Market Linkages, Marketing Costs and Perceptions of Farmer Producer Organizations (FPOs): A Comparative Study of Members and Non-Members in Central Telangana

Bandaru Krishna Sai Srinivas[1], Shaik Reshma Sulthana[2*], Meda Hima Bindu[3], Snehal Mishra[4]

[1]Management Trainee, Gujarat Narmada Valley Fertilizers and Chemicals Limited, Bharuch, Gujarat-392015.
[2*]Assistant Professor, International Institute of Management Studies (IIMS), Pune, Maharashtra, India - 411033. https://orcid.org/0009-0006-2335-273X, email Id: sultanashaik06@gmail.com
[3]Ph.D. student, International Agri-Business Management Institute, Anand, Gujarat, India-388110. https://orcid.org/0009-0003-1478-704
[4]Senior Scientist (Agricultural Economics), Division of L.E.S & I.T, ICAR–Indian Veterinary Research Institute, Izatnagar, U.P., India – 243122. https://orcid.org/0000-0002-1183-9157

Abstract
Farmer Producer Organizations (FPOs) have emerged as crucial institutional mechanisms to empower small and marginal farmers, eventually leading to the development of rural ecosystems by improving farmers' access to inputs, markets, and services through collectivization and aggregation. This study, conducted from January to March 2025, analyzed the market linkages developed by FPOs and carried out a comparative analysis between members and non-members with respect to input procurement and produce marketing, farmers' perceptions of FPOs, and the problems faced by members. The study was conducted in the Central Zone of Telangana, covering two districts, Medak and Siddipet, and a total of five FPOs. Primary data were collected from 150 respondents (75 members and 75 non-members) across the five selected FPOs using a semi-structured schedule and personal interviews, employing purposive sampling; secondary data were drawn from reports and published literature. Tabular analysis, the independent-samples t-test, the Rank-Based Quotient (RBQ), and Garrett ranking were used to assess market linkages, marketing costs, perceptions, and problems faced. The study found that FPOs were well equipped with backward linkages, that is, collaboration with input suppliers and technical-advisory providers, but need to strengthen their forward linkages with processing industries and develop their own brand and product offerings. A comparison of marketing costs incurred by members and non-members showed that members realized better prices at lower marketing costs, indicating that FPOs play a key role in improving price realization and reducing costs through aggregation. Although profit margins remain modest, continued strengthening of FPOs is likely to enhance rural livelihoods over time.

Keywords: Farmer Producer Organizations, marketing costs, market linkages, perception, paddy, Telangana.

Introduction

Agriculture remains the backbone of the Indian economy, contributing approximately 16 per cent of the country's GDP and growing at an average annual rate of about 5 per cent between 2016-17 and 2022-23 (Economic Survey of India, 2024–25). It is the primary source of income for a large share of households, employing about 45.76 per cent of the workforce as per the Periodic Labour Force Survey (Ministry of Statistics and Programme Implementation, 2024). Despite being the primary occupation for many, income realization from agriculture remains low, with an average monthly income of ₹10,218 per agricultural household, as per the Situation Assessment of Agricultural Households (National Sample Survey Office, 2021). The major problems faced by farmers in the country include small landholdings, delayed credit availability, high input costs, lack of professional assistance and market linkages, and a low share in the consumer price.

To address these issues and improve farmer profitability, producer organizations have been promoted as institutions capable of bridging these gaps by aggregating small and marginal farmers, provided they receive adequate support to become sustainable and to strengthen the economic and social conditions of their members.

1.1 Farmer Producer Organization

A Farmer Producer Organization (FPO) is a type of Producer Organization in which the individual members are farmers. Its activities include organizing members to access external professional support, bulk purchase of inputs, procurement and aggregation of produce, handling and storage, processing, transportation, access to common services, and facilitation of credit support from banks and microfinance institutions (MFIs) (NABARD, 2015).

The objectives of the study were to understand the input and output market linkages developed by FPOs, to analyze marketing costs and price spread, to assess the perceptions of members and non-members

towards FPOs, and to identify the problems faced by members.

2. Materials and Methods

2.1 Selection of Study Area

The study was conducted in the Central Zone of Telangana, which comprises 10 districts. Of these, Siddipet and Medak were purposively selected for the study. These two districts were chosen because they have a relatively high concentration of registered and functionally active FPOs within the Central Zone, together with a predominance of irrigated, paddy-based cropping systems that made them well suited to examining input- and output-market linkages. A multistage sampling technique was adopted as the appropriate sampling procedure for the study.

