural orientations form the core membership base, which is considered conducive for collective marketing and institutional development (Rogers, 2003; Trebbin, 2014; BIRTHAL *et al.*, 2017) ^[12, 19, 3]. Table 2 presents the attitude of small and marginal farmers towards the services provided by FPOs, measured through a Likert scale. The findings indicate an overall favourable perception of FPO services, as reflected by relatively high mean scores. The highest ranked statement was "*Benefits from government/other institutions could be availed by FPO members*" (Mean = 3.82, Rank I), suggesting that farmers strongly recognize the institutional advantages of collective organizations. Similarly, *mitigating production and marketing risk* and *activities sometimes not as per members' needs* recorded high mean scores (3.78), indicating both positive expectations and certain operational concerns. Statements related to improving bargaining power (Mean = 3.68), eliminating middlemen (Mean = 3.61), and transparent payment systems (Mean = 3.61) also received favourable responses, highlighting the perceived role of FPOs in strengthening market access and reducing transaction inefficiencies. These findings are consistent with earlier studies which emphasize that producer organizations enhance market participation, collective bargaining, and institutional support for smallholders (BIRTHAL *et al.*, 2017; Trebbin, 2014) ^[3, 19].

However, moderate mean values for issues such as political influence, lack of awareness, limited member participation in decision-making, and operational difficulties indicate areas requiring improvement. Negative statements receiving moderate agreement suggest that while farmers acknowledge the benefits of FPOs, challenges related to governance, inclusiveness, and service delivery still persist. This aligns with the diffusion of innovation framework, where organizational effectiveness and member engagement influence adoption and sustained participation (Rogers, 2003) ^[12]. Overall, the results indicate a generally positive attitude among member farmers towards FPO services, with institutional benefits, risk reduction, and market support emerging as the most valued aspects.

Table 1: Socio-economic and personal characteristics of FPO member farmers

Variables	Category	Frequency	Percentage
Age	Young (≤ 35 years)	64	14.22
	Middle (36-50 years)	315	70.00
	Old (> 50 years)	71	15.78
	Total	450	100
Education	Illiterate	27	06.00
	Primary (Upto VII)	72	16.00
	Secondary (VIII to XII)	252	56.00
	Graduation and Above	99	22.00
	Total	450	100
Household size	Small (up to 4 members)	116	25.78
	Medium (5-7 members)	192	42.67
	Large (> 7 members)	142	31.55
	Total	450	100
Landholding size	Marginal farmer (< 2.5 acres)	207	46.00
	Small farmer (2.5 - 5.0 acres)	243	54.00
	Total	450	100
Farming experience	0 to 5 years	63	14.00
	5 to 10 years	113	25.11
	10 to 15 years	165	36.67
	Above 15 years	109	24.22
	Total	450	100
Annual income (lakhs)	1 to 2 lakhs	48	10.67
	2 to 3 lakhs	61	13.55
	3 to 5 lakhs	207	46.00
	Above 5 lakhs	134	29.78
	Total	450	100
Credit Orientation	Low	66	14.67
	Medium	161	35.78
	High	223	49.55
	Total	450	100
Extension contact	Low	113	25.11
	Medium	142	31.55
	High	195	43.33
	Total	450	100
Mass media exposure	Low	110	24.57
	Medium	184	39.14
	High	164	36.29
	Total	450	100
Innovativeness	Low	86	19.14
	Medium	159	35.43
	High	205	45.43
	Total	450	100
Training undergone	Low	126	28
	Medium	189	42
	High	135	30
	Total	450	100
Economic orientation	Low	134	29.71
	Medium	136	30.29
	High	180	40
	Total	450	100
Social participation	Low	99	22.00
	Medium	193	42.86
	High	158	35.14
	Total	450	100
Market orientation	Low	100	22.28
	Medium	202	44.86
	High	148	32.86
	Total	450	100
Scientific orientation	Low	95	21.14
	Medium	231	44
	High	157	34.86
	Total	450	100
Risk orientation	Low	130	29.14

