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Unlocking potential: Examining the role of women-centric FPOS in Telangana's agricultural landscape

[1]Ch. Shiva Jyothi, [2]Dr. Ch. Sri Latha, [3]Dr. K Suhasini and [4]Dr. V. Ravinder Naik

[1]Ph.D. Student, II Year, Department of Agricultural Economics, PJTSAU, Rajendranagar, Hyderabad, Telangana, India
[2]Assistant professor, School of Agribusiness Management, PJTSAU, Rajendranagar, Hyderabad, Telangana, India
[3]Sr. Professor & University Head, Department of Agriculture Economics, College of Agriculture, Hyderabad, Telangana, India
[4] Professor, Department of Agricultural Extension Education, PJTSAU, Rajendranagar, Hyderabad, Telangana, India

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Corresponding Author: Ch. Shiva Jyothi (Gmail Id: sjagrico@gmail.com)

Abstract
Women farmers role is vital yet unseen, they face barriers in accessing resources and decision-making roles which is hindering productivity and economic growth. As agriculture commercializes, their visibility further diminishes, which necessitate women-focused farmer producer organizations (FPO's) for empowerment and equitable opportunities. Further smallholder farmers face market uncertainties due to biased policies favouring towards large and progressive farmers, by which they are devoid of all opportunities and widening the producer-consumer gap. Farmer Producer Organizations (FPOs), particularly Farmer Producer Companies (FPCs), are one which bridge this gap, linking smallholders to diverse markets and resources with the potential to revolutionize global food retail. Studying economic and extension Key Performance Indicator's (KPI's) for women-focused FPOs in Telangana is strategic not just for measuring success i.e., assessing financial health, outreach effectiveness and informing evidence-based policies for gender-inclusive agricultural development but also for guiding decision-making and ultimately empowering women in agriculture.

Keywords: Women, FPO, agricultural barriers, resource access, decision-making, economic and extension key performance indicator, empowerment

Introduction

Farmer producer organizations in India

Agriculture plays an important role in growth of developing countries like India where agriculture contributes around 17.1% Gross Domestic Products in the year 2022 (statista.com ,2024) which is approximately equal to 5.6 trillion Indian rupees and more than 54.6% people directly or indirectly are working in agriculture sector. The small and marginal land holding (farmers who are having land holding up to 2 ha) if taken together it contributes around 86.21 % of total land holding in 2017-18 (Economic Survey of India, 2018). So, because of this issue of small land holding of farmers the bargaining power of those farmers are very less while selling of their crops and also while purchasing inputs for cultivation of crops. To solve this issue and to minimize the gap between farmers and consumer, Govt. of India, on the recommendations of Y. K. Alagh Committee in 2001 has introduced certain amendments to Companies act, 1956 and introduced the concept of Farmer Producer Organizations. The basic concept of Farmer Producer Organizations is bulk buying of inputs used in farming like Fertilizers, Pesticides and seeds etc. and them distributing it to the member farmers to benefit them. Farmer Producer Organizations try to bring small and medium farmers together to reduce the cost of their supply chain so that farmers will be benefited for their producer.

Also to increase the bargaining power, the Farmer Producer Organizations work on-economies of scale‖ concept. The Farmer Producer Organizations are run by farmers and owned by Farmer Members are they are the shareholder according to their contribution in share capital. Farmer Producer Organizations are financially supported by two main Govt. organizations in India, namely Small Farmers Agribusiness Consortium (SFAC) & National Bank for Agriculture and Rural Development (NABARD). Small Farmers Agri Business Consortium, New Delhi is the main Nodal Agency and link between the different states and single point of contact for all the technical advice and investment related requirements of Farmer Producer Organizations in India. NABARD has specially created Producer Organization Development Fund (PODF) to promote Farmer Producer Organizations (FPOs) which are outside the domain of SFAC, if any. As a part of major reforms for Farmer Producer Organizations, Government of India in 2018 has introduced cent percent tax holiday for all the FPOs below 100 crores up to five years so that they should emerge as a major step towards the Prime Ministers Doubling Farmers Income Scheme by 2022. And recently in this year's budget of 2020 Finance Minister of Government of India, has announced formation of 10,000 new FPOs in next five years. Role of FPO in empowering women farmers are as follows:

FPOs Driving Economic Equality

- Risk Mitigation and Income Security
- Challenges of Marginalization (Achieve targeted economies of scale)
- Opportunities for Women Farmers
- Strategic Alignment with SHGs

FPO Definition: FPO is a generic name, which means and includes farmer-producers' organization incorporated/ registered either under Part IXA of Companies Act of 1956 now 2013 (as amended in 2002) or under Co-operative Societies Act (1912) of the concerned States and formed for the purpose of leveraging collectives through economies of scale in production and marketing of agricultural and allied sector (Sfacindia.com, 2023).