2.2 Selection of FPOs

A total of five FPOs were selected from the two districts using purposive sampling. Since audited financial statements were not uniformly available in the public domain for all registered FPOs in the zone, formal financial indicators such as paid-up capital and annual turnover could not be used as hard screening cut-offs. Instead, the five FPOs were selected using the following purposive criteria, applied consistently across the zone: (i) the FPO had been registered and operationally active for a minimum of three years at the time of the study, so that its input- and output-linkage activities had had time to stabilize; (ii) the FPO was actively engaged in aggregating and marketing at least one major crop (predominantly paddy) rather than being only nominally registered; (iii) the FPO maintained a minimum active membership base and held regular general body or board meetings, as verified through discussion with FPO staff and block-level agriculture officials; and (iv) the FPO's management was willing to grant access to its records and to facilitate farmer interviews. These criteria were used, in place of unavailable capital and turnover figures, to ensure that the FPOs studied were genuinely functional and broadly representative of active FPOs in the Central Zone rather than dormant or newly registered entities.

2.3 Sampling Technique and Selection of Respondents

The study followed a purposive sampling technique. Given the nature of the study, information was collected through personal interviews using a pre-tested semi-structured schedule to ensure accurate and reliable responses. A total of 30 farmers (15 members and 15 non-members) were selected from each of the five FPOs, giving a total sample of 150 farmers (75 members and 75 non-members).

2.4 Data Collection

Primary data were collected through personal and telephonic interviews with members and non-members of the selected FPOs. Secondary data were collected from annual reports, journals, research papers, articles, and other published sources.

2.5 Analytical Tools

Tabular and percentage analysis was employed to systematically present and compare the market linkages of members and non-members. The independent-samples t-test was used to compare the means of two independent groups and determine whether the difference between the associated population means was statistically significant.

Independent-samples t-test:

$t = (\bar{X}_1 - \bar{X}_2) / SE$

where $\bar{X}_1$ = mean of the first sample (members); $\bar{X}_2$ = mean of the second sample (non-members); SE = standard error of the difference between means.

Price spread and marketing margin (Manaswi, 2018; Sulthana et al., 2019):

Price spread = Consumer's price − Producer's price

$Ami = PRi - (PPi + Cmi)$

where Ami = absolute margin of the ith middleman; PRi = total value of receipts per unit (sale price); PPi = purchase value of goods per unit (purchase price); Cmi = cost incurred on marketing per unit.

Rank-Based Quotient (RBQ) (Shanthy et al., 2013):

$RBQ = \{\Sigma_i Fi (n + 1 - i) \times 100\} / (N \times n)$

where Fi = frequency of respondents assigning the ith rank; N = number of respondents; n = number of ranks; i = rank assigned to the attribute; Σ_i denotes summation across ranks.

Garrett ranking technique (Pathak & Singh, 2023; Sulthana & Mishra, 2025):

$Percent\ position = 100\ (Rij - 0.5) / Nj$

where Rij = rank given to the ith factor by the jth respondent; Nj = number of factors ranked by the jth respondent. The percent positions obtained were converted to Garrett scores using Garrett's conversion table, and the mean score for each factor was used to determine its overall rank.

3. Results and Discussion

3.1 Socio-Economic Profile of Respondents

Table 1. Age distribution of respondents

Age (years)	Members	Non-members
Below 20	6 (8.00%)	3 (4.00%)
20–30	13 (17.33%)	15 (20.00%)
31–40	25 (33.33%)	23 (30.67%)
41–50	17 (22.67%)	26 (34.67%)
51–60	11 (14.67%)	7 (9.33%)
Above 60	3 (4.00%)	1 (1.33%)
Total	75 (100.00%)	75 (100.00%)

Source: Author's calculations, based on primary survey data (January-March 2025).

The age distribution shows that most members and non-members fall within the 31–50 years age group, indicating substantial involvement of experienced farmers. Non-members were, on average, slightly older than members, suggesting that FPOs tend to attract relatively younger, middle-aged farmers. A comparable pattern was reported by Singh and Vatta (2019) in Gujarat, where the majority of non-members fell within the 40–55 years age group.

