**Customer satisfaction towards the Farmer Producer Companies’ products/ services in Telangana and Andhra Pradesh, India**

**ABSTRACT**

The present study assessed the customer satisfaction towards the products and services of Farmer Producer Companies (FPCs) in the states of Telangana and Andhra Pradesh, India. A total of 8 FPCs were selected purposively from both crop (4 nos.) and dairy sectors (4 nos.) of both the states. A customer satisfaction index was developed using SERVQUAL (Service Quality) framework for the present study. Data were collected using structured interview schedule from a total sample of 160 customers associated with direct purchase from the FPCs. Findings of the study revealed that, among the crop sector FPCs, AttaluruPalem FPC (APOFPCL) obtained highest mean scores for the components- reliability, responsiveness and empathy, while Indervelly FPC (IFPCL) scored highest on tangibles and assurance components. Conversely, Shreeja MPC (SMMPCL) outperformed other dairy FPCs scoring highest mean scores on majority of the components due to better customer engagement practices, quality control, brand value and trust. While significant difference in the customer satisfaction levels were observed among the crop sector FPCs, no such significant variations was observed among the dairy FPCs. A majority (55.00%) of customers reported low satisfaction with crop sector FPC products/services, followed by 33.75% expressing medium satisfaction level. In contrast, more than three-fourth of the customers expressed medium level of satisfaction towards the products/ services of the dairy FPCs. The findings highlight the need for enhanced focus on weak areas, especially by crop sector FPCs to strategically improve the customer satisfaction through reliability in quality, steady supply, market research and after-sales support.

**Key words:** Farmer Producer Companies, Farmer Producer Organisations, Customer Satisfaction, Index, SERVQUAL, Shreeja Milk Producer Company

1. **INTRODUCTION**

Agriculture and allied sectors form the backbone of the Indian economy, serving as vital sources of raw materials for industries while simultaneously generating demand for agricultural implements, chemicals, fertilizers, and a range of consumer goods (Bairwa et al. 2014)1. The vast entrepreneurial potential within Indian agriculture remains largely untapped, particularly among small and marginal farmers (Kumar et al. 2024)2. To harness this potential, it is essential to include these farmers in entrepreneurial development strategies.

India, like many other developing countries, is characterized by the predominance of small agricultural landholdings. According to the Agricultural Census (2016)3, there are approximately 126 million small and marginal farmers in India, with an average per capita landholding of just 1.08 hectares. These farmers face multiple challenges such as limited access to affordable technologies, inadequate farm support schemes, rising input costs, and the distress sales at the harvest of farm produce (Padmanand et al 2018)4. This cycle of financial vulnerability contributes to the growing perception that agriculture is an unviable livelihood in the country. To mitigate these challenges, Farmer Producer Organisations (FPOs)/ Farmer Producer Companies (FPCs) have emerged as a promising solution. By collectively addressing the needs of small and marginal farmers, FPCs create a more inclusive agricultural market system and provide opportunities for sustainable and profitable farming practices (Dash, 2016)5. They function as vital instruments for empowering farmers, improving access to inputs, technology, credit, and markets, while fostering the development of agripreneurship.

On the other hand, customers are the primary stakeholders for a business organisation, the largest source of its income, and a major factor in its development (Freeman, 1984)6. Failing to adequately address customer perceptions may negatively influence a company’s growth and its long-term sustainability. Thus, the present study was undertaken to assess the customer satisfaction with the products and services offered by Farmer Producer Companies (FPCs) in the states of Telangana and Andhra Pradesh, India. Understanding the perspectives of customers is critical to evaluating the effectiveness of FPCs in delivering quality products and services, building trust, and enhancing market competitiveness (Pabba and Ponnusamy, 2024; Vijayakumar, 2021)7&8. The research study aims to study the customer satisfaction towards FPC products/ services and offer insights that can help FPCs strengthen their market presence and meet the evolving needs of their clientele. The outputs of the study could contribute to the broader objective of promoting sustainable agricultural development through the empowerment of small and marginal farmers and ensure the long-term viability these farmer-led enterprises.