Need of producer companies focusing on women FPOs

The most basic reason is that 86.21% of farmers in India who are having land holding lesser than 2 ha during agricultural census 2022 they are vulnerable and are mostly exploited by the middle men are devoid of the policies being released by government. We have small producers who don't have huge volumes when it comes to production of crop. That's the main reason they are not getting a fair enumerative price for their produce and also due to that reason farmers are getting only a small portion of the total money paid by final consumer to their produce because in agricultural marketing large numbers of market intermediaries are working like village agents, commission agent, whole seller, retailer and finally consumers.

Growing rural to urban migration by men leads to increase pressure on women and increasing their participation in agriculture. They face disadvantages in pay, land title rights, representation in local farmers organizations, ignored stakeholders, government extension services and lack of empowerment results in negative externalities. They are like "invisible in agriculture". Thus urgent need for women oriented FPO's to increase women participation.

With a target of mobilization of 2.50 Lacs farmers all across the country into 250 FPOs having approximate 1000 farmers each, Ministry of Agriculture, Government of India launched a pilot programme during 2011-12 with partnership with Small Farmers' Agribusiness Consortium (SFAC), New Delhi, under two sub schemes Vegetable Initiative for Urban Clusters and the Programme for Pulses Development, which are part of Rashtriya Krishi Vikas Yojana (RKVY).

Different ways in which FPOs are helping farmers:

i) Input Supply Services
ii) Procurement and Packaging Services
iii) Marketing Services
iv) Custom Hiring Service Centre
v) Insurance Services
vi) Technical & Networking Services
vii) e-NAM & NCDEX Services

Current status of FPOs in our country and Telangana

Small Farmers Agribusiness Consortium (SFAC) is the nodal agency in India promotes Farmer Producer Organization (FPO's) in India as appointed by Department of Agriculture, Cooperation & Farmers Welfare and Ministry of Agriculture & Farmers Welfare. Since 2011 when government has introduced the concept of Farmer Producer Companies, they are being promoted in country under various schemes of central and state government. As of now in India 5000 Farmer Producer Organizations are promoted. All these FPOs are established under different central and state government schemes and are formed under various initiatives of centre and state government, NABAR and under Corporate Social Responsibility programs of different private companies.

FPOs promoted by NABARD till 2023 is 7,145 through India which accounts for 7.26 Lakh membership out of which 250 are women oriented FPO's with 91,620 membership and in Telangana there are 375 FPO's with 1.59 Lakh membership out of which Telangana constitutes 11 women oriented FPO's with 3,393 memberships.

Other organisations includes-Bill & Melinda Gates Foundation, Reliance Foundation, Ambuja Cement Foundation, HDFC Foundation, C&A Foundation, HSBC CSR, Axis Bank Foundation, Jindal Steel & Power Limited, Syngenta Foundation and TATA Trust. (*NABARD Regional office, Hyderabad, Telangana, 2023*).

Need for study

Studying FPOs in Telangana, especially those oriented towards women is vital to address the unique challenges faced by female farmers and studying key performance indicators for assessing financial health, outreach effectiveness and informing evidence-based policies for gender-inclusive agricultural development but also for guiding decision-making and ultimately empowering women in agriculture.

Objectives

1. To comprehend the Key Performance Indicators (Extension and Economic indicators) contributing for increase in income of the farmers in general and women farmers in particular through/via a case study analysis.
2. To analyse the economic feasibility of the processing unit machine.

Methodology

The study pertains to The AGEEWA (Achieving Gender equality through Empowerment of Women in Agriculture) Farmers Producers Company Limited, which is located in Yadagirigutta mandal, Yadadri Bhuvanagiri district of Telangana state. The study utilized primary data collected from office-bearers of the FPO through personal interview method using a specially designed interview schedule. Detailed information on costs, returns and profits were collected for a period of one year from 2022-23. The period of survey was January 2024. Tools like marginal analysis, descriptive statistics were used to achieve the objectives. A total number of 250 women oriented FPOs were promoted under the NABARD support as reported by NABARD regional office (Hyderabad) in India, out of which 11 women oriented FPO's are in Telangana. Most of the FPOs were registered in 2016-18, all are functional in nature and registered under company act. An attempt was made to cover those FPOs which was at least two-year-old to get a good data base for assessing the performance. The major business of FPOs were Input supply, aggregation, procurement, marketing, value addition, output sale etc.