Table 2. Gender distribution of respondents

Gender	Members	Non-members
Male	49 (65.33%)	57 (76.00%)
Female	26 (34.67%)	18 (24.00%)
Total	75 (100.00%)	75 (100.00%)

Source: Author's calculations, based on primary survey data (January-March 2025).

Male respondents dominated both groups, consistent with the general pattern of male-headed agricultural households in the region. Female participation, while lower than male participation in both groups, was notably higher among FPO members, suggesting that women-centric development programmes implemented through FPOs have contributed to improving female membership.

Table 3. Educational qualification of respondents

Educational qualification	Members	Non-members
SSC and below	41 (54.67%)	52 (69.33%)
Intermediate	19 (25.33%)	16 (21.33%)
Graduation and above	15 (20.00%)	7 (9.33%)
Total	75 (100.00%)	75 (100.00%)

Source: Author's calculations, based on primary survey data (January-March 2025).

Most respondents had completed education up to SSC level or below, accounting for 54.67 per cent of members and 69.33 per cent of non-members. Farmers with graduate or higher qualifications showed comparatively greater interest in FPO membership, likely reflecting better awareness of the benefits FPOs offer.

Table 4. Family type of respondents

Family type	Frequency (n)	Percentage
Nuclear	117	78.00
Joint	33	22.00
Total	150	100.00

Source: Author's calculations, based on primary survey data (January-March 2025).

Nuclear families accounted for 78 per cent of respondent households, against 22 per cent joint families, reflecting a broader shift towards nuclear family structures in rural India driven by individual landholding patterns, migration for employment, and changing socio-economic conditions. Patel et al. (2023), studying members and non-members of FPOs in Varanasi, reported a similar predominance of nuclear families, and the NABARD All India Rural Financial Inclusion Survey (2018) found that about 70 per cent of rural households were nuclear, with greater autonomy in decisions such as joining producer organizations.

Table 5. Involvement of family members in agriculture

Family members associated with agriculture	Frequency (n)	Percentage
Yes	136	90.67
No	14	9.33
Total	150	100.00

Source: Author's calculations, based on primary survey data (January-March 2025).

Most respondents (90.67%) received assistance from family members predominantly spouses rather than children or other relatives in agricultural activities, while 9.33 per cent worked independently. Kumar and Umesh (2018), studying farmers in Karnataka, similarly found that a majority (76.67%) relied intensively on family labour as a strategy to cope with labour shortages.

Table 6. Landholding pattern of respondents

Landholding category	Members	Non-members
Landless	–	9 (12.00%)
Marginal	31 (41.33%)	21 (28.00%)
Small	24 (32.00%)	24 (32.00%)
Medium	9 (12.00%)	8 (10.67%)
Large	11 (14.67%)	13 (17.33%)
Total	75 (100.00%)	75 (100.00%)

Source: Author's calculations, based on primary survey data (January-March 2025).

None of the FPO members were landless, and 73.33 per cent were marginal (41.33%) or small (32.00%) farmers, indicating that the FPOs primarily served smallholders who often lack independent access to inputs, markets, and finance. The absence of landless members suggests that land ownership is effectively a prerequisite for FPO membership in the study area. A broadly similar pattern was noted by Potter and Tilzey (2007), who observed that larger, more competitive farmers are typically better placed to become suppliers within larger value chains involving processors, distributors, and retailers.

Table 7. Type of land owned by respondents

Type of land	Frequency (n)	Percentage
Irrigated	150	100.00

Source: Author's calculations, based on primary survey data (January-March 2025).

All 150 respondents held irrigated land, with none solely dependent on rainfed cultivation a notable finding given the semi-arid climate of the region and one that reflects the relatively assured irrigation infrastructure available in the study districts.

Table 8. Major crops grown in the study area

Cropping pattern	Frequency (n)	Percentage
Paddy	47	31.33
Maize	26	17.33
Sunflower	13	8.67
Paddy + Sunflower	21	14.00
Sunflower + Oil palm	6	4.00
Paddy + Maize	16	10.67
Paddy + Pulses	3	2.00
Paddy + Maize + Vegetables	11	7.33
Sunflower + Sesamum + Vegetables	7	4.67
Total	150	100.00

Source: Author's calculations, based on primary survey data (January-March 2025).

The cropping pattern reflects a mix of mono- and mixed-cropping systems with a clear dominance of paddy: 31.33 per cent of respondents grew paddy as a sole crop, and a further 36.00 per cent combined it with sunflower, maize, pulses, or vegetables. This underlines paddy's role as the staple crop of the region, supported by assured irrigation, government procurement, and farmers' long-standing familiarity with the crop.