1. **METHODOLOGY**

The present study was undertaken in Telangana and Andhra Pradesh states which were purposively selected considering the significant proportion of FPCs (1,172) and major share of paid-up capital (59.48%) owned by these two states among the top 20 FPCs in India (Neti and Govil, 2022)9. A total of 8 FPCs were selected purposively from both the states in crop and dairy sectors (Table 1). The crop based FPCs (4 No.s) were selected from the districts having the highest number of FPCs in the states whereas, all the available 4 dairy FPCs from both the states were selected for obtaining the sample of dairy FPCs. Due consideration was given to FPCs promoted by various sponsoring agencies in the state *viz.,* NABARD (National Bank for Agriculture and Rural Development), SFAC (Small Farmers Agribusiness Consortium), NRLM (National Rural Livelihood Mission) and National Dairy Development Board (NDDB). They were selected from the list of FPCs fulfilling the four criteria *i.e.* (i) established at least five years prior to the time of data collection, (ii) a minimum membership size of 300 (Government of India, 2020)10, (iii) sale of crop or dairy based products/ services, and (iv) active in function at the time of data collection. In the next stage, a sample of 20 customers were selected from each FPC, thereby constituting a total customer sample size of 160. The list of customers who regularly purchase the products/ services of FPCs was obtained from the FPC’s sales wing.

## Table 1. List of Farmers Producer Companies (FPC)

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl** | **Sector** | **FPC** | **Location** |
| 1 | Agriculture | Attaluru Palem Organic Farmers Producer Company Limited (AOFPCL) | Amaravathi mandal, Guntur district, A.P. |
| 2 | Agriculture | Indervelly Farmers Producer Company Limited (IFPCL) | Indervelly, Adilabad district, Telangana |
| 3 | Agriculture | Kodangal Farmers Services Producer Company Limited (KFSPCL) | Kodangal, Mahbubnagar district, Telangana |
| 4 | Agriculture | Santhosha Women Farmers Producer Company Limited (SWFPCL) | Jagadevpur, Medak district, Telangana |
| 5 | Dairy | Shreeja Mahila Milk Producer Company Limited (SMMPCL) | New Indira Nagar, Tirupati district, A.P. |
| 6 | Dairy | Karimnagar Milk Producer Company Limited (KMPCL) | Padmanagar, Karimnagar district, Telangana |
| 7 | Dairy | Sangam Milk Producer Company Limited (SMPCL) | Jagarlamudi, Guntur district, A.P. |
| 8 | Dairy | Sri Vijaya Visakha Milk Producers Company Limited (SVVMPCL) | Gajuwaka Mandal, Visakhapatnam, A.P. |

**Source:** Compiled by authors

1. **Selection of indicators**

Customer satisfaction refers to the degree of satisfaction or contentment expressed by the recipients of FPC products/ services. Customers for the study are those who are directly associated with the purchase and use of a product / service from the FPC. The customer satisfaction towards the FPC products / services was measured by using an index which includes five major components derived from the ‘SERVQUAL’ framework developed by Parasuraman et al*.* (1988)11. They are namely (1) Tangibles, (2) Responsiveness, (3) Reliability, (4) Assurance, and (5) Empathy. The operationalization of the major components was given below;

List 1: The operationalization of the major components

|  |  |  |
| --- | --- | --- |
| **Dimension** | **Description** | **Sub-dimensions** |
| Tangibles | It refers to the assessment of observable parameters in relation to the quality of service being offered to the customers | Quality, packaging, grading, physical facilities, etc. |
| Reliability | It is operationalized as the ability of company to provide services adequately and accurately to its customers  | Timely delivery of products, available at all times to customers, maintaining the consistency in services, etc. |
| Responsiveness | It refers to the company's actions in responding to the customers promptly | Company's curiosity at minimizing the difficulties experienced by its customers, grievance redressal, fixing appointments, collecting feedback, etc. |
| Assurance | It is operationalised as the company's ability to foster trust among the customers | Ensuring prompt payments, friendliness, sound knowledge of the staff, credibility and security, etc.  |
| Empathy | It refers to the company's attention to its customers’ needs | Efforts to identify customer needs, helping them find solutions, solidarity with customers, recognizing regular customers, etc.  |