Results and Discussion

Socio-economic profile of the company

- The AGEEWA (Achieving Gender equality through Empowerment of Women in Agriculture) Farmers Producers Company Limited is located in Yadagirigutta mandal, Yadadri Bhuvanagiri District of Telangana state. There are 630 women members as on January 2024. The FPO covers its services across 3,500 acres area of its producer members of 10 villages at Yadagirigutta mandal. The FPC operates through the active technical support of an NGO called 'PEACE' (Peoples Action for Creative Education), whose Head Quarters is based at Yadadri Bhuvanagiri District of Telangana state. The NGO supported this FPC to register in October 5th 2018, with financial aid of National Bank for Agriculture and Rural Development (NABARD).
- The share value collected from the producer members is Rs. 10/share with a processing fee of Rs. 100/-for lifetime. The producer members should purchase a minimum of 100 shares to become members, whereas, there is no maximum limit. The producer members have voting right to select their representatives as member in the Board of Directors, with 'one member one vote' policy. The Board of Directors are selected once in every two-and-a half year and board meetings are conducted every month in a year. Majority of the producer members were small and marginal land holders with a land holding of less than 2 acre farm size. The main crop of the region is red gram, paddy, cotton and millets. Though there is large scope for expanding area into vegetables like tomato, chilli, onion and brinjal during kharif, Rabi and summer season and fruits like mango.

Performance of the FPC

- The unique and strong organizational pattern of the FPC had strong influence on its effective performance (Figure 1). The organizational pattern of the FPC may be divided into two parts such as service and administrative lines. From the administrative line, the FPC is headed by the Chief Executive Officer, and the entre decision making process is deliberated and influenced by Board of Directors (10) on various issues and strategies pertaining to services, administration, financial supply and value chain operations. They also facilitate Input supply, door step delivery of products, transportation, seed stalls, assistance during marketing, crop suggestions and demo of the products etc. these all are done to provide the needed inputs near to farmer areas and save the transportation cost of farmers which is usually costs ₹ 300 for up and down travel. The financial performance of the FPC was observed as 'good' based on the analysis of its marginal analysis.

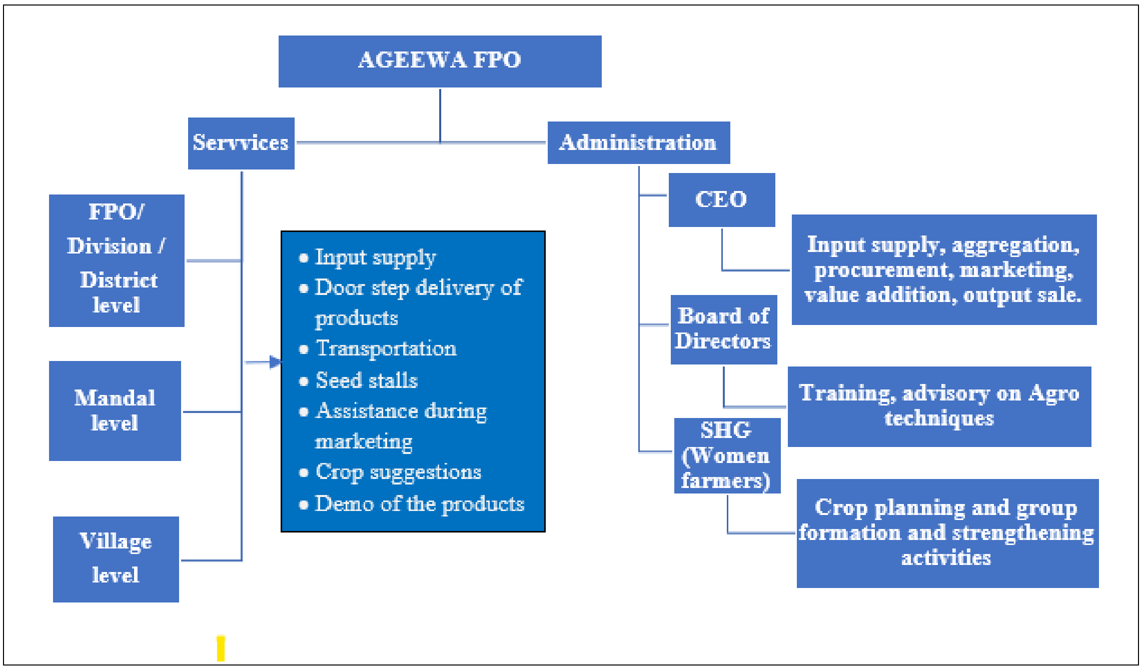

Fig 1: organizational pattern of AGEEWA, Yadadri district, Telangana

- The FPC extends broad-based extension services to its members. Advice on seasonal crop planning, agricultural operations, intervention in the form of collective action for accessing distant markets for better price realization is the most important support provided by the NGO besides arranging on and off-campus training programmes on advanced package of practices through development departments and researchers of State Agricultural Universities (SAUs), NABARD. It also provides services through A van, weighing machine (4), Daal mill, paddy cleaners, sprayers, weeder, moisture machines (2).

