

Original Research Article

Contribution of Integrated Farming System for Livelihood Security of Tribal's in Pachamalai Hill of Tiruchirappalli District

ABSTRACT

Out of 115 million operational holdings in India, about 80 per cent of Indian farmers are marginal and small farmers. To achieve sustainable development in income and employment to full fill the basic needs of the farmers in plains and also in hilly areas, an integrated faming system plays a vital role in India. The present study was undertaken to recognize the contribution of integrated farming system on livelihood security and sustainable development of Tribal people. Primary data was collected from the Tribal people of Pachamalai hill situated in Tiruchirappalli district of Tamil Nadu. Most of the respondents were involved in the adoption of integrated farming system, but the components are based on size of land holding, economic conditions, knowledge, experience and interest of the respondent etc. Eight different components of Integrated farming system were taken for the study. Among them agriculture with backyard poultry , livestock and piggery were adopted by most of the respondents. The feedback of the farmers indicated that integrated farming system increased the economic yield per unit area by providing income to the farmers round the year, providing food, nutritional security and increasing input usage by the result of expected output. Hence it is essential to create awareness to improve knowledge, skill, attitude for the adoption of more components in integrated farming system. Therefore it was concluded from the study that integrated farming system is a multidisciplinary whole farm approach, which very effective in solving many problems of farmers for their livelihood security.

Key words: Agriculture, Integrated Farming System, Livelihood Security, Tribal People

INTRODUCTION

Globally, extreme poverty continues to be a rural phenomenon. The incidence and severity of poverty are much higher in tropical and subtropical mountainous regions, which are

often poorly connected with markets and are inhabited mainly by ethnic minorities. Poverty is recognized as a significant constraint to agricultural growth in upland areas, because of poor people's need to concentrate resources on low-value food crops to ensure subsistence security and their difficulties in mobilizing production and investment resources (Scherr, 2000). Thus, people in mountainous areas tend to be poorer and more food insecure compared to those in plains (Templeton and Scherr, 1999).

Out of 115 million operational holdings in India, about 80 per cent of Indian farmers are marginal and small farmers. To achieve sustainable development in income and employment to full fill the basic needs of the farmers in plains and also in hilly areas, an integrated farming system plays a vital role in India Manjunatha *et al.*(2014). Integrated farming is a commonly and broadly used word to explain a more integrated approach to farming as compared to existing monoculture approaches. It refers to agricultural systems that integrates livestock and crop production. Integrated farming system has revolutionized conventional farming of livestock, aquaculture, horticulture, agro-industry and allied activities (Varughese and Mathew, 2009). It could be crop -fish integration, livestock-fish integration, crop fish- livestock integration or combinations of crop, livestock, fish and other enