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Utility of Integrated Farming Systems: A Perception Study from Kuttanad

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ABSTRACT

This paper outlines the perception of farmer's regarding the Integrated Farming Systems of Kuttanad, Kerala along with their socio-psychological and economic characteristics like age,family size, level of aspiration and product diversification. The study was carried out in the region called Kuttanad that lies in selected parts of the three district of the state of Kerala namely, Alappuzha, Kottayam and Pathanamthitta. This region is identified as a potent agricultural area that lies below mean sea level. The above listed socio- psychological and economic characteristics were also studied with suitable scales. Quartile analysis along with frequency, percentage analysis, ANOVA and correlation were the statistical tools used for the study. The study however identifies medium level of perception regarding utility of farming system among majority of both marginal and small farmers.

Key words: IFS, Marginal farmers, Perception, Product diversification, Small Farmers.

INTRODUCTION

Kuttanad is the deltaic formation of four river systems namely, Pamba, Meenachil, Manimala, and Achankovil. The region is 1-2.5m below MSL and it covers three districts Kottayam, Alapuzha and Pathanamthitta (Chattopadhyay and Sidharthan, 1985). Kuttanad is the major rice production centre in Kerala and is also identified as the rice bowl of Kerala along with Palakkad. However year round production of rice is not practiced in Kuttanad region due to the flooding nature of its rice fields along with their highly acidic and saline soils. Hence most of the farmers in this region are practicing integrated farming.

An integrated farming system with available resources accessible to farmers ensures high standard of food production with minimum environmental impact even in highly vulnerable climate. It has revolutionized conventional farming of livestock, aquaculture, poultry, horticulture, agro-industry and allied sector. IFS is a reliable way of obtaining high productivity with substantial nutrient economy in combination with maximum compatibility and replenishment of organic matter by way of effective recycling of organic residues/wastes etc. obtained through the integration of various land-based enterprises. Effective utilization of land and labour is possible within integrated farming.

The following study was conducted among the selected marginal and small IFS farmers of Kuttanad which is identified as one among the two rice bowls of Kerala. The aim of this study was to understand the perception of farmers regarding the utility of IFS, along with their socio-psychological and economic characteristics like age,family size, level of aspiration and product diversification.

MATERIALS AND METHODS

The study was conducted in various farming systems of Kuttanad region of Kerala. Three panchayats namely Kumarakom, Nedumudi and Niranam covering Kottayam, Alapuzha and Pathanamthitta districts were selected for the purpose of the study.Twenty marginal and small farmers each were selected from the above three panchayats for the study thus making the sample size to be 120. Farmer's perception rewwgarding the utility of integrated farming system was operationalized as the farmer's awareness about the benefits of various components of IFS. This variable was measured with the help of selected statements from the scale developed by Argade (2015). The total number of statements selected was ten in number out of which three were negative statements. Farmer's responses were rated with the help of a three point continuum namely agree, neutral and disagree with respective scores of 3, 2 and 1. The scoring pattern was however reversed for negative statements. Here also the scoring range was between 10 and 30. Similar pattern was followed to study the other selected variables like age, family size, level of aspiration and product diversification. The data thus collected was statistically analysed using the following statistical tools.

Categorisation

Quartile deviation was calculated for the two selected dependent variables and eight out of the fifteen selected independent variables. According to this the respondents were categorised into low, medium and high and their frequency and percentage were calculated.

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Frequency and percentage analysis

Frequency and percentage analysis are simple statistical tools used to carry out comparisons. The frequency multiplied with 100 and divided by the total sample size gives the percentage.

Single factor ANOVA

Single factor analysis of variance was used to compare various profile characteristics of small and marginal farmers.

Simple Correlation Analysis

This analysis was carried out to establish the relationship between the selected independent and dependent variables. The significance of their relation was also checked at 5 per cent and 1 per cent. Collected data was analysed with the above tools to reach the obtained results.

RESULTS AND DISCUSSION

As mentioned above farmer's perception regarding the utility of integrated farming system was operationalized as the farmer's awareness about the benefits of various components of IFS. This was measured using the scale developed by Argade (2015) with slight modifications and the results are presented in Table 1.

