

A STUDY ON WORKING PATTERN AND PERFORMANCE OF FARMER PRODUCER ORGANISATIONS IN ANDHRA PRADESH

ABSTRACT

Background: The study aimed at determining the impact of socio economic characteristics of member farmers on the performance of Farmer Producer Organisations in Andhra Pradesh. It is typically a society or company consisting of practicing farmers who are also actual producers of a specified commodity or commodities, and is formed under mutually aided co-operative societies (MACS) Act 1995 or as farmer producer companies act (FPC) 2013. Small Farmers' Agribusiness Consortium (SFAC) is providing support for promotion of FPOs.

Methods: A total of 120 farmers selected from six FPOs spread across three regions of Andhra Pradesh constituted the sample size. Multiple regression analysis was employed to study the impact of socio economic traits for the progressive development and expansion of FPOs.

Results: The working pattern of FPOs showed that the group membership was increasing year by year and the procurement of produce was also increasing year by year their by increasing in the turnover of the FPOs. The results showed that education, experience and annual income were determinant factors that influenced the performance of FPOs.

Key Words: Farmer producer Organisation, FPO members, performance, socio economic characters ¹

INTRODUCTION

Smallholder agriculture is argued to remain important for economic development and poverty reduction in developing countries, but its development is challenged by the need for institutional innovations to overcome market failures. There is a renewed interest from donors, governments and researchers in cooperative producer organizations as an institutional vehicle to improve smallholder agricultural performance, particularly through improved market participation. Smallholder producers participation in market-oriented production holds potential for diversifying their incomes and increase agriculture productivity, hence promoting food security and poverty eradication. With the numerous farming problems in developing countries, low agricultural productivity has negative effect on the economic welfare of the rural population. Farmers organizations have been suggested as a key tool to

improve the living conditions of the resource-poor farmers in developing countries. Farmer groups are important institutions for the transformation of smallholder farming, increase productivity and income, thereby reducing poverty (Nalini, 2017).^[5]

A Farmer Producer Organisation (FPO) is a legal entity formed by primary producers viz., farmers. It is typically a society or company consisting of practicing farmers who are also actual producers of a specified commodity or commodities, and is formed under mutually aided co-operative societies (MACS) Act 1995 or as farmer producer companies act (FPC) 2013. Small Farmers' Agribusiness Consortium (SFAC) is providing support for promotion of FPOs. Farmer producer organizations (FPOs) have been argued to be an effective tool for solving problems in rural areas and promoting agricultural development. The internal governance and management of FPO are mainly focused on decision making and factors affecting their business activities towards profits.

Effective and efficient management of FPO depends on membership commitment which plays a crucial and vital role in financing the co-operative, efficient coordination, sustainability of cooperative, efficient and effective decision making and control, building and monitoring common norms and values.

Linkages are the potential channels which impacts the FPOs economy. The FPOs provided with support like technical advices, market linkages, legal formalities for registration, conducting training on different aspects. (Ragasa and Jennifer, 2012).^[7]

MATERIALS AND METHODS

Andhra Pradesh State was reported to have 133 FPOs registered and functional under Small farmers Agribusiness Consortium (SFAC) (sfacindia.com) and National Bank for Agricultural and rural development (NABARD) (www.nabard.org). Multistage sampling technique was used viz., three regions (North coastal Andhra, Coastal Andhra and Rayalaseema); five districts (Vishakhapatnam, Vizianagaram, Krishna, Guntur and Chittoor); 6 mandals; 6 villages; 6 FPOs which had external linkages enrolled with highest and lowest membership and 20 registered farmers per FPO. Thus, the total sample of 120 farmers was selected. Of the 17 FPOs in North Coastal Andhra region, Andhra Kashmir Producer Company (1034) and Rythula jattu Kuragayala Bellam Utapptidarula Producer Company (500). Coastal Andhra region had the maximum registered 49 FPOs of which Chandragudem Jasmine collection centre (400) and Mangaladri Agri Producer company Ltd (4500). Rayalaseema region had 27 FPOs of which two FPOs Kisan suvida FPO (4500) and Siddeswara FPO (500) with highest and lowest membership represented the study.

Primary as well as secondary data were collected to full fill the designed objectives. Well-structured pre-tested Schedules were developed for the collection of primary data as per the objectives. The data was collected for the agricultural year 2020-2021 in the month of January and February.

Tools of Analysis

Descriptive Statistics

Descriptive Statistics were often used to describe variables. Descriptive Statistics are performed by analyzing one variable at a time. All researchers perform these descriptive statistics before beginning any type of data analysis.