	Medium	173	38.57
	High	147	32.29
	Total	450	100
Motivational sources for joining FPOs	Government/FPO officials	164	36.57
	NGOs	78	17.42
	Another member of FPO	127	26.86
	Relative/neighbour	81	19.15
	Total	450	100
Experience in FPOs (Years)	< 1 years	96	21.42
	1 to 3 years	151	35.14
	3 to 5 years	170	37.72
	>5 years	33	5.72
	Total	450	100
Enterprising Activity undertaken by farmers	Input supply	96	19.14
	Aggregation	210	60
	Retailing	73	20.86
	Total	450	100
Distances from FPO	Upto 5 km	173	38.57
	5-10 km	220	48.86
	Above 10 km	57	12.57
	Total	450	100

Table 2: Attitude of small and marginal member farmers towards the services provided by FPO's

Particular's	SA	A	N	DA	SDA	Cumulative Score	Mean	Rank
	5	4	3	2	1			
Enhancing farmers' backward and forward linkages with several enterprises	102(510)	152(608)	110(330)	58(116)	28(28)	1592	3.54	VI
Better accessibility to agricultural services	65(325)	157(628)	117(351)	87(174)	24(24)	1502	3.38	VIII
Improving bargaining power of members in the market	139(695)	141(564)	81(243)	63(126)	26(26)	1717	3.68	IV
Eliminating middlemen from the value chain	146(730)	117(468)	87(261)	67(134)	33(33)	1626	3.61	V
Activities of FPOs sometimes are not as per member's needs (-)	149(745)	141(564)	85(255)	62(124)	13(13)	1701	3.78	II
Ensured prices and a suitable market of products to farmers	102(510)	152(608)	110(330)	58(116)	28(28)	1592	3.54	VI
Fast and transparent payment system	146(730)	117(468)	87(261)	67(134)	33(33)	1626	3.61	V
Minimum role of members in decision-making activities of FPOs (-)	68(340)	163(652)	110(330)	82(164)	27(27)	1513	3.36	IX
Maximization of benefits of members	83(415)	117(468)	149(447)	77(154)	24(24)	1508	3.35	X
FPOs is not rigid as co-operatives	159(795)	131(524)	62(186)	73(146)	25(25)	1676	3.72	III
Emergence of conflict among the members (-)	58(290)	171(684)	109(327)	79(158)	33(33)	1492	3.32	XII
Inability to supply needed inputs to farmers at right time at competitive prices (-)	48(240)	161(644)	140(420)	77(154)	24(24)	1482	3.29	XV
Difficult to abide by the rules and regulations (-)	58(290)	171(684)	109(327)	79(158)	33(33)	1492	3.32	XIII
Political influences from outside. (-)	68(340)	128(512)	166(498)	60(120)	28(28)	1498	3.33	XI
Large farmers getting benefited (-)	31(155)	188(752)	124(372)	83(166)	24(24)	1469	3.26	XVII
Mitigating production and marketing risk	149(745)	141(564)	85(255)	62(124)	13(13)	1701	3.78	II
Discrimination among members of society. (-)	48(240)	161(644)	140(420)	77(154)	24(24)	1482	3.29	XVI
Difficult to register and run (-)	31(155)	188(752)	124(372)	83(166)	24(24)	1469	3.26	XIII
Membership not beneficial to farmers (-)	41(205)	178(712)	134(402)	75(150)	22(22)	1491	3.31	XIV
Benefits from government / other institutions could be availed by FPOs members	169(845)	128(512)	68(204)	73(146)	12(12)	1719	3.82	I
Members have equal power and right on resources and decision making	68(340)	128(512)	166(498)	60(180)	28(28)	1558	3.46	VII
Due to a lack of awareness among members, only a few people take benefit from FPO	159(795)	131(52)	62(186)	73(146)	25(25)	1676	3.72	III