Majority of both small and marginal farmers were having medium level perception regarding the utility of integrated farming systems. In the case of marginal farmers 66.67 per cent were having medium level perception while the remaining respondents show an equal distribution of 16.67 per cent in both low and high level. Majority of the small farmers (70%) were also having medium level perception. However unlike the marginal farmers 18.33 per cent of the small farmers were having high perception and 11.67 per cent were having low perception.There was no significant difference between the perception of marginal and small farmer's regarding the utility of integrated farming systems.

Majority of the marginal (60%) and small (55%) farmers were belonging to the old age category. However 40 per cent of marginal and 45 per cent of small farmers were coming under the middle age category. An important fact of interest identified from this table is that none among both the small and marginal farmers were in the young age category. While in the case of family size majority of both marginal (55%) and small farmers (66.67%) were having a family size of 3-6. The total number of family members of these farmers were in between 3-6 and in the case of remaining respondents 33.33 per cent of marginal farmers were having family size less than three while only 21.67 per cent small farmers were under this category. However 11.67 per cent of both marginal and small farmers were having a family size greater than 6.

Nearly eighty three percentage (83.33%) of marginal farmers were having medium level of aspiration which were followed by low (13.33 %) and high (3.33%) level of aspiration, respectively. In the case of small farmers 78.33 per cent of them were observed to have medium level of aspiration. However this was followed by high (16.67%) and low (5%) level of aspiration respectively.

Product diversification of integrated farming system farmers were carried out by identifying and quantifying various processed and unprocessed products produced by the farmers with the help of their plant and animal components.It was observed that majority of the marginal farmers (41.7%) were producing a total of three product from their farms which was followed by the production of four products (35%). 16.67 per cent of the marginal farmers were producing only two products while 5 per cent and 1.67 per cent of them were producing five products and more than five products respectively.

Table 1: Distribution of farmers based on their perception regarding the utility of IFS.

Category	Marginal farmers(N=60)		Small farmers (N=60)	
	No.	Percentage	NO.	Percentage
Low (<Q_1)	10	16.67	7	11.67
Medium (Q_1-Q_3)	40	66.67	42	70
High (>Q_3)	10	16.67	11	18.33

Q_1 = 22 Q_3= 25

Table 2: Comparison of variables between small and marginal farmers.

Variables	Total sum of squares		F critical	F value
	Marginal farmers	Small farmers		
Level of aspiration	377	396	3.921	4.897
Product diversification	177	196	3.921	14.909

Table 3: Correlation between perception regarding the utility of IFS of the farmers to the independent variables.

Independent variables	r values	
	Marginal farmers	Small farmers
Age	0.1229	-0.099
Family size	0.262**	0.205
Level of aspiration	0.53**	0.282*
Product diversification	0.035	0.05

Significant difference was observed in the variables like product diversification and level of aspiration which is represented in the below Table 2.

It was observed that the F value obtained in the case of both variables are greater than the F critical value hence we can conclude that there is significant difference between the marginal and small farmers regarding the product diversification and level of aspiration. Their difference in land holding can be concluded as a major reason for this significant difference.

Correlation between these selected four variables was studied with perception and the result is depicted in Table 3.

It is clear that in the case of marginal farmer's family size and level of aspiration shows a significantly positive correlation with perception of farmer's regarding utility, while in the case of small farmers, level of aspiration was the only variable that exhibited significantly positive correlation.

CONCLUSION

The study revealed a medium level perception for both small (70%) and marginal (66.67%) farmers. Sixty percentage of marginal farmers were above fifty five years which was 55% in the case of small farmers. Family size of majority of the marginal (55%) and small farmers (66.67%) were between 3-6 members. Medium level of level of aspiration was seen among both the farmers, and it also showed significant difference on comparison. Majority of small (41.67%) and marginal (35%) farmers are marketing three products and this also showed significant difference between the two categories.

Integrated Farming Systems makes the farmer competitive by achieving improvement in productivity, input use efficiency, reduction in cost of production and creation of gainful employment for rural mass along with the tackling of soil and other input related problems.

But the various components that constitute the Integrated farming system differ according to location which in the sense refers to geographical factors like land and soil type, other farm input availability, farmer's economic condition and perception regarding its utility. So integrated farming system models for different locations should be standardized and popularised among farmers as it will definitely double farmer's income.

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