3.2 Market Linkages of Members and Non-Members

Table 9. Backward (input) linkages of members and non-members

S. No.	Type of linkage	FPO members (n)	FPO members (%)	Non-members (n)	Non-members (%)
1	Financial linkages	15	20.00	37	49.33
2	Seed linkages	58	77.33	24	32.00
3	Fertilizer linkages	75	100.00	31	41.33
4	Pesticide linkages	75	100.00	29	38.67
5	Farm machinery linkages	19	25.33	11	14.67
6	Institutional linkages	75	100.00	42	56.00

7	NGO linkages	45	60.00	0	0.00
8	Technical linkages	47	62.67	0	0.00

Source: Author's calculations, based on primary survey data (January-March 2025).

FPO members had markedly better access to key agricultural inputs than non-members. All FPO members reported fertilizer and pesticide linkages, compared with only 41.33 per cent and 38.67 per cent of non-members, respectively; seed linkages were also more prevalent among members (77.33%) than non-members (32.00%). This is attributable to the collective procurement undertaken by FPOs, which enables bulk purchase and distribution of inputs at reduced cost. The FPOs covered in the study maintained linkages with both private and government input suppliers, including IFFCO, Primary Agricultural Cooperative Societies (PACS), and local private dealers; PACS in the study area also serve as the local distribution agency for TSMARKFED for urea, DAP, and MOP.

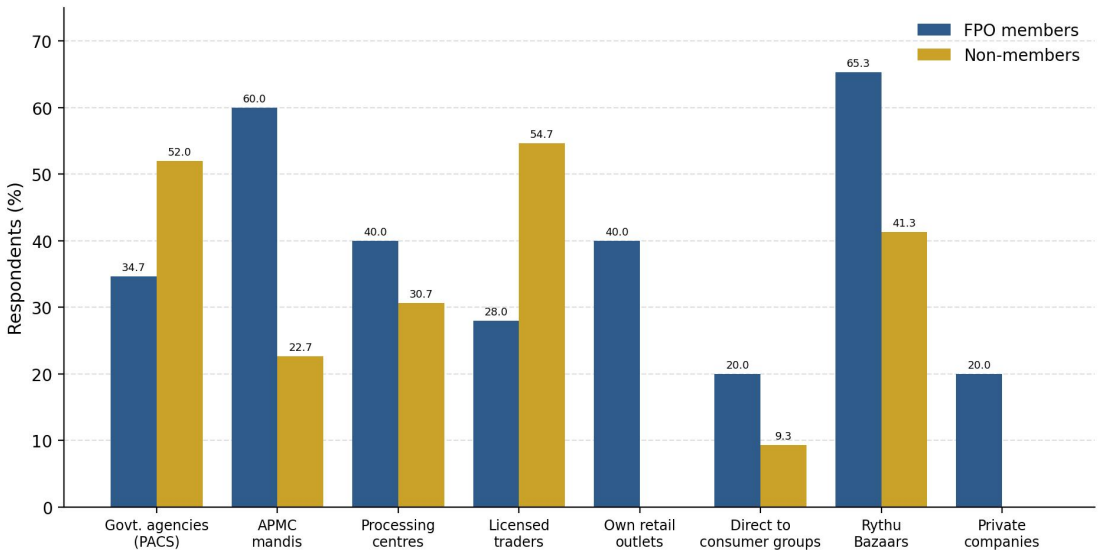
Table 10. Forward (output) linkages of members and non-members

S. No.	Type of linkage	FPO members (n)	FPO members (%)	Non-members (n)	Non-members (%)
1	Government agencies (PACS)	26	34.67	39	52.00
2	APMC mandis	45	60.00	17	22.67
3	Processing centres	30	40.00	23	30.67
4	Licensed traders	21	28.00	41	54.67
5	Own retail outlets	30	40.00	–	–
6	Direct sale to consumer groups	15	20.00	7	9.33
7	Sale at Rythu Bazaars	49	65.33	31	41.33
8	Private companies	15	20.00	–	–

Source: Author's calculations, based on primary survey data (JanuaryMarch 2025).

While FPO members reported stronger linkages than non-members with APMC mandis, processing centres, and direct consumer sales, both the table above and the corresponding comparison in Figure 1 indicate that overall forward-linkage development remains limited. Most FPOs in the study lacked their own processing infrastructure and product branding, underscoring the need to invest in these areas to expand market reach and strengthen customer relationships.

Figure 1. Forward linkages of FPO members and non-members



Source: Author's calculations, based on primary survey data (January-March 2025).

3.3 Marketing Costs, Marketing Margin and Price Spread

The major marketing channel followed by FPO members for paddy was: Producer → FPO → Miller → Wholesaler → Retailer → Consumer. The channel followed by non-members was: Producer → Village trader → Miller → Wholesaler → Retailer → Consumer.

Table 11. Marketing margins, price spread and producer's share in consumer's rupee for paddy, by channel

Particulars	Member channel (₹/quintal)	Non-member channel (₹/quintal)
Gross price received by farmer	1,850	1,680
Farmer's marketing cost	–	32
Net price received by farmer	1,850	1,648
Gross price received by FPO / trader	2,060	1,925
FPO / trader marketing cost	159.50	148.00
Net price received by FPO / trader	1,900.50	1,777.00
Gross price received by miller	2,630	2,630
Miller's marketing cost	161.00	187.50
Net price received by miller	2,469.00	2,442.50
Gross price received by wholesaler	3,120	3,120
Wholesaler's marketing cost	78.00	78.00
Net price received by wholesaler	3,042.00	3,042.00
Retailer's purchase price	3,120	3,120
Retailer's marketing cost	87.00	87.00
Consumer's purchase price	3,690	3,690
Retailer's net margin	483.00	483.00
Price spread	1,840	2,010
Producer's share in consumer's rupee (%)	50.13	45.52
Marketing efficiency (Shepherd's method)	2.81	2.63

Source: Author's calculations, based on primary survey data (January-March 2025).

The price spread is the difference between the price paid by the consumer and the price received by the farmer, was lower in the member channel (₹1,840/quintal) than in the non-member channel (₹2,010/quintal), indicating greater cost efficiency in the FPO-led supply chain. The producer's share in the consumer's rupee was also higher for members, at 50.13 per cent, compared with 45.52 per cent for non-members, indicating that FPO-affiliated farmers retained a larger share of the final consumer price. Comparable results — lower price spread and higher marketing efficiency through the FPO channel — have been reported by Bani et al. (2025) and Kumar et al. (2022).

Table 12. Independent-samples t-test for paddy marketing cost, members vs. non-members

Assumption	Levene's F	Levene's Sig.	t	df	Sig. (2-tailed)	Mean difference (₹)	SE of difference (₹)	95% CI (lower, upper)
Equal variances assumed	0.454	0.501	−25.440	148	<0.001	−55.93	2.20	−60.27, −51.58
Equal variances not assumed	–	–	−25.440	143.21	<0.001	−55.93	2.20	−60.27, −51.58

Source: Author's calculations, based on primary survey data (January–March 2025).

An independent-samples t-test was conducted to examine whether paddy marketing costs differed significantly between FPO members and non-members. Levene's test for equality of variances was not significant ($F = 0.454$, $p = 0.501$), so the assumption of equal variances was satisfied and the "equal variances assumed" row was used for interpretation.

The test revealed a statistically significant difference in marketing cost between the two groups, $t(148) = -25.440$, $p < 0.001$. The mean difference was −₹55.93 per quintal (SE = ₹2.20; 95% CI: −₹60.27 to −₹51.58), indicating that FPO members incurred, on average, ₹55.93 less marketing cost per quintal of paddy than non-members. Because the 95 per cent confidence interval does not include zero, this difference is statistically significant at the 5 per cent level. FPO membership is therefore associated with a significant reduction in paddy marketing costs among the sampled farmers.

3.4 Perceptions of Members and Non-Members towards FPOs

Table 13. Rank-Based Quotient (RBQ) ranking of statements on perception towards FPOs

Statement	Member rank	Non-member rank
Small and marginal farmers are encouraged to take up farming as a professional business because of the FPO	2	3
Farmers can purchase inputs conveniently because of the FPO	1	1
Processing and handling of members' produce by the FPO is done neatly	3	2
Financial transactions of the FPO lack transparency	6	9
Farmers' capacity to sell produce has increased because of the FPO	9	4
Farmers receive good profits from common sale of produce through the FPO	8	5
Participation in the FPO saves farmers' labour, time and money	10	7
Government loans and subsidies are not provided to the FPO in adequate amounts	7	10
FPOs are useful for agricultural disaster management	11	8
Farmers face difficulty accessing improved scientific technology and updated crop-cultivation information despite FPO participation	4	6
Coordination between farmers and the agriculture department has increased because of the FPO	5	11

Source: Author's calculations, based on primary survey data (January-March 2025).