Nature of activity

- The AGEEWA FPC has taken the licence of seed, fertilizers and pesticides of which it sells cotton, red gram and paddy seeds along with urea and 28-28-0 fertilizers and tarpoline sheets with a margin of 30-35 rupees per bag on seeds and fertilizers. This is the means of providing door to door services to farmers of village by saving the additional charges farmers incur on the transportation which is ₹300 for up and down which saves time and get needed inputs on time.
- They do not provide any credit supply to the member farmers. They have taken a loan of 15,00,000 from NABKISAN with 9.2% rate of interest. Other than these input services like transportation, seed stalls provision during exhibitions, assistance during marketing, crop suggestions, demo of the products, value addition to red gram etc are provided by AGEEWA. All this information is provided in Table 1.

Table 1: List of nature od activities of AGEEWA FPC limited

<table>
<tr><th></th><th>Procurement (Inputs)</th><th>Input supply (Q and ₹)</th><th>Cost incurred (perbag)</th><th>Sale price (per bag)</th><th>Credit supply</th><th>Services</th></tr>
<tr><td>Done (Y/N)</td><td>Y</td><td>Y</td><td>Y</td><td>Y</td><td>N</td><td>Y</td></tr>
<tr><td rowspan="4">1.</td><td colspan="4">Seeds</td><td rowspan="9">• Not given to the women farmers in any form.
• They have taken credit services from “NABKISAN.”
• Amount accounts for 15,00,000 at ROI:9.2%</td><td rowspan="9">• Door step delivery of products
• Transportation
• Seed stalls
• Assistance during marketing
• Crop suggestions
• Demo of the products</td></tr>
<tr><td>Cotton</td><td>100 (750 gm each)</td><td>800/-</td><td>830/-</td></tr>
<tr><td>Pigeon pea</td><td>20 bags (4 Kg each)</td><td>520/-</td><td>550-560/-</td></tr>
<tr><td>Paddy</td><td>200 bags (25 Kg each)</td><td>850/-</td><td>890-900/-</td></tr>
<tr><td>2.</td><td>Tarpoline sheets</td><td>200-250 packets</td><td></td><td></td></tr>
<tr><td rowspan="3">3.</td><td colspan="4">Fertilizers</td></tr>
<tr><td>Urea</td><td>2000 bags (45 Kg each)</td><td>250/-</td><td>266/-</td></tr>
<tr><td>28-28-0</td><td>2100 bags (50 Kg each)</td><td>1470/-</td><td>1500/-</td></tr>
</table>

Aggregation activities

- They act as a bridge between the MSP centre and farmers via collecting the paddy from farmers and get a commission of 1% from the procured paddy. The amount given to the farmer is 2,203 per quintal by MSP centre. In the following year they got amount of 1,10,150 as a commission agent. Other than this they have also sold 2 quintals of mango at a rate of 220 per kg and achieved a profit of 8000 in previous year.

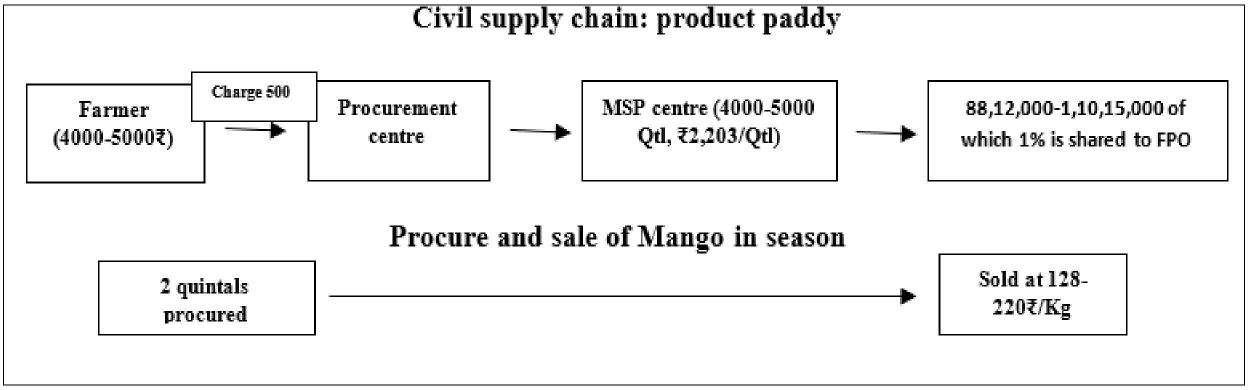

Fig 2: Diagram showing aggregation activities of AGEEWA FPC limited.