**Source:** Compiled and operationalized for the present study by authors

## Normalization of data

In order to ensure consistency and comparability while developing the index, normalization was undertaken using Mini-max method to bring all the variables within a comparable range of 0 to 1 (Balaganesh et al*.* 2020; OECD, 2002; Kale et al. 2016)12,13&14. Since, all the indicators identified were showing a positive relationship with the customer satisfaction, the following formula was applied for normalization:

$$Uij=\frac{Y\_{ij-Min\_{yi}}}{Max\_{yi}-Min\_{yj}}$$

Where,

Uij = Unit score of the ith respondents on jth component

Yij = Value of ith respondent on the jth component

Maxyi = Maximum score on the jth component

Minyj = Minimum score on the jth component

The score of each component ranged from 0 to 1 i.e. when *yij*is minimum the score is 0 and when *yij*is maximum the score is 1.

1. **Assigning weights to indicators**

Weightages (Wi) for the standardized indicators were calculated using Principal Component Analysis (PCA) method. PCA was run for all major dimensions to obtain factor loadings and Eigen values. The Keiser criterion or Eigen value greater than one rule was applied to retain the factors (Greyling and Tregenna, 2017; Patel et al*.* 2019)15&16. The weights obtained from the PCA were calculated using the given formula.

Wi =∑|Lij|Ej

Where,

|  |  |  |
| --- | --- | --- |
| Wi | = | The weight of ith indicator |
| E j | = | The Eigen value of jth factor |
|  L ij | = | The loading value of the ith indicator on the jth factor |

1. **Composite indexing and categorization**

The customer satisfaction index developed based on the above-mentioned parameters was calculated by the following equation;

TAN \* W1 + REL \* W2 + RES \* W3 + AS \* W4 + EM \* W1+W2+W2+W4+W5

Where,

1. TAN = Tangibles,
2. REL = Reliability,
3. RES = Responsiveness,
4. AS = Assurance,
5. EM = Empathy

Lastly, the Customer Satisfaction Index was developed and the responses were classified into three categories *viz*., low, medium and high based on the Cumulative Square Root Frequency (CSRF) method.

1. **RESULTS AND DISCUSSION**

The extent of customer satisfaction towards FPC products/ services was analysed by developing an index for the study. It comprises of five main components adopted from ‘SERVQUAL’ framework given by Parasuraman et al*.* (1988)11 namely, (i) Tangibles (ii) Reliability (iii) Responsiveness (iv) Assurance, and (v) Empathy.

The weights for each component were assigned using the Principal Component Analysis (PCA) and the weightages, thus obtained through PCA for each of the components were illustrated in Table 2. The obtained weightages are in support with the findings of Kumar and Mohan (2018)17 who extracted the prominent factors leading to customer satisfaction.

**Table 2. The customer satisfaction index weight scores for five components**

|  |  |
| --- | --- |
| **Component** | **Weightages from PCA** |
| Tangibles | 1.943 |
| Reliability | 1.771 |
| Responsiveness | 1.505 |
| Assurance | 1.010 |
| Empathy | 1.323 |

**3.1 Customer satisfaction with the FPC services based on the component mean score**

The mean scores of customer satisfaction obtained under each of the components were depicted in the Table 3 and the results were discussed below;