Measures of Central tendency

Measures of central tendencies provide the most occurring or middle value/category for each variable. There are three measures of central tendencies-mode, median and mean (Parinal,P. 2009).^[6]

Table: 1 Summary of measures of central tendency.

Univariate statistic	Variables	Description
Mode	Nominal, Ordinal, Interval	Most frequent category/value
Median	Ordinal and Interval	Category/Value lies in the middle
Mean	Interval	Value that represents average

Multiple linear regression analysis was used to study the performance of FPOs. The multiple linear regression was an attempt made to account for the variation of independent variables in the dependant variables synchronically. The model was formulated below.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + + \beta_n X_n + \epsilon_0$$

$$Y = \text{Dependant Variable (Performance of FPO)}$$

$$X_i = \text{Independent variables (basic Socio-economic profile)}$$

$$\beta_i = \text{Slope}$$

$$\epsilon_0 = \text{Random error}$$

The basic socio-economic profile of the farmers were taken as explanatory variables. The hypothesis assumed that Age, Education, Experience, total cropped area, Annual income to have a positive relation with respect to the performance of FPOs.

RESULTS AND DISCUSSION

1. Working pattern of Farmer Producer Organisations

To study the working pattern of Farmer Producer Organisations in Andhra Pradesh, the study was conducted in three regions of Andhra Pradesh i.e., North coastal Andhra, Coastal Andhra and Rayalaseema regions where in the selected FPOs were registered during 2015-17.

Table 1 showed that from North Coastal Andhra Region two FPOs were selected which were Andhra Kashmir farmer producer company from Visakhapatnam district covering 20 villages with the membership of 1034 was registered in 2017 and Rythula jattu kuragayala bellam utpattidarula producer company from vizianagaram district with a membership of 500 covering 10 villages and registered during 2016, from Coastal Andhra region Mangaladri agri producer company which was situated in Guntur district had a membership of 3500 farmers and covering 25 villages was registered in 2015 and Chnadragudem jasmine collection centre in Krishna district covering 15 villages was registered during 2017 with a membership of 400 farmers were selected and from Rayalaseema region two FPOs from Chittoor district were selected in which one was Kissan Suvida FPO with 4500 members covering an area of 60-70 villages was registered in 2017 and the other was Sri Siddeswara FPO which was registered during 2015 had a membership of 400 farmers covering an area of 20 villages.

Table 2: Details of selected FPOs

S.No	Particulars	District	Year of Establishment	No. of members as on jan20201	Area of operation (Villages)
1	North Coastal Andhra Region				
	Andhra Kashmir Farmer Producers company	Visakhapatnam	2017	1034	20
	Rythula Jattu kuragayala bellam utpattidarula Producer company	Vizianagaram	2016	500	10
2	Coastal Andhra Region				
	Mangaladri agri producers company	Guntur	2015	3500	25
	Chandragudem Jasmine collection centre	Krishna	2017	400	15
3	Rayalaseema Region				
	Kissan Suvida FPO	Chittoor	2017	4500	60-70
	Sri siddeswra FPO	Chittoor	2015	400	20

Services rendered by FPOs

Table 3 depicts various services rendered by selected FPOs to its members. FPOs provide various input services like supply of seeds, bio fertilizers and plant protection chemicals. The FPOs also provide financial services like vermi compost units, value addition units, purchase of cattle, provide boilers and polishers for turmeric processing and external linkages. They provide output marketing services like procurement of produce and sale of produce on behalf of its members. They also provide various extension services like providing training on organic farming, exposure field visits, providing training to women farmers, training on value addition of produce and training on scientific cropping technique.

Table 3:Services rendered by FPOs.

S.No	Particulars	Notha Andhra FPOs	Coastal Region	Coastal Andhra Region FPOs	Rayalaseema region FPOs
1.	Crops covered	Turmeric , coffee, pepper, rajma, millets, maize, pine apple, mango, Jaggery and vegetables		Turmeric and Jasmine	Mango, paddy, tomato, groundnut, vegetables and Papaya.
2.	Input services provided	Supply organic manures and seeds through Departments of Horticultuture and Science and technology		Supply of seeds and bio fertilizers	Supply of Plant protection chemicals
3.	Financial services provided	Vermicompost units, value addition unit and external linkages		Vermicompost units, Providing boilers and polishers for turmeric processing and External linkages.	Purchase of cattle and External linkages.
4.	Output marketing	Procurement of produce and sale of produce		Procurement of produce and sale of produce	Procurement of produce and sale of produce
5.	Extension services	Organic certification for the produce, training on organic farming and training on value addition		Scientific field visits , training to women farmers and training on organic farming	Training on scientific cropping practice and exposure field visits.