Table 3: Distribution of member farmers according to their overall attitude towards the services provided by FPO's (n = 450)

Sr.	Categories	Range of indices	Frequency	Percentage
1.	Less favourable attitude	<52.43	97	21.56
2.	Favourable attitude	52.43 to 100.72	287	63.78
3.	More favourable attitude	>100.72	66	14.67
	Total		450	100
Mean=76.58 S.D.=24.14				

Table 3 presents the distribution of member farmers according to their overall attitude towards the services provided by FPOs. The results reveal that a majority of

respondents (63.78%) exhibited a favourable attitude, while 21.56% showed a less favourable attitude and only 14.67% demonstrated a more favourable attitude. The mean attitude

score of 76.58 with a standard deviation of 24.14 indicates a moderately positive perception of FPO services among small and marginal farmers. The predominance of favourable attitudes suggests that farmers recognize the benefits of collective action, improved market access, and institutional support offered by FPOs. These findings align with earlier studies which reported that participation in producer organizations enhances farmers' confidence, market orientation, and adoption behaviour (BIRTHAL *et al.*, 2017; Trebbin, 2014) [3, 19]. At the same time, the presence of a considerable proportion of farmers with less favourable attitudes indicates the need for strengthening awareness, service delivery, and member participation mechanisms. According to the diffusion of innovation theory, positive attitudes towards institutional innovations play a crucial role in influencing adoption and sustained engagement among farmers (Rogers, 2003) [12]. Overall, the table highlights that FPOs are generally perceived positively, though continuous capacity building and improved governance may further enhance members' perceptions.

Table 4: Association between farmer profile and attitude towards the services provided by FPO's

S. No.	Characteristics	Coefficient of Correlation (r)
1	Age	-0.043
2	Education	0.765**
3	House hold Size	-0.281
4	Land Holding	0.011
6	Farming Experience	0.466*
7	Annual Income	0.350*
8	Credit Orientation	0.545*
9	Extension Contact	0.425*
10	Mass Media Exposure	0.815**
11	Innovativeness	0.559*
12	Economic Orientation	0.623**
13	Social Participation	0.690**
14	Market Orientation	0.425*
15	Scientific Orientation	0.658**
16	Risk Orientation	-0.051
17	Experience in FPO	0.869**

(* Significant at 0.05 level, **Significant at 0.01 level)

The correlation analysis in Table 4 reveals significant insights into the relationship between various farmer profile characteristics and their attitude towards the services provided by Farmers' Producer Organizations (FPOs). The results show that education ($r = 0.765$) and mass media exposure ($r = 0.815$) have the strongest positive correlations with attitudes toward FPO services, indicating that higher levels of education and greater exposure to mass media are strongly associated with more favourable attitudes. Educated farmers are likely to better understand and appreciate the benefits of FPOs, while mass media exposure increases awareness and promotes favourable views, which is in line with the findings of Gavkare *et al.* (2025) [6] and Ghosh *et al.* (2025) [7], who reported that education and information exposure significantly influence farmers' perception towards FPOs. Similarly, experience in FPOs ($r = 0.869$) shows the highest correlation, suggesting that direct experience with FPOs plays a crucial role in shaping positive attitudes, as observed in earlier studies on FPO participation and entrepreneurial behaviour (Jose *et al.*, 2023) [9]. Moderate positive correlations are observed with