1. **Tangibles:** With respect to the assessment of the observable parameters, the highest mean score was obtained by IFPCL (28.5) followed by APOFPCL (24.95) among the crop sector FPCs. The customers of the IFPCL perceived that the FPC was maintaining the quality and grading facilities meeting their expectations. Also, they claimed that they seldom faced any issues regarding irregularities in weighing of the products. On the other hand, customers of APOFPCL were highly satisfied with the well-maintained stores, fresh quality of fruits and vegetables as well as safe packaging of products. However, most of the customers felt that the products were priced on the higher side than the market prices. Among the dairy FPCs, all the FPCs have recorded nearly equal mean scores in terms of customer satisfaction probably due to the stringent measures followed in quality control by the producer companies in product packaging, labelling, and maintaining hygiene along the supply chain.
2. **Reliability:** Under thecomponent reliability, APOFPCL had attained highest mean score (15.5) which was followed by IFPCL (13.7). The customers of both the FPCs perceived that the FPCs were promptly delivering the products within the designated time and exhibited consistency in the quality of products (*viz.,* organic cooking oils, fruits and vegetables in case of APOFPCL and cotton, processed red gram and soyabean products of IFPCL). Moreover, the IFPCL had a systematic maintenance of records related to transactions with its customers from time to time. Among the dairy FPCs, all except SMMPCL had satisfactory mean scores on an approximately equal level. However, the slightly lower scores obtained by SMMPCL compared to the other dairy FPCs might be due to the hindrances faced by the MPC in meeting the demand and delivering the expected volume of its own brand products. This was mainly because the company was committed to regularly supply major volume of the procured milk to ‘Mother Dairy’ which, at times, lead to lower volumes of supply level for its own branded products in the market.
3. **Responsiveness:** In terms ofresponsiveness of the FPCs, APOFPCL (22.05) obtained the highest mean score followed by KFSPCL (18.1). The probable reason for the high satisfaction level towards the responsiveness component for APOFPCL might be due to the innovative approach of the FPC in maintaining healthy relations with the customers. The FPCL would schedule appointments with 25 new customers on every fourth Sunday of a month and arrange visit to the organic farms in the operational villages of the FPC. The FPC officials create awareness to the customers regarding organic production practices, grading and quality measures taken along the supply chain. Besides that, a complimentary organic lunch would be served to the customers on the fields of farmers. The customers felt that the officials of both the FPCs were sincere in collecting feedback and redressing grievances, in case if any, reported by them. SMMPCL attained the highest mean scores (20.6) among the dairy FPCs under the responsiveness component as majority of the customers were satisfied with the products/ services of SMMPCL. The probable reason could be due to the dedicated service exhibited by the company in retaining its existing customers and expanding the business in view of the stiff competition faced from other private dairies and cooperatives in the Tirupathi region of Andhra Pradesh.
4. **Assurance:** Under this component, IFPCL (18.90) obtained the highest mean score followed by APOFPCL (16.75) among the crop sector FPCs. Among the dairy FPCs, KMPCL (15.80) obtained the highest mean score. However, all the dairy FPCs were found to be successful in fostering trust among their customers as they have obtained satisfactory scores. The customers of the FPCs which had highest mean scores claimed that the FPCs exhibited promptness in business transactions and payments. The FPCs engaged officials who are expertised in guiding the customer towards right purchase and rectify any sort of dissatisfaction expressed by them. On the other hand, the customers of SMPCL and SVVMPCL expressed that they are not able to make substantial profits due to the issuance of several new dealerships without considering the distance from the existing outlets.
5. **Empathy:** In terms of the component ‘empathy’, AOPFPCL attained the highest mean score (22.55) followed by KFSPCL (19.05). Likewise, among the dairy FPCs, SMMPCL obtained the highest mean score (20.35) followed by SVVMPCL (19.05). The probable reason could be the perceived satisfaction of the customers towards the individual attention rendered by the FPCs for identifying the customer preferences. On the other hand, the customers felt that the FPCs which obtained highest mean scores were exhibiting positivity in reception and readiness to learn customers’ specific requirements better than the other FPCs under study.

**Table 3. Customer satisfaction towards the FPC services based on components mean score n= 160**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.No.** | **Name of the FPC** | **Tangibles** | **Reliability** | **Responsiveness** | **Assurance** | **Empathy** |
| 1 | APOFPCL | 24.95 | 15.50 | 22.05 | 16.75 | 22.55 |
| 2 | IFPCL | 28.50 | 13.70 | 13.95 | 18.90 | 17.20 |
| 3 | KFSPCL | 24.25 | 13.50 | 18.1 | 15.00 | 19.05 |
| 4 | SWFPCL | 24.35 | 13.50 | 12.15 | 15.30 | 14.05 |
| 5 | SMMPCL | 24.05 | 16.10 | 20.6 | 15.10 | 20.35 |
| 6 | KMPCL | 26.45 | 17.20 | 18.15 | 15.80 | 17.50 |
| 7 | SMPCL | 26.30 | 17.20 | 18.35 | 15.05 | 17.40 |
| 8 | SVVMPCL | 26.40 | 17.10 | 18.40 | 14.95 | 19.05 |