1.1 Physical and financial features of FPOs in North Coastal Andhra region

1.1.1 Physical and financial features of Andhra Kashmir Farmer Producer Company

Andhra Kashmir Producer Company was located at Tajangi village in Chintapalli mandal of Visakhapatnam district and was supported by Girijan vikas NGO. The FPO was registered on 13-4-2017. The crops covered by FPO are Turmeric, pine apple, pepper, coffee, mango and millets. The average land parcel of FPO was five acres covering an area of 5750 acres approximately. The number of members in FPO as on February 2021 was 1034 The maximum increase in the percentage of members was during 2018 which was 28.57 percent and the minimum was during 2020 which was 12.95 percent. The growth in the number of members was shown in fig 1. Table 4 showed the total output procured by the FPO and the value of the produce from the date of registration until 2021. The maximum output procured was during 2021 which was nearly 1000 tonnes with a value of 1150 lakhs. FPO procured a minimum output during 2017 was 40 tonnes with a value of 360 lakhs. The average output procured from 2017-2020 was 254 tonnes with an average value of 789 lakhs. As 2017 was the initial year the FPO has procured minimum amounts of produce later on farmers started joining in FPO by seeing the facilities provided by FPO and it was difficult to motivate the farmers to join in FPOs as it was located in tribal area.

Table 4: Output procured and its value of Andhra Kashmir Farmer Producer Organisation

Year	Total Output in tonnes	Value in lakhs
2017	40	36

2018	60	60
2019	70	73
2020	100	110
2021	1000	1150
Mean	254	285.8

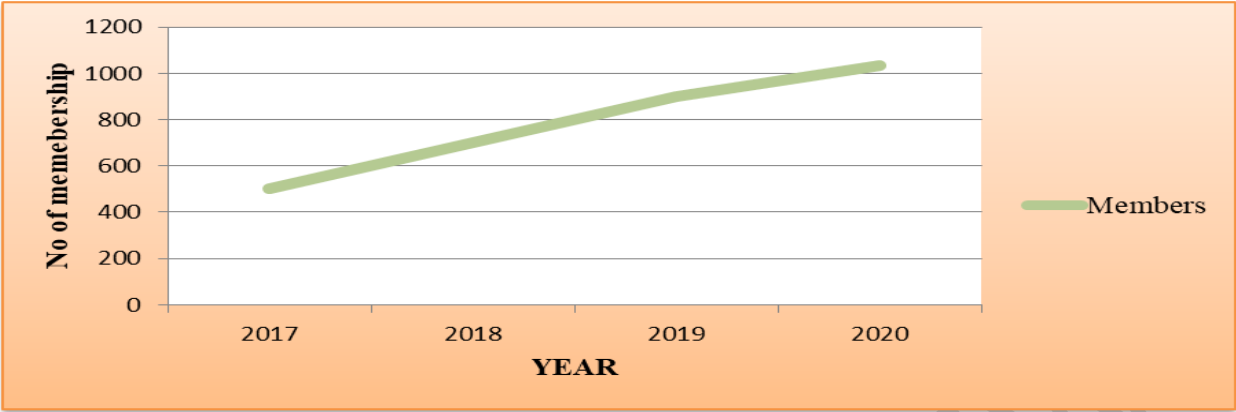


Fig 1: Growth in Members of Andhra Kashmir Farmer Producer Company

1.1.2 Physical and financial features of Rythula Jattu Kuragayala Bellam Utpattidarula Producer Company

The FPO was located at Veerasagaram village of Badangi mandal in Vizianagram district was registered on 22-01-2016. This FPO was supported by Deeksha Mahila Welfare Society. FPO covered an area of 700 acres with an average land parcel of 1-2 acres. The major commodities marketed in the FPO were vegetables and jaggery in the form of powder. The total number of members as on march 2021 were 500 members. The growth in the percentage of members was highest during 2017 and 2018 which was 40 per cent after that the growth was stopped. The growth in the number of members was showed in fig 2. The FPO mostly encouraged organic farming so, it has supplied the organic manures to its members. The highest amount of organic manures were supplied in 2019-20 which was nearly 4500 tonnes. The average organic manures supplied by FPO over the years 2016-2020 was nearly 3250 tonnes. the total output procured both vegetables and jaggery by the FPO. The highest amount of vegetables were procured during 2019-20 (64.23) tonnes with a value of 10.6 lakhs and the highest amount of jaggery was procured in 2019-20 (706.16) tonnes with a value of 42.4 lakhs. The average value of vegetables procured among the years 2016-20 was 5.62 lakhs with an average amount of 42.35 tonnes. The average amount jaggery procured among the years 2016-20 was 424.54 tonnes with an average value of 22.5 lakhs which was showed in (Table 5).