The comparative RBQ rankings show that FPOs benefited small and marginal farmers most clearly by improving input access, strengthening market linkages, and raising profitability, with members also reporting better coordination with the agriculture department and more efficient handling of produce. Both groups, however, flagged limited access to updated scientific information and concerns over financial transparency as persistent weaknesses. On balance, the rankings suggest that FPOs have been instrumental in empowering farmers, while highlighting specific areas of transparency and technical knowledge dissemination that require attention.

3.5 Problems Faced by Members with FPOs

Table 14. Garrett ranking of problems faced by FPO members

S. No.	Problem	Garrett mean score	Rank
1	Lack of market information and marketing facilities	47.90	5
2	Lack of cooperation from the FPO	44.41	7
3	Limited technical knowledge among FPO staff	49.53	4
4	Communication barriers between members and the FPO	51.73	3
5	Lack of infrastructure facilities	64.33	2
6	Lack of brand identity for FPO products	65.56	1
7	Non-availability of inputs	47.10	6
8	Lack of professional management	43.53	8
9	Rejection of produce due to unassured quality	39.90	9

Source: Author's calculations, based on primary survey data (January-March 2025).

The Garrett ranking indicates that the lack of brand identity and inadequate infrastructure were the most pressing constraints, limiting the market competitiveness of FPOs. Communication barriers between members and FPO staff, together with limited technical knowledge among staff, were also significant, ranking third and fourth, respectively. Issues such as limited market information and non-availability of inputs, while present, were comparatively less critical, and professional-management gaps and quality-related produce rejection ranked lowest, suggesting they were less immediate concerns for members. These findings point to the need for strategic interventions focused on branding, infrastructure, and communication. Verma et al. (2025) similarly identified poor branding as a key constraint for FPOs, while Ravikishore et al. (2025), Ghadge et al. (2023), and Priyanka and Jayasankar (2022) reported weak linkages, inadequate infrastructure, communication gaps, and produce-quality issues as major challenges facing FPO members.

4. Conclusion

FPO members in the study area were, on average, younger, better educated, and relatively better resourced than non-members. FPOs strengthened both input and output market linkages for their

members, improving access to seeds and fertilizers and to more remunerative sale channels, and members realized significantly lower marketing costs, higher net returns, and a larger share of the consumer rupee than non-members. Members viewed input access and support services favourably but, along with non-members, expressed concern over limited access to updated technical information and inadequate financial transparency; non-members additionally had limited awareness of and exposure to FPO benefits. The principal constraints facing FPOs were the absence of brand identity, weak processing and storage infrastructure, and limited technical and managerial capacity.

These findings suggest that FPOs are an effective institutional model for raising farm incomes, particularly among small and marginal farmers, but that their impact is currently constrained on the output side. Strengthening forward linkages with processors, investing in common processing and storage infrastructure, and developing FPO-owned brands would help members capture a larger share of the value chain. In parallel, improving financial transparency, disseminating updated technical information more effectively, and building the managerial capacity of FPO staff would address the main sources of member dissatisfaction identified in this study. Continued policy and institutional support along these lines would allow FPOs to build on their demonstrated strengths in input aggregation and cost reduction, extending similar gains to the marketing side and thereby enhancing rural livelihoods more broadly.