Margins analysis of Red gram

- They have purchased 109.97 quintals of red gram from farmers at the rate of 6,700 per quintal and they incurred a cost of 2565.33 by doing the primary processing of the red gram. The list where they have incurred the cists with per quintal costs are listed in the Table 2.

Table 2: Marginal analysis of red gram processing unit in establishment year 2022

(109.97qt) = 219.94 bags (50kg each bag) (recovery percentage=75.47%)		
Participants in the Red gram processing activity	**Price details he gave**	**Per quintal cost**
Farmer Sale price	6700/qt	6700/-
FPO Purchase price	6700/qt	6700/-
Transportation Hamali and weighing, loading and unloading Packing bag cost	50/bag 50-55/bag 40/bag	100/- 100-110/- (2 bags) 80/-
Total cost incurred during procuring (A)	280-290/-	
Primary processing (FPO) Grading and grinding Electricity Rent Including labour Processing losses (25 %) on complete produce	2000/day 2000/- per month 2000/- per month (66.67 /day above) 26.975 qt loss	289.15/- 9.639/- 9.639/- 1976.90/-
(Recovered 82.994 qt approximately 83 qt=1,64,083/-)		
Total cost incurred during primary processing (B)	2,285.33	
Total cost incurred by primary processors (FPO) (A+B)	2,565.33 To 2,575.33	

- After the processing they have recovered 82.47/83 quintals which accounts for 57.47% recovery percentage. Out of the 83 quintals they recovered they sold 82 quintals to Akshaya patra scheme of iskon temple at the rate of 9300 rupees per quintal and get a margin of rupees 34.67/ quintal and sold 3 quintals to local hotels at the rate of 9500 per quintal and get a margin of 234.67 per quintal. Where as 5 quintals to MAX organization and 10 quintals to other consumers they sell at 8500 and 9000per quintal and account margins of -765 amd-265.33 per quintal. This is because they want to have a long-term contract with MAX organization to get a good brand value and get absorbed in minds of consumers. Other than this they sell 20 quintals of the by product that is recovered from processing in the form of animal feed at the rate of 2000 per quintal. At the remaining 17 quintals is left ideal.

Margins = Sale price- (Purchase price+ cost incurred)

They recovered 82.47 or 83 Quintals

1. To Akshayapatra	
Sold	28 Qt
Price per quintal	9300
Margin per quintal	9300-(6700+2565.33)
	34.67

2. MAX	
Sold	5 Qt
Price per quintal	8500
Margin per quintal	8500-(6700+2565.33)
	-765

3. To local hotels	
Sold	3 Qt
Price per quintal	9500
Margin per quintal	9500-(6700+2565.33)
	234.67

4. Others	
Sold	10 Qt
Price per quintal	9000
Margin per quintal	9000-(6700+2565.33)
	-265.33

5. By product (Animal feed)	
Sold	20 Qt
Price per quintal	2000

17 Quintals of product is left ideal

By this they cover post-harvest and marketing activities also

Fig 3: Marginal analysis table as well as figures about processing unit for red gram in AGEEWA FPC limited.

- They stated that the farmers have sold them cheap quality red gram in the initial pilot phase of their processing unit as it was established in the year 2022 after they saw less margins in the input business. The suggestion like value addition to the remained produce can be done in the form of animal feed was given. By this here they cover the post-harvest and marketing activities.

Annual turnover

The average annual turn over of this FPC was 24,99,957.05 rupees and they kept a target of 50,00,000 rupees turn over for the year 2024. Here they have stated that to earn more amount they even purchase red gram from non members farmers also to cover the costs and also earn more money. The graph depicts the increasing trend of the turn over (Figure 2).