farming experience ($r = 0.466$), annual income ($r = 0.350$), credit orientation ($r = 0.545$), extension contact ($r = 0.425$), innovative orientation ($r = 0.559$), economic orientation ($r = 0.623$), market orientation ($r = 0.425$), and scientific orientation ($r = 0.658$). These factors suggest that farmers with more experience, higher income, a preference for innovation, and a focus on economic and market considerations are more likely to appreciate FPO services, which is consistent with the results reported by Belli and Karuna (2025) [2]. Extension contact also appears important, as farmers who engage with agricultural extension services tend to have a more positive attitude toward FPOs, supporting earlier attitudinal studies (Mall & Tripathi, 2025) [10]. On the other hand, age ($r = -0.043$), household size ($r = -0.281$), and risk orientation ($r = -0.051$) show weak or negative correlations with attitudes toward FPOs, suggesting that older farmers, those with larger households, and more risk-averse individuals may be less inclined toward collective institutional models. However, the weak correlation for land holding ($r = 0.011$) indicates that farm size does not significantly influence farmers' perception of FPO services. Finally, social participation ($r = 0.690$) demonstrates a strong positive correlation, indicating that farmers who are more socially engaged tend to have a favourable view of FPOs, possibly because social engagement aligns with the collective action principles and participatory nature of FPOs, which has also been highlighted in earlier empirical studies (Ghosh *et al.*, 2025; Gavkare *et al.*, 2025) [7, 6].

Suggestions and Policy Implications

- 1. Strengthening Education and Awareness:** Conduct regular trainings and promote digital literacy to improve farmers' understanding and use of FPO services.
- 2. Enhancing Mass Media and ICT Use:** Use mobile apps, social media, and local-language communication tools to share timely market and technical information.
- 3. Improving Extension and Advisory Services:** Organize demonstrations, expert interactions, and exposure visits to strengthen knowledge transfer and farmer participation.
- 4. Promoting Experience-Based Learning:** Encourage peer mentoring and exposure to successful models to build confidence and positive attitudes.
- 5. Ensuring Transparent Governance:** Involve members in decisions and maintain financial transparency to enhance trust and accountability.
- 6. Capacity Building of Leaders:** Provide leadership and management training to improve efficiency and member satisfaction.
- 7. Strengthening Market Orientation:** Promote aggregation, branding, and direct marketing while building strong buyer linkages.
- 8. Encouraging Social Participation:** Support group activities, meetings, and farmer clusters for better coordination and collective action.
- 9. Support for Older and Risk-Averse Farmers:** Offer customized training, simple advisories, and mentoring to increase participation.
- 10. Strengthening Institutional Convergence:** Improve collaboration with agencies and institutions to enhance access to schemes and resources.

11. Improving Accessibility and Service Delivery: Use decentralized and digital platforms to ensure timely inputs and transparent payments.

12. Monitoring and Feedback: Establish regular monitoring and feedback systems to improve performance and service quality.

Conclusion

The study concludes that Farmer Producer Organizations (FPOs) have emerged as an effective institutional mechanism for enhancing the participation and improving the attitudes of small and marginal farmers in South Gujarat. The findings clearly indicate that a majority of member farmers hold a favourable attitude towards FPO services, particularly in terms of access to government schemes, improved bargaining power, risk mitigation, and transparent payment systems. This reflects the growing recognition of FPOs as platforms that strengthen market access, reduce transaction costs, and provide institutional support to smallholders. The socio-economic and behavioural profile of the respondents suggests that middle-aged, moderately educated farmers with higher exposure to extension services, mass media, and collective activities are more actively engaged and exhibit more positive perceptions of FPOs. Correlation analysis further confirms that education, mass media exposure, experience in FPOs, social participation, and economic and scientific orientation play a decisive role in shaping favourable attitudes, whereas age, household size, and risk orientation show weak or negative associations. This highlights the importance of knowledge, experience, and social capital in sustaining farmer participation in collective institutions. Despite the overall positive outlook, the study also reveals certain challenges related to limited awareness, governance issues, unequal participation in decision-making, and service delivery gaps. The presence of a sizeable proportion of farmers with less favourable attitudes indicates the need for continuous efforts to strengthen transparency, inclusiveness, and responsiveness of FPOs. Overall, the study underscores that strengthening capacity building, information dissemination, extension contact, and participatory governance can significantly enhance farmers' engagement and satisfaction with FPOs. Policy interventions focused on digital literacy, institutional convergence, market-oriented strategies, and targeted support for older and risk-averse farmers will be crucial for improving the effectiveness and long-term sustainability of FPOs. By addressing these aspects, FPOs can play a transformative role in promoting inclusive agricultural development and improving the livelihoods of small and marginal farmers.