Table 5: Organic manures supplied, output procured (Vegetables and jiggery) and its value of Rythula jattu kuragayala bellam utpattidarula producer compny

YEAR	Organic manures supplied in tonnes	Vegetables procured in tonnes	Value of Vegetables in lakhs	Jaggery procured in tonnes	Value of Jaggery in lakhs
2016-17	2500	20	1	100	4

2017-18	2800	31.2	2.3	204	9.2
2018-19	3200	53.98	8.6	688	34.4
2019-20	4500	64.23	10.6	706.16	42.4
Mean	3250	42.3525	5.625	424.54	22.5

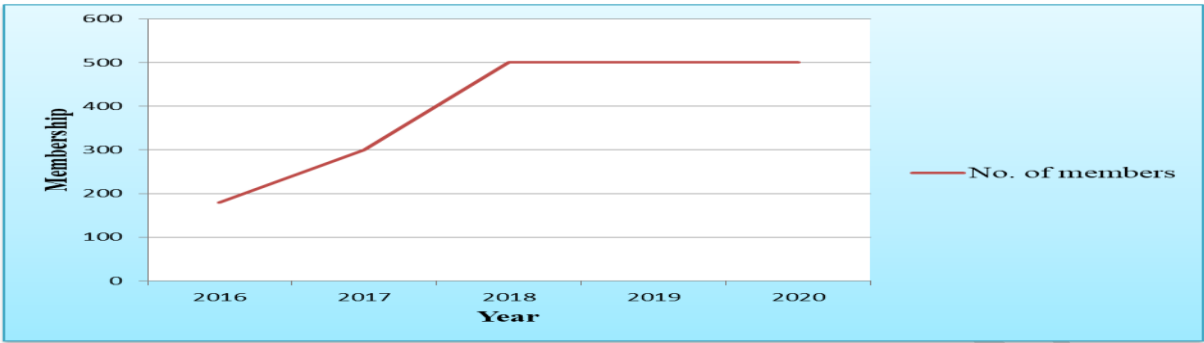


Fig 2: Growth in the members of Rythula jattu kuragayala bellam utpattidarula FPO

1.2 Physical and financial features of FPOs in Coastal Andhra Region

1.2.1 Physical and financial features of Mangaladri Agri Producers Company

Mangaladri Agri Producers Company was located in Nutakki village of Mangalagiri mandal, in Guntur district and was registered on September 2015. The major crop covered by FPO was turmeric. This FPO was supported by Neelagiri foundations NGO. The area under the FPO was 1000 acres with an average land parcel of 2 acres approximately. The total number of members as on January 2021 was 3500 with 630 shareholders. Table 8 showed that the maximum increase in the percentage of members was during 2018 which was 40 percent. Fig 3 showed the growth in the number of members and shareholders. The FPO supplied seeds to its members. The highest amount of seeds were supplied during 2020 which was 800 putlu with a value of 40 lakhs. On an average the FPO had supplied 556.66 putlu with an average value of 27.83 lakhs among the years 2015-2020. The FPO had also supplied bio-fertilizers to its members. The large amounts of bio-fertilizers were supplied during 2020 which was nearly 80Q with a value of 45 lakhs. The average amount of bio-fertilizers supplied from 2015-2020 was nearly 66.66 Q with an average value of 32.50 lakhs. the output procured by the FPO from 2015-2020 in which the highest amount was procured during 2020 which was nearly 1000 tonnes (Rajapuri variety of 400 T and Salem variety of 600T) with a value of 50 lakhs. On an average the FPO procured 620 tonnes of output with an average value of 34 lakhs which was presenred in table 6. The FPO mainly encourages organic farming and women entrepreneurship so there was increase in the number of membership.