References

1. Bani, R. J., Vedanti, P., Amitkumar, D., Jensi, N., & Mit, N. (2025). Production, processing and marketing of green gram in India. Plant Archives, 25, 49–53. https://doi.org/10.51470/PLANTARCHIVES.2025.SP.ICTPAIRS-010
2. Ghadge, R. G., Shitole, M., & Latambale, P. S. (2023). A study of challenges faced by FPO while marketing their produce. Biological Forum - An International Journal, 15(3), 872–879.
3. Kumar, M. S., & Umesh, K. B. (2018). Farmers' strategies to cope with labour shortage in northern and southern dry zones of Karnataka, India. Current Agriculture Research Journal, 6(2), 206–212. https://doi.org/10.12944/CARJ.6.2.10
4. Kumar, R. R., Malarkodi, M., & Uma, K. (2022). Price spread and marketing efficiency of green gram in Tamil Nadu, India. The Pharma Innovation Journal, 11(3), 1007–1009.
5. Manaswi, B. H. (2018). Enhancing small farmers' access to market, finance and technology through farmer producer organisations: A case study of Telangana [Master's thesis, Indian Agricultural Research Institute, New Delhi]. Krishikosh Repository.
6. Ministry of Finance. (2025). Economic Survey of India, 2024–25. Government of India. https://www.indiabudget.gov.in/economicsurvey/doc/echapter.pdf
7. Ministry of Statistics and Programme Implementation. (2024). Periodic Labour Force Survey, 2023–2024. National Sample Survey Office, Government of India. https://www.mospi.gov.in/sites/default/files/publication_reports/AnnualReport_PLFS2023-24L2.pdf
8. National Bank for Agriculture and Rural Development. (2015). Farmer Producer Organizations – Frequently asked questions. Farm Sector Policy Department & Farm Sector Development Department, NABARD Head Office, Mumbai.
9. National Bank for Agriculture and Rural Development. (2018). All India Rural Financial Inclusion Survey. https://www.nabard.org/auth/writereaddata/tender/1608180417NABARD-Repo-16_Web_P.pdf
10. National Sample Survey Office. (2021). Situation assessment of agricultural households and land holdings in Rural India, 2019. Ministry of Statistics and Programme Implementation, Government of India. https://www.mospi.gov.in/sites/default/files/publication_reports/Report_587m_0.pdf
11. Patel, R. R., Mishra, B. P., Gupta, B. K., Mishra, D., Maurya, R. K., & Rohit. (2023). Study on socio-economic profile of members and non-member farmers of FPOs in Varanasi district of Uttar Pradesh. International Journal of Agriculture Sciences, 15(9), 12635–12638.
12. Pathak, A. K., & Singh, A. (2023). Application of Garrett ranking technique in studying the problems of farmers in paddy cultivation: A case study of Ghazipur district of Uttar Pradesh. The Pharma Innovation Journal, SP-12(10), 1091–1093.
13. Potter, C., & Tilzey, M. (2007). Agricultural multifunctionality, environmental sustainability and the WTO: Resistance or accommodation to the neoliberal project for agriculture? Geoforum, 38(6), 1290–1303.
14. Priyanka, R., & Jayasankar, R. (2022). Constraints faced by the beneficiaries of farmer producer organisations in Tamil Nadu. Bulletin of Environment, Pharmacology and Life Sciences, 11(12), 37–42.
15. Ravikishore, M., Royal, A. P., Gopal, P. V. S., Johnson, M., Rani, S. U., Reddy, B. K. K., Sujathamma, P., Rani, K. S., & Supriya, P. (2025). Performance grading and constraints analysis of Farmer Producer Organisations (FPOs) in Anantapuramu district of Andhra Pradesh. International Journal of Bio-resource and Stress Management, 16(2), 1–9.
16. Shanthy, T. R., Singh, M., Sahu, N., Surekha, Rajkumar, M. B., Raj, S. G. S., De, K., & Ramachandran, S. (2013). Participatory rural appraisal: A holistic approach for getting insight

into an agro-ecosystem analysis. Indian Research Journal of Extension Education, 13(2), 1–9.
17. Singh, G., & Vatta, K. (2019). Assessing the economic impacts of farmer producer organizations: A case study in Gujarat, India. Agricultural Economics Research Review, 32.
18. Sulthana, R., Kumar, K., Maheta, H., Bharodia, C., and Doke, V.Y. (2019). Marketing distribution channel of tomato at Madanapalle block of Chittor district in Andhra Pradesh. International Journal of Agriculture Sciences, ISSN 0975-3710.
19. Sulthana, S. R., & Mishra, S. (2025). Marketing constraints of pearl millet in Gujarat, India. Journal of Experimental Agriculture International, 47(5), 105–112. https://doi.org/10.9734/jeai/2025/v47i53401
20. Verma, M., Lal, S. P., Kumari, M., Verma, A. K., & Dubey, S. K. (2025). Friedman-based ranking for unveiling constraints perceived by members of Farmer Producer Organizations in Bihar. Journal of Community Mobilization and Sustainable Development, 20(spl), 8-13.