References

1. Bairwa SL, Meena LK, Lakra K, Kumar P. Farmers producer organization: Concept, practices and future scope. *Economic Affairs*. 2014;59(2):263-272.
2. Belli RB, Karuna KM. Socio-economic profile of Farmer Producer Organization members in North Karnataka: An empirical study. *Journal of Scientific Research and Reports*. 2025;31(9):463-472.
3. Birthal PS, Joshi PK, Roy D, Thorat A. Farmer producer organizations and market participation of smallholders in India. *Agricultural Economics Research Review*. 2017;30(2):223-233.
4. Birthal PS, Roy D, Negi DS. Farmers' participation in India's milk markets: Patterns and determinants. *Food Policy*. 2015;55:131-139.
5. Chand R, Saxena R, Rana S. Small farmers in India: Challenges and opportunities. *Indian Journal of Agricultural Economics*. 2017;72(1):1-27.
6. Gavkare NJ, Singh HC, Kumar M, Rohit, Singh S. Socio-demographic and economic determinants of farmers' attitude towards Farmer Producer Organizations (FPOs) in Maharashtra, India. *Journal of Scientific Research and Reports*. 2025;31(8):71-77.
7. Ghosh AK, Shrivastava P, Naberia S, Wani GK. Attitude of farmers towards farmer producer organization in Patan block of Jabalpur district (M.P). *International Journal of Agricultural Extension and Social Development*. 2025;8(4S):19-22.
8. Jaiswal DK, Patel NL, Sharma BL. A study on socio-economic characteristics of members of FPOs in tribal region of Gujarat. *Indian Research Journal of Extension Education*. 2019;19(1):28-31.
9. Jose AE, Jayalekshmi G, Lade AH, Karde R. Entrepreneurial behaviour of Farmer Producer Organization members: An empirical investigation. *Asian Journal of Agricultural Extension, Economics & Sociology*. 2023;41(9):175-189.
10. Mall G, Tripathi RPM. Farmer Producer Organizations through farmers' eyes: An attitudinal analysis. *Journal of Scientific Research and Reports*. 2025;31(3):122-128.
11. Meena MS, Jain R, Singh R. Strengthening Farmer Producer Organizations (FPOs) in India: Challenges and policy issues. *Indian Journal of Agricultural Economics*. 2021;76(3):309-316.
12. Rogers EM. *Diffusion of innovations*. 5th ed. New York: Free Press; 2003.
13. Saxena K, Tyagi R. Farmer Producer Companies in India: Conceptual issues and developmental interventions. *Indian Journal of Agricultural Economics*. 2017;72(3):321-330.
14. Sharma R, Singh RK. Social capital and collective action: Role of Farmer Producer Organizations. *Agricultural Economics Research Review*. 2020;33(Special issue):29-36.
15. Singh AK, Peshin R. Adoption of agricultural technologies: Role of extension education. *Indian Research Journal of Extension Education*. 2010;10(3):1-5.
16. Singh P, Meena MS. Attitude of farmers towards Farmer Producer Organizations: A study in Rajasthan. *Indian Research Journal of Extension Education*. 2019;19(2):25-30.
17. Singh P, Meena MS, Kant R. Gender participation and decision-making in farm activities: A study from rural India. *Journal of Rural Studies*. 2021;82:405-412.
18. Singh S. Producer companies as new generation cooperatives. *Economic and Political Weekly*. 2012;47(52):15-18.
19. Trebbin A. Linking small farmers to modern retail through producer organizations - Experiences with producer companies in India. *Food Policy*. 2014;45:35-44.