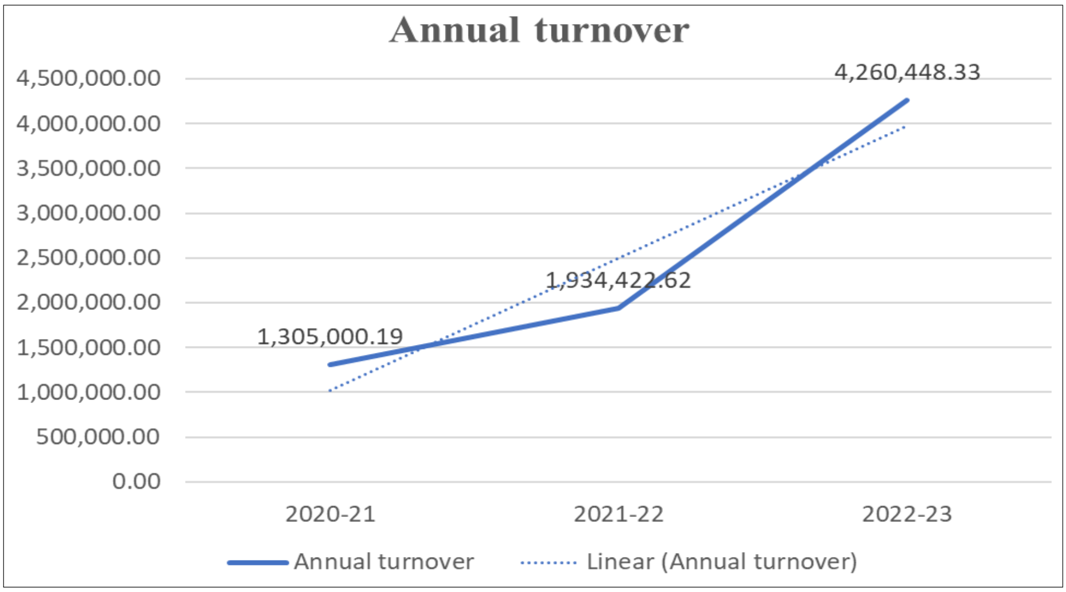

Fig 4: Graph representing 3 years annual turnover of AGEEWA FPC limited

Economic feasibility of processing units

An attempt was made to perform economic feasibility of the AGEEWA pulses processing unit established in December of 2022, (usually performed when industrial units complete 10 years of establishment). Information regarding establishment costs, fixed and variable costs are considered at initial period of establishment of processing unit and are represented below in 4. Out of initial establishment costs incurred (10,52,000), Machine and equipment cost occupies significantly high in total *i.e.,* 6,00,000 (57.03%)

Table 3: List of initial investment cost incurred in processing unit by AGEEWA FPC limited.

Particulars	Percent	Establishment costs
• Land (Advance)	4.56	48,000
• Building	38.02	4,00,000
• Machine and equipment's	57.03	6,00,000
• Office furniture	0.38	4,000
• Total	100	10,52,000

Table 4: List of fixed and variable cost incurred by AGEEWA FPC limited

Table 4a: Fixed cost

Particulars	Percent	Establishment costs
• Rent and Land (Advance)	16.35	24,000
• Depreciation on building	27.25	40,000
• Depreciation on machine and equipment	40.88	60,000
• Depreciation on office furniture	0.27	400
• Insurance	6.81	10,000
• Interest on fixed capital	8.42	12,364.8
• Total (A)	100	1,46,764.8

Table 4b: Variable cost

Particulars	Percent	Establishment costs
• Empty bags	0.41	6,640
• Salaries of employees	30.19	4,80,000
• Labour charges	3.45	54,900
• Electricity	1.50	24,000
• Maintenance charges	0.37	6,000
• Water, telephone and stationary charges	0.75	12,000
• Licence fees	0.62	10,000

• Interest on working capital 10%	3.67	58,354
• Seeds purchase	46.34	7,36,799
• Seed loss during processing	11.36	1,80,732.50
• Grading and grinding	0.75	12,000
• Miscellaneous	0.52	8,300
• Total (B)	100.00	15,89,725.50
Total cost incurred in an year : 17,36,490.30		

From the above table we can observe that, total variable cost is 18,89,725.5 and total fixed cost is 1,46,764.8 which accounts for 91.54% and 8.45% in total cost respectively i.e., 17,36,490.30. Depreciation on machine and equipment cost (60.000 (40.88%)) in fixed and seed purchase cost (7,36,733, (46.34%)) are significantly occupied in fixed and variable cost respectively.

Net Present worth (NPW), Benefit Cost ratio (BC), IRR (Internal Rate of Returns)

After collecting the required details, later tables representing a financial evaluation of a processing unit under varying conditions of cost(C) and revenue(R) changes are displayed. Key indicators such as Net Present Worth (NPW), Benefit-Cost Ratio (BCR), and Internal Rate of Return (IRR) are assessed at discount rates of 12%, 15%, and 20%.

