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Contribution of Farmer's Profile Characteristics to the Perception of Collective Farming in Tirunelveli District, India

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Authors' contributions

This work was carried out in collaboration among all authors. Author VJ managed the literature searches designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author RR managed the analyses of the study. All authors read and approved the final manuscript.

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ABSTRACT

Collective Farming Scheme was implemented in the year 2017-2018 by the Government of Tamil Nadu, India to empower the farmers and their access to modern technologies. This study aimed to ascertain the contribution of the profile characteristics to the perception of collective farming. The study was conducted in Alangulam block of Tirunelveli district of Tamil Nadu. Data were collected through a well structured interview schedule with 120 farmers selected from four villages (Vadiyoor, Melamaruthappapuram, Ayyanarkulam and Sivalarulam). Regression analysis was carried out to determine the contribution of 12 selected farmer's profile characteristics to the perception of collective farming. Social participation, training and innovativeness were the major factors that positively and significantly contributed to the perception of collective farming. For the better perception and practice of collective farming awareness from the state department or extension officials can be provided to the farmers along with the advantages of collective farming.

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1. INTRODUCTION

Small and Marginal group of farmers form a greater part of the cultivators among the Indian Agriculture. They contribute significantly to the agriculture but their income is much lesser. A variety of approaches has emerged to overcome the problems faced by the small and marginal farmers. The Government of India and Tamil Nadu have initiated programmes for the better lives of farmers since independence. In order to improve the agriculture sector and farming community, recently many schemes have been brought up in the country which include the Soil Health Card scheme (SHC) that was brought to assist the state government in providing the nutritional status of the farmer's field and provide the recommendation of the required nutrients for the soil. Paramparagat Krishi Vikas Yojana (PKVY) was implemented for the promotion of organic farming in the country which would increase the soil health as well as fetch higher net income to the farmers so that their livelihood would be increased. Pradhan Mantri Krishi Sinchayee Yojana was brought into the country with the aim to expand the cultivated area with the assured irrigation so that the wastage of water can be reduced and water use efficiency can be improved which helps in the higher production. Electronic National Agriculture Market (e NAM), an online trading platform which helps the farmers for the trading of agricultural commodities by better marketing, price discovery and transparency. Pradhan Mantri Fasal Bima Yojana (PMFBY) was introduced to provide the crop insurance to the farmers to prevent the pre sowing to post harvest losses. Malik and Malik [1] reported that constraints faced by the workers of dairy cooperatives as the lack of honesty, leadership and lack of freedom. Arunkumar [2] depicted that the major obstacles faced by the SHGs in the development of livestock were the lack of support from the organizations. Raghuprasad et al. [3] stated that the problems faced by Shimoga district in introducing agro-based enterprises were lack of leadership, member's conflict and poor time management. Apsara [4] reported that the major constraint in terms of production was the high cost (57.23 %) and in terms of marketing was the price fluctuations (68.07 %). Dewangan [5] revealed that the major constraints faced by the member of the FPO were lack of availability of literature and financial constraints.

For bringing the agriculture and industry close together the Government of Tamil Nadu has initiated a new programme to encourage the main manufactures (i.e., small and marginal farmers) and integrate their fragmented firm for the better agricultural output and marketing. The programme is called Collective Farming.

The scheme "Collective Farming" was implemented in the year 2017-2018 by the Government of Tamil Nadu so that the farmers can be empowered and can access the modern technologies. This scheme is to be promoted for the credit mobilization, effective forward and backward linkages and increase farmer's income. The concept of collective farming is to run the small holdings of land or resources as a joint enterprise. This is achieved by grouping the farmers into a Farmer's Interest Group (FIG) which consists of 20 farmers. Five FIGs are federated into a Farmer's Producer Group (FPG) which the federated into a Farmer's Producer Company (FPC) whereby ten FPGs constitute one FPC. The main motto of collective farming is to bring the "Economies of Scale". This can be achieved by Indicative Interventions i.e. usage of farming implements such as Tractor, Rotavator, Multi thresher, Transplanter, other machineries and Corpus Fund to FPG (Rs. 5,00,000) as a support by the State Government. The farming implements are to be purchased with the corpus fund provided by the government. Some studies exhibit the constraints faced by the farmers in the organizations and cooperatives.

One of the women's group "Tamil Nadu Women's Collective" formed in July 4, 1994 which mostly involves the widows, single women and dalits had started with an objective to build a society that ensures equality and social justice. This group had gained momentum in Tamil Nadu as its members engaged in raising minor millets and vegetables in 16 districts at a micro level. This improved the nutrition value of the marginalised families besides ensuring economic freedom for their women [6].

Collective farming has gained good response in Tiruchi district of Tamil Nadu. FIGs: 175- Agri. and 100- Horti. had been formed and they enjoyed the benefits of large scale farming [7]. This paper deals the contribution of the profile characteristics to the perception of collective farming.

2. METHODOLOGY

Tirunelveli district having geographical area of 6759 square kilometers, in the south eastern portion of Tamil Nadu is triangular in shape. It lies between 8°.05' and 9°.30' of the Northern latitude and 77°05' and 78°25' of Eastern longitude. The district is located in the southern part of Tamil Nadu and surrounded by Virudhunagar district in the North, Western Ghats in the West, Kanyakumari district in the South and Thoothukudi district in the East. The total geographical area is 675850 ha, of which the total cultivable area is 175087 ha, which is 25.90 per cent of the geographical area.