Table 6: Seeds, biofertilizers and fertilizers supplied, output procured and their value of Mangaladri agri producers company

Year	Seeds supplied in Q	Value of seeds in lakhs	Biofertilizers supplied in Q	value of biofertilizers in lakhs	Fertilizers supplied in Q	value in lakhs	Total output procured in tonnes	Value of output in lakhs
2015	122.4	17	50	20	50	20	10	10

2016	144	20	60	25	60	25	70	20
2017	180	25	65	30	65	30	85	25
2018	216	30	70	35	70	35	95	35
2019	262	35	75	40	75	40	105	40
2020	288	40	80	45	80	45	115	50
Mean	202.06	27.83	66.66	32.5	66.66	32.5	80	30

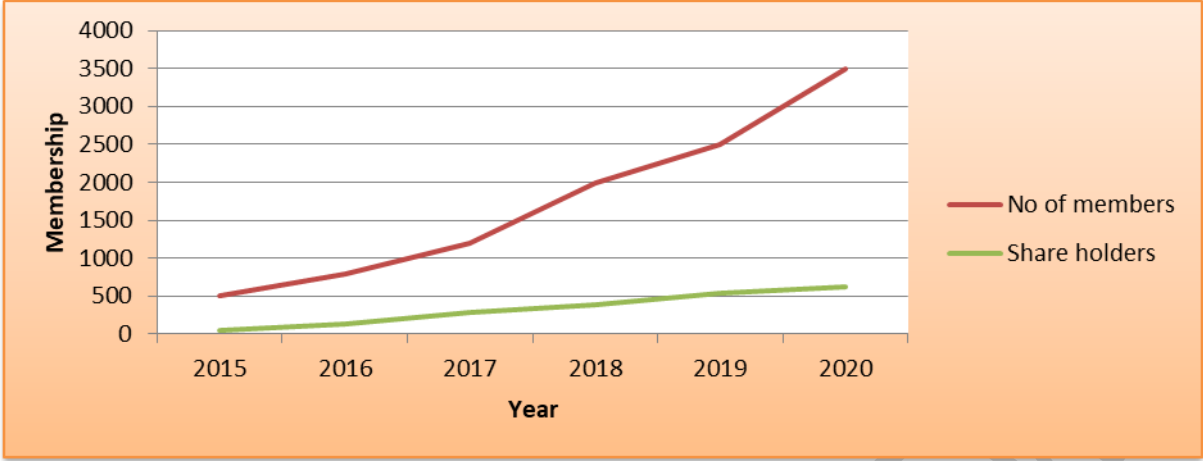


Fig 3: Growth in membership of Mangaladri Agri Producers Company

1.2.2 Physical and financial features of Chandragudem Jasmine Collection Centre

Chandragudem jasmine collection centre was situated at Chandragudem village Mylavaram mandal of Krishna District. The average land parcel of FPO was 2 acres covering an area of 500 acres approximately. The FPO was supported by Nestham NGO. The major crop involved was jasmine. The total number of members as on January 2021 was 400 and the maximum increase in the percentage of members was during 2020 which was 12.50 per cent. The fig 4 showed the growth in the increase of members. The table 7 showed the output procured by the FPO and its value. The maximum procurement of output was done during 2020 which was 3000 kgs/ day with a value 5,40,000. The average amount of output procured by the FPO was 1675 Kgs/day with value of 2,75,000 among the years 2017-2020. The FPO was registered during 2017. This FPO does not provide any seeds and Plant protection chemicals as it was formed recently.

Table 7: Output procured and its value by the Chandragudem Jasmine collection centre

YEAR	out put in Q/day	Value in lakhs
2017	10	1.25
2018	12	1.8
2019	15	2.55
2020	30	5.4
Mean	16.75	2.75