Table 5a: CONDITION 1: Constant cost (C) and Changes in Returns (R):

Condition 1	NPW			BCR		
	12% DR	**15% DR**	**20% DR**	**12% DR**	**15% DR**	**20% DR**
C constant and R increase by 5 % initials	-1,06,97,641	-93,55,873	-76,23,339	1.11	1.09	1.06
C constant and R increase by 10%	30,66,373.2	23,83,580	15,44,846	1.28	1.25	1.20
C constant and R increase by 20%	78,29,520.6	62,34,282.4	42,91,245	1.73	1.66	1.56
C constant and R decrease by 5%	-1,52,5076	-13,62,658	-11,68,120	0.85	0.85	0.84
C constant and R decrease by 10%	-25,76,690	-22,28,870	-18,05,214	0.67	0.67	0.65
C constant and R decrease by 20%	-41,83,517	-35,62,406	-27,98,009	0.60	0.61	0.63

When costs remain constant and revenue increases, NPW and BCR improve significantly. A 10% increase in revenue results in a positive NPW across all discount rates, while a 20% revenue increase leads to the highest financial feasibility (BCR > 1.5). Conversely, revenue declines negatively impact the project, with a 10% or 20% reduction leading to NPW losses and BCR falling below 1, making the processing unit financially unviable.

Suggestion was given that processing unit in coming short period, keeping the inflation rates in considerations, can increase their per unit price of commodity, neglecting the fact that even per unit price of inputs i.e., cost will also increase parallelly. Only those conditions are considered where BC ratios are finally greater than one in short period of time.

DR: Discount Rate

From the above table we can observe that, when cost is constant and returns are increasing initially by 5 %, the NPW are in negative, indicating that processing unit is attaining losses *i.e.*, present value of costs exceeds the present value of benefits at 12%, 15% and 20% discount rates respectively. But the BC ratios are above one *i.e.*, 1.06, 1.20 and 1.56 at 12%, 15% and 20% discount rates respectively, keeping constant cost and changes in returns by 5%, 10% and 20% increasing rates, stating that the processing unit is profitable, economically feasible and generates more benefits than cost in this assumed condition. As shown in Table 5a., Out of three highlighted ideal condition for present assumed scenario is when, costs are constant and returns increase by 20% where NPW and BCR is high *i.e.*, 78,29,520.6 and 1.73 respectively at 12% discount rate.

Table 5b: CONDITION 2: Change in cost (C) and constant in Returns (R)

Condition 2	NPW			BCR		
	12% DR	**15% DR**	**20% DR**	**12% DR**	**15% DR**	**20% DR**
C increase by 5 % and R constant initials	-1,06,97,641	-93,55,873	-76,23,339	1.12	1.10	1.06
C increase by 10 % and R constant	-5,95,052	-6,08,205	-6,28,236	0.95	0.94	0.93
C increase by 20 % and R constant	-56,70,154	-47,45,808	-36,23,480	0.68	0.68	0.69
C decrease by 5 % and R constant	39,62,578	31,52,072	21,48,305	1.50	1.44	1.36
C decrease 10 %and R constant	49,47,146	39,74,617	27,68,178	1.71	1.63	1.52
C decrease 20% and R constant	63,99,395	51,99,748	37,06,001	2.15	2.03	1.84

DR: Discount Rate

From the above table we can observe that, when costs decrease the NPW are positive, *i.e.*, costs are overshadowing the returns at 12%, 15% and 20% discount rates respectively, stating that the processing unit is economically viable and feasible, keeping returns constant and decreasing trend of cost by 5%, 10% and 20 %. As shown in Table 5b., Out of three highlighted ideal condition for present assumed scenario is when, returns are constant and cost decrease by 20% where NPW and BCR is high *i.e.*, 63,99,395 and 2.15 respectively at 12% discount rate.

When costs increase by 10% or more while revenue remains unchanged, NPW turns negative, and BCR drops below 1, indicating financial unsustainability of the processing unit in assumed scenario. A 20% cost increase leads to substantial financial losses, showing that cost inflation without revenue growth severely impacts processing unit feasibility.

Reducing costs significantly improves NPW and BCR. A 10% cost reduction increases BCR above 1.5, while a 20% reduction results in BCR values exceeding 2, making the project highly profitable.