**3.2 Ranking of FPCs for the overall customer satisfaction towards FPC services based on mean scores**

The results presented in the Table 4 depict the differences in the mean scores for the overall customer satisfaction towards the FPC products/ services. It can be inferred that APOFPCL (Rank I) performed better than the other crop sector FPCs in the study with the mean value of 107.00 followed by IFPCL (Rank II) with the mean score of 101.00. The well-maintained stores, enduring relations with customers, promptness in addressing customer needs and consistency in maintenance of quality of the products/ services could have contributed the higher satisfaction levels of the customers compared to the other two crop sector FPCs.

Similarly, among the dairy FPCs, SMMPCL (Rank I) obtained the highest mean score (96.20) followed by SVVMPCL (Rank II) with the mean score of 95.90. The KMPCL (Rank III) and SMPCL (Rank IV) had the mean scores as 95.10 and 94.30 respectively. The customer satisfaction towards the FPC products/ services was considerably good which might be probably on account of their well-established marketing network and brand value in the areas of operation of the respective FPC with major focus in the villages. As the customers trust for the FPC milk products was high, they were satisfied with the products/ services the dairy FPCs were providing.

**Table 4.** **Ranking of FPCs based on overall customer satisfaction towards FPCs**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  **Crop sector FPCs** | **Mean** | **SD** | **SE** | **Range** | **Minimum** | **Maximum** | **Rank** |
| APOFPCL | 101.80 | 2.53 | 0.56 | 11.00 | 96.00 | 107.00 | I |
| IFPCL | 93.10 | 3.68 | 0.82 | 15.00 | 86.00 | 101.00 | II |
| KFSPCL | 89.90 | 2.95 | 0.66 | 13.00 | 83.00 | 96.00 | III |
| SFPCL | 79.35 | 2.70 | 0.60 | 12.00 | 74.00 | 86.00 | IV |
| **Dairy sector FPCs** | **Mean** | **SD** | **SE** | **Range** | **Minimum** | **Maximum** | **Rank** |
| SMMPCL | 96.20 | 4.16 | 0.93 | 14.00 | 88.00 | 102.00 | I |
| SVVMPCL | 95.90 | 3.43 | 0.77 | 12.00 | 89.00 | 101.00 | II |
| KMPCL | 95.10 | 2.97 | 0.66 | 11.00 | 90.00 | 101.00 | III |
| SMPCL | 94.30 | 3.33 | 0.74 | 12.00 | 89.00 | 101.00 | IV |

**3.3 Test of difference in customer satisfaction between crop sector FPCs (ANOVA)**

To study the difference in the extent of customer satisfaction between the crop sector FPCs, initially test of normality was performed (*i.e.,* Skewness and Kurtosis). The obtained values of skewness and kurtosis for the customer satisfaction scores of crop sector FPCs were 0.062 and -1.05 respectively. As the required threshold (*i.e.,* Skewness range between -2 and +2; kurtosis range between +10 and -10) for normality as suggested by George and Mallery (2010)18, were met, one-way ANOVA was used to measure the significance of difference in the customer satisfaction with the FPC products/ services.

The results showed in Table 5revealed that all the selected crop sector FPCs in the study had significant difference (p < 0.00) in the extent of customer satisfaction with each other.

**Table 5. Results of ANOVA for extent of customer satisfaction with crop sector FPC products/ services**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ANOVA** | **Sum of Squares** | **df** | **Mean Square** | **F** | **Sig.** |
| Between Groups | 1.499 | 3 | 0.5 | 123.766 | 0 |
| Within Groups | 0.307 | 76 | 0.004 |  |  |
| Total | 1.805 | 79 |  |  |  |

**3.4 Test of difference in customer satisfaction between dairy sector FPCs (ANOVA)**

The results of normality test revealed that the skewness value was -0.458 and the kurtosis value was 0.18. Since the obtained values are within the required threshold for normality, one-way ANOVA was performed to measure the significance of difference in the customer satisfaction with the dairy sector FPC products/ services. The results showed in Table 6revealed that the selected dairy sector FPCs in the study had ‘no significant difference’ (p > 0.10) in the extent of customer satisfaction between each other. This could be due to the well-established marketing channels and nearly similar methods of reaching the ultimate consumers by all the dairy FPCs. Besides that, all the dairy FPCs under study were among the top 10 FPCs in the country with respect to highest paid-up capital (Govil et al*.* 2020)19 reflecting the magnitude of trust and deep-rooted business channel in their respective areas of operation.