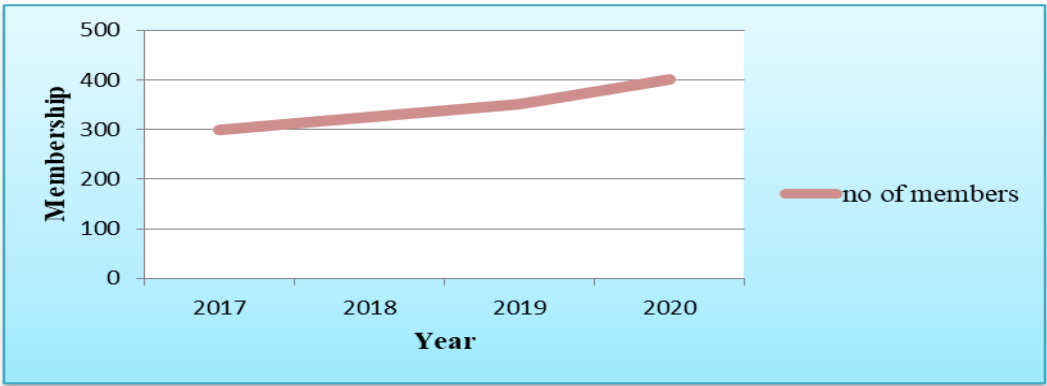


Fig 4: Growth in membership of Chandragudem Jasmine collection centre

1.3 Physical and financial features of FPOs in Rayalaseema region

1.3.1 Physical and financial features of Kissan Suvida Farmer Producer Organisation

Kissan suvida FPO was located in Deendarupalli village CGgallu mandal of Chittoor district and was registered in 2017. The major commodity of the FPO was Mango. The average land parcel under the FPO was 5 acres covering an area of 100 acres. The total membership of FPO as on January 2021 was 4500. the maximum increase in the percentage of membership was during 2018 which was 98.60 percentage. Fig 5 showed the growth in the number of membership. The FPO supplied plant protection chemicals (PPCs) to its members. Table 8 has showed the amount inputs supplied and output procured and its value. The maximum amount of PPCs were supplied in 2020 which was nearly 6Q with a value of 16 lakhs. The average amount of PPCs supplied was 3Q with a value of 7.25 lakhs. highest amount of output procured was during 2020 which was nearly 12000 tonnes (Banginapally was 9000T and Totapuri was 5000 T) with a value of 5820 lakhs (Banginapally (4500 lakhs) and Totapuri (1320 lakhs)). On an average the FPO procured 6200 tonnes of ouput (Banginapally was 3300 T and Totapuri was 2300 T) with an average value of 2017 lakhs (Baginapally (1480 lakhs) and Totapuri (507 lakhs)).

Table 8: Inputs supplied and output procured and their value by Kissan Suvida FPO.

YEAR	output in tonnes	output value in lakhs	PPC in Quintals	value of PPc in lakhs
2016	5000	150	0	0
2017	2000	4017	0	0
2018	3000	5018	2	4
2019	9000	11019	4	9
2020	12000	14020	6	16
Mean	6200	6844.8	2.4	5.8



Fig 5: Growth in the membership of Kissan Suvida FPO

1.3.2 Physical and financial features of Sri Siddeswara FPO

Sri Siddeswara FPO was situated at Geddavarapally village of Y V palem mandal of Chittoor district and was registered in 2015. The major crop involved in marketing was mango and the other crops were paddy, tomato, groundnut, vegetables and papaya. The area covered by the FPO was nearly 6000-7000 acres with an average land parcel of 5-20 acres. The total membership as on January 2021 was 400, the highest increase in the percentage of membership was during 2016. Growth in the membership was shown the fig 6. The output procured and the value of output was shown in the table 9 which showed that highest amount was procured during 2020 i.e., 20000 tonnes (

Baneshan (1000 T) and Totaputi (19000 T)) with a value of 2200 lakhs (baneshan (300 lakhs) and Totapuri (1900 lakhs)). The average amount procured among the years 2015-2020 was 13166.67 tonnes (Baneshan- 675 T and Totapuri-12491.67 T) with an average value of 1402.36 lakhs (Baneshan- 205 lakhs and Totapuri- 1197.67lakhs).

Table 9: Total output procured and its value by Sri Siddeswara FPO

year	Total output procured in tonnes	output value in lakhs
2015	4000	6015
2016	10000	12016
2017	12000	14017
2018	15000	17018
2019	18000	20019
2020	20000	22020
MEAN	13166.67	15184.17