Suggestions like cost optimisation without being compromise over quality via bulk purchase at negotiable prices, minimizing wastage by adoption of lean manufacturing techniques, improvement of inventory management, adoption of productivity enhancing technology, for considerable demand of product by enhancing market linkages and sales strategy, reduce errors in processing , more diversification of produce, Leverage digital marketing and e-commerce platforms to boost sales, availing government subsidies and needy helps from premium institutes like NABARD, Obtain necessary certifications (FSSAI, Organic, etc.) to enhance credibility, reduce transportation and logistics costs by sourcing raw materials locally and develop strong backward and forward linkages to ensure smooth operations.

Table 5c: CONDITION 3: Both Cost and Revenue increase

Condition 3	NPW			BCR			IRR		
	12% DR	15% DR	20% DR	12% DR	15% DR	20% DR	Lower fit	Upper fit	IRR
C and R increase by 10 %.	12,19,669	8,67,058	4,33,698	1.10	1.08	1.05	13%	18%	16.36%
C and R increase by 20 %.	9,07,714	5,80,156	1,84,852	1.05	1.04	1.02	16%	21%	18.32%

DR: Discount Rate

From the above table we can state that, when costs and revenues increase by 10%, the NPW declines from ₹12,19,669 at a 12% discount rate to ₹4,33,698 at a 20% discount rate, with BCR values of 1.10, 1.08 and 1.05 respectively. The IRR in this scenario ranges from 13% to 16.36%. In the case of a 20% increase in costs and revenues, NPW further declines and BCR values drop slightly to 1.05, 1.04 and 1.02. However, the IRR improves, reaching 16% at the lower bound and 18.32% at the upper bound. The processing unit remains financially viable under both scenarios as BCR remains above 1 in both cases. The IRR increases when costs and revenues rise by 20%, indicating that higher revenue offsets cost increments, improving project profitability. NPW declines with higher discount rates, emphasizing the sensitivity of project viability to the cost of capital. However, when costs rise without a proportional revenue increase, financial viability deteriorates.

Marketing and business aspects

These were the direct questions that were asked to the office bearers, where their responses were noted and are presented.

Particulars	Answer given
▪ Brand name ▪ Market tie-ups	▪ No ▪ AGEEWA in future after expansion and as a no they sell to MAX ▪ MAX, Coromandal Fertilizers, E-Fresh, MARKFED
▪ What product and Where do you sell the produce?	▪ Nearby to district and Hyderabad products like daal, paddy and mangoes in season
▪ Benefit shares- percent of margin shared among FPO members	▪ Not yet decided as recently processing unit has started
▪ Business plan	▪ Long term plans like processing unit and certain infrastrures to be constructed

Critical Analysis of Extension Key performance indicators

They have the strong organizational structure with one CEO and 10 women BOD spread in 10 villages in Yadadri Bhuvanagiri district, of Telangana. They membership and out reach has increased from 10 in 2018 to 630 in 2024 showing an increasing trend. The members of the FPC have undergone several trainings and capacoity building programs like preparation of organic fertilizers, pancha gavya, growing of the millets etc.

This FPC with PEACE NGO has the good social impact on the lives of the farmers which helped them to have a sound decision making activities and recognition as land stakeholders in the society. They eventake quick actions if there is any issues related to child labour and women domestic voilance. They also do sustainable agricultural practicesnot harming nature by optingnew sustainable technology.

Key issues and challenges faced by FPO

- Mobilization of farmers
- Skill set of Board of Director & Chief Executive Officer
- Problems related to financing
- Equity Grant
- Challenges related to policy (as still not able to take benefits of several schemes of SFAC and NABARD)
- Vulnerable nature and submissive nature of women
- Distance by which participation rate is low during trainings.

Suggestions for good performance of FPO's

- Time to time training and development programmes (NIAM- Jaipur, MANAGE and NAARM in Hyderabad, VAMNICOM in Pune etc.)
- Develop a system to earn year round by different methods to overcome the problem of finance and extension advisory system is required.
- Promote Farmer Producer Organizations' success through capacity building, technology access, market linkages, financial support, quality assurance, networking, policy advocacy, social impact initiatives,

monitoring, and effective communication strategies.

Conclusion

Studying FPO’s in Telangana essentially women oriented is vital to address the challenges faced by the women/ female farmers which will promote the inclusive growth, empower women economically and sustainable agricultural development in the region. Promotion of large number of FPO’s should be seen as large part of the solution to address farmers problems but not as only solution, it’s not only to promote FPO’s but also to provide them with better institutional support and government mechanism to increase chances of success and simultaneously work on to address farmers problems. Input side interface of producer companies in most of the areas is relevantly better and more focus is required on output side where conventional forces like effective government mechanism are to be put in place where farmers income is generated. There is need for rope move in of private players in FPO ecosystem for improving performance and long-term sustainability of FPO’s.

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