**Table 6. Results of ANOVA for extent of customer satisfaction with dairy sector FPC products/ services**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ANOVA** | **Sum of Squares** | **df** | **Mean Square** | **F** | **Sig.** |
| Between Groups | 0.036 | 3 | 0.012 | 1.861 | 0.143 |
| Within Groups | 0.495 | 76 | 0.007 |  |  |
| Total | 0.532 | 79 |  |  |  |

**3.5 Classification of FPCs based on the overall customer satisfaction index scores**

Table 7 revealed that the extent of customer satisfaction towards the crop sector FPC products/ services was low (55.00 %) followed by medium level (33.75 %). On the other hand, more than three-fourth (78.75 %) of the customers expressed medium level of satisfaction towards the products/ services of the dairy FPCs. The probable reasons for the better satisfaction levels of the customers of dairy FPCs compared to crop sector FPCs could be the reliability in quality of products, steady supply, competitive pricing, and additional services such as marketing assistance, distribution of promotional materials, sustainable and ethical practices followed by the dairy FPCs which were not regularly practised among the selected crop sector FPCs.

The overall customer satisfaction towards the FPC products/ services as shown in Table 7 revealed that most of the customers had expressed medium level (56.25 %) of satisfaction followed by low level (37.50 %) of satisfaction. The FPCs may take appropriate actions by giving due importance to price sensitivity, market research, customer expectations, and provide after-sales support in order to improve the overall customer satisfaction with their products/ services. The results are in conformity with those reported by Haming et al*.* (2019)20 and Ponnusamy et al. (2020)21 who analysed the customer satisfaction with the services provided by various producer company outlets.

**Table 7. Classification of FPCs based on the overall customer satisfaction index scores**

**n= 160**

|  |  |  |  |
| --- | --- | --- | --- |
| **Category** | **Crop sector FPCs** | **Dairy FPCs** | **Overall FPCs** |
| **f** | **%** | **f** | **%** | **f** | **%** |
| Low (0.13-0.49) | 44 | 55 | 16 | 20 | 60 | 37.50 |
| Medium (0.50-0.70) | 27 | 33.75 | 63 | 78.75 | 90 | 56.25 |
| High (0.71-0.80) | 9 | 11.25 | 1 | 1.25 | 10 | 6.25 |

1. **CONCLUSION**

The study comprehensively analyzed the customer satisfaction towards FPC products and services by developing an index based on the SERVQUAL framework. The findings revealed that among crop sector FPCs, APOFPCL ranked highest in customer satisfaction, owing to well-maintained stores, quality products, and proactive customer engagement. Similarly, SMMPCL emerged as the top-ranked dairy FPC, attributed to its strong brand presence, effective distribution network, and customer-centric approach. Further, the customer satisfaction levels for crop sector FPCs was lower than the dairy sector FPCs.

The findings of present study underscore the need for focussed strategies to enhance customer satisfaction across FPCs. While dairy FPCs benefit from structured operations and strong consumer trust, crop sector FPCs require targeted interventions to address market fragmentation and quality inconsistencies. Strengthening market infrastructure, competitive pricing strategies, adopting innovative customer relationship management practices, ensuring product consistency and improved after-sales services will be crucial in improving the FPC performance in terms of improving customer satisfaction. Also, the FPCs could undertake timely customer satisfaction surveys to implement corrective actions and enhance their sales. Aligning these strategies with national agricultural development policies can enhance farmer incomes, boost consumer confidence, and ensure the long-term sustainability of FPCs in India.

COMPETING INTERESTS

Authors have declared that they have no known competing financial interests OR non-financial interests OR personal relationships that could have appeared to influence the work reported in this paper.

Disclaimer (Artificial intelligence)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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