The present study was conducted in Alangulam block of Tirunelveli district, India. The four villages namely; Vadiyoor, Melamaruthappapuram, Ayyanarkulam and Sivalarkulam were selected. A sample size of 120 respondents was fixed for the study purpose. List of farmers practicing Collective Farming in the selected four villages were obtained from State Department of Agriculture. From the list, 120 farmers were identified as respondents by using proportionate random sampling method. The formula used was as follows.

$$n_i = \frac{N_i}{N} \times n$$

Where,

n_i = Number of respondents to be selected from i^{th} village.
 n = Sample size.

N_i = Total number of respondents in the i^{th} village.

N = Total number of respondents in the selected four villages.

Thus, 120 farmers were selected as respondents for the study. The required number of respondents were selected by using random number table. Data were collected using well-structured interview schedule. Twelve variables were selected for the profile characteristics. Twelve variables were selected for the profile characteristics. Logistic Regression analysis was performed to determine the contribution of 12 selected farmer's profile characteristics to the perception of collective farming and the results were interpreted. The characteristics include; gender, age, education, farming experience, family type, farm size, annual income, social participation, extension agency contact, training attended, innovativeness and information seeking behaviour. Logistic Regression is the linear regression analysis conducted when the dependent variable is nominal with two levels. Logistic regression is used to describe data and to explain the relationship between one dependent nominal variable and one or more continuous-level (interval or ratio scale) independent variables using a logistic function.

3. RESULTS AND DISCUSSION

In order to find out the relative contribution of each variable with perception, logistic regression analysis was performed and the results are presented in Table 1.

Table 1. Contribution of farmer's profile characteristics to the perception of collective farming

Variables no.	Variables	Regression coefficient (R ²)	Standard error	't' value
X ₁	Gender	-.045	.109	.619 ^{NS}
X ₂	Age	-.054	.108	.658 ^{NS}
X ₃	Education	-.090	.057	1.113 ^{NS}
X ₄	Farming experience	-.046	0.87	.619 ^{NS}
X ₅	Family type	-.067	.155	.799 ^{NS}
X ₆	Farm size	.103	.140	1.133 ^{NS}
X ₇	Annual income	-.158	.108	1.711 ^{NS}
X ₈	Social participation	.183	.091	2.027*
X ₉	Extension agency contact	.111	.078	1.280 ^{NS}
X ₁₀	Training attended	.236	.094	2.653**
X ₁₁	Innovativeness	.410	.079	4.754**
X ₁₂	Information seeking behaviour	.037	.119	.460 ^{NS}

R² value = 0.484; F = 8.351**; a=0.619; *= Significant at 5 % level; **= Significant at 1 % level; NS = Not Significant

It could be seen from Table 1 that, R^2 value 0.484 indicated, 48.40 per cent of variation to the perception of collective farming which was explained by twelve variables selected for the study. The 'F' value 8.351** was significant at one per cent level of probability. A prediction equation for the cause and effect relationship was fitted for the respondent's perception of collective farming.

$$Y_1 = 0.619 - 0.045 (X_1) - 0.054 (X_2) + 0.090 (X_3) - 0.046 (X_4) + 0.067(X_5) + 0.103 (X_6) - 0.158 (X_7) + 0.183 (X_8) * + 0.111 (X_9) + 0.236 (X_{10}) ** + 0.410 (X_{11}) ** + 0.537 (X_{12})$$

It could be inferred from the equation above that out of twelve variables selected for the study, the variables trainings (X_{10}) and innovativeness (X_{11}) had contributed positively and significantly at one per cent level of probability (Table 1).

Social Participation (X_8) had contributed positively and significantly at five per cent level of probability [8,9].

This indicates that a unit increase in social participation (X_8), trainings (X_{10}) and innovativeness (X_{11}) would result in increase of 0.183, 0.236 and 0.410 units respectively.

From the result, it was evident that the farmers greater social participation such as participation in the farmer's group meeting organized by the farmers, fellow friends, department would tend to contribute to the perception of collective farming as the farmers share the information between them. Thus it showed positive effect on perception and was found to be significant.

It could be seen from the result that the farmers attending trainings related to the value addition of farm produce, use of solar energy for farm activities, importance of farm implements would tend to have a higher level of perception since the farmers learn more from the participation in training. Hence the variable trainings participated showed positive effect on perception and was found to be significant.

Innovativeness was considered as an important factor for the farmers to perceive about collective farming as they were ready to adopt new practices which tends them to perceive more. Thus the variable, innovativeness had positive effect on perception and was also found to be significant.

4. CONCLUSION

Collective Farming scheme has been brought to improve the farming practices, empower and ensure the lives of the small and marginal farmers of the state. Various factors including the farmer's profile characteristics influence the perception of collective farming. The profile characters social participation, training attendance and innovativeness had positively and significantly contributed to the perception, while factors gender, age, education, farming experience, family type and annual income had contributed negatively. For better perception and adoption of collective farming necessary measures can be taken so that the practice of collective farming can be improved.

CONSENT

As per international standard or university standard, Participants' written consent has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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