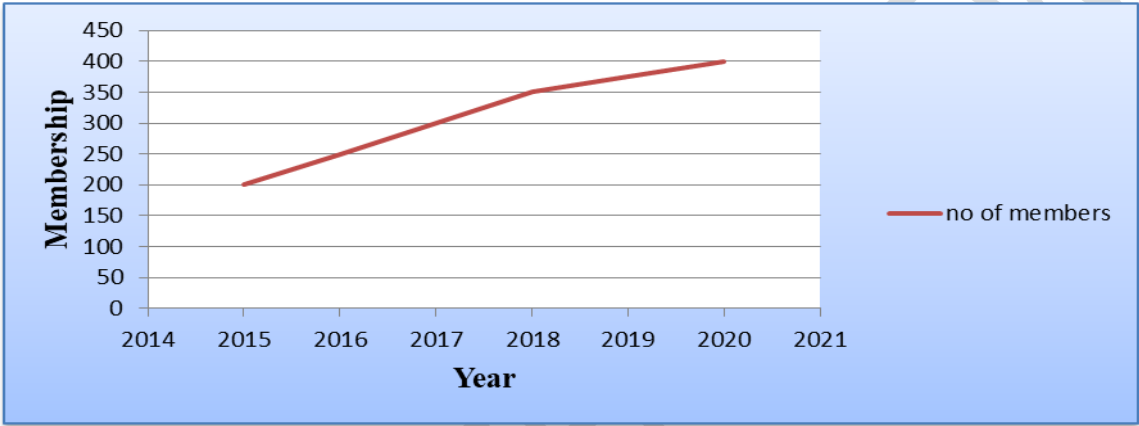


Fig 6: Growth in the membership of Sri Siddeswara FPO

2. Performance of Farmer Producer Organisations

The Table 10 presents the effect of socio-economic factors of respondents on dependant variable viz., external linkage and support of the selected 6 FPOs. The regression results showed similar trend across the FPOs with significant R² values ranging from 0.80 (Rythula Jattu Kuragayala Bellam Utpattidarula Producer Company) to 0.97 (Siddeswara FPO) indicating that the socio-economic factors viz., Age, Education, Experience, Total Cropped Area, Annual Income contributed to the performance of FPO. The R² values for the two FPOs (Andhra Kashmir Producer Company and Chandragudem Jasmine collection Centre) recorded significant value of 0.97 each. The R² values for Kisan Suvida FPO and Mangaladri Agri Producer Company was 0.90 and 0.88, respectively.

The Table 10 reveals that the education, annual income and experience had a positive impact on performance of Kisan Suvida FPO at one per cent level of significance. The results implied that one unit increase in the variables of experience, annual income, and education would increase the performance of Kisan Suvida FPO by 1.41, 0.52 and 0.34 times, respectively. Andhra Kashmir Producer Company reported positive effect and significant at one per cent land for the variables experience and education. The performance of Andhra Kashmir Producer Company FPO is augmented to the tune of 4.98 and 1.52 times respectively by one unit increase in the variables experience and education. In the case of Sri

Siddeswara FPO, education and experience had a positive impact on performance at one per cent level of significance. A unit increase in education and experience would enhance the performance of FPO by 0.88 and 0.25 times respectively. Chandragudem Jasmine collection centre FPO reported positive effect at five per cent level of significance for the variables experience, education and annual income. It could be inferred that an unit increase in the variables of experience, education and annual income would render positive impact on performance of Chandragudem Jasmine collection centre FPO by 1.24, 0.74 and 0.09 times respectively. Rythula Jattu Kuragayala Bellam Utpattidarula Producer Company FPO reported positive effect for the variables education and annual income at five per cent level of significance. The results revealed that an unit increase in the variables of education and annual income showed positive impact on performance of Rythula Jattu Kuragayala Bellam Utpattidarula Producer Company FPO by 1.18 and 0.30 times, respectively. Mangaladri Agri Producer company Ltd FPO displayed positive impact for experience at five per cent level of significance while education and annual income reported positive effect at ten per cent level of significance. The performance of Mangaladri Agri Producer Company Ltd FPO could be improved by 3.80 times with a unit rise in experience. The explanatory variable Age had a positive impact towards performance ranging from significant values of five per cent to ten per cent.

The performance of FPO was predominantly based on the variables viz., education, experience and annual income. The results confirmed with the findings of Kavin and Divya (2019) ^[4] who reported that experience and exposure to changing trends of agriculture will influence the performance of respondents in the FPOs. The work efficiency of respondents would be higher under middle age group. The aspiration level and achievement and motivation of the respondents are the factors which ultimately influence their performance.

Education inevitably influence the performance of respondents in FPOs. It was an endorsed fact that educated officials always understood the subtle changes in agriculture and its marketing trends and its influence on farming suitably than illiterate farmers and were able to take backup measures to endure with the bizarre situation in FPOs. Hence, the performance of FPOs upsurges with usurpation in educational status.

Experience and annual income were thought to be proportional to each other. With the increase in the experience in FPO the annual income of the farmer increases because he accrues all the benefits provided by FPO regarding production, marketing, value addition and transportation. As marketing through FPOs does not have intermediaries the income of the farmer increases.

CONCLUSION

The FPOs which were registered earlier and with highest membership were working in better way both physically and financially by supplying inputs like seeds, fertilizers, bio fertilizers and organic manures. FPO provides new market linkages, adoption of agricultural best practices and providing the managerial

skills to farmers (Gurpreeth *et al.* 2018)^[3]. RPOs refer to monetary transactions between RPO and their members, information channels within RPO, access to inputs and finance, member knowledge capacity and motivation of leaders (Evenmy and Thomas, 2016).^[2]

The study investigated the performance of Farmer Producer Organisations through the impact of socio economic factors among the members. The performance of FPOs was calculated by taking percentage of crop sold through external linkage as dependent variable which was mostly influenced by experience, education, and annual income. Age and experience are proportional to each other and influenced the farmers to sell their product mostly through external linkage of FPOs. Improving access to markets, information and technologies and the conditions that facilitate the success of producer organization (Bekele *et al.* 2011).^[1]

The government can take steps to improve the efficiency of FPOs by educating the officials/executives of FPO who were already experienced and educated.

COMPETING INTERESTS DISCLAIMER:

Authors have declared that no competing interests exist. The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

REFERENCES

- Bekele, S., Jon, H and Muricho, G. 2011. Improving market access and agricultural productivity growth in Africa, What role for Producer organisation and collective action institution? "Food Security". 3:475-489.
- Evenmy, L and Thomas, B. 2016. Networks of Rural Producer organisations in Uganda : what can be done to make them work better? "World Development". 78: 572-586.
- Gurpreeth, S., Prishila, B and Kamal, V. 2018. Sustainability of FPOs under agriculture-value networks in India : A case of Punjab and Gujarath. "Indian Journal of Agriculture Economics". 73(3): 370-384.
- Kavin, A and Divya, K. 2019. Performance of farmer producer organisations based on socio-economic factors in western region of Tamil Nadu. International Journal of Chemical Studies. 7(3): 4434-4437.
- Nalini, B., Rama, R and Vaibhav, B. 2017. Farmer Producer Organisations as farmer collectives: A case study from India. Development Policy Review. 1: 1-9.
- Parinal, P. 2009. Introduction to quantitative methods. "Empirical law seminar". 1: 3-4.
- Ragasa, C and Jennifer, G. 2012. The role of rural producer organisations for agricultural service provision in fragile states. Agricultural and Applied Economics Associations' 2012 AAEA Annual Meeting , Seattle , Washington , August 12-14 .

Table 10. Performance of selected FPOs

FPO Unit/ Variable	Andhra Kashmir Producer Company		Rythula Jattu Kuragayala Bellam Utpattidarula Producer Company		Mangaladri Agri Producers Company		Chandragudem Jasmine Collection Centre		Kissan Suvida FPO.		Sri Siddeswara FPO	
	Regression coefficient	t- value	Regression coefficient	t- value	Regression Coefficient	t- value	Regression coefficient	t- value	Regression coefficient	t- value	Regression coefficient	t- value
Constant	49.35(4.26)	11.59***	20.42(2.79)	7.305	63.50(9.53)	6.65***	48.56(7.09)	6.85***	37.72(19.35)	2.63**	91.13(6.71)	13.56***
Experience	4.98(0.82)	6.06***	1.50(0.72)	2.07*	3.80(1.84)	2.07**	1.24(0.56)	2.18**	1.41(0.59)	2.34***	0.58(0.25)	2.24**
Annual income	0.02(0.01)	1.94*	0.30(0.68)	0.55**	0.05(0.01)	9.98*	0.09(0.012)	2.47**	0.52(0.01)	4.34***	0.25(0.01)	3.93***
Total cropped area	7.25(3.88)	1.86	0.19(0.46)	0.42	10.69(8.17)	1.31	32.72(25.97)	1.26	1.68(0.80)	2.1	0.14(0.27)	0.05
Age	0.78(0.05)	1.49*	1.36(1.12)	2.34*	0.11(0.10)	1.05	0.08(0.08)	0.92	2.36(2.40)	0.98*	0.20(0.07)	2.54**
Education	1.52(0.33)	4.56***	1.18(0.41)	2.86**	0.28(0.58)	0.48*	0.74(0.27)	2.73**	0.34(0.60)	0.57***	0.88(0.28)	3.10***
	$R^2=0.96^{***}$		$R^2 = 0.80^{**}$		$R^2= 0.88^*$		$R^2 = 0.96^{***}$		$R^2 = 0.90^{***}$		$R^2 = 0.97^{***}$	

* p < 0.1 or significant at 10 percent level of significance, ** p < 0.05 or significant at 5 percent level of significance

** p < 0.01 or significant at 1 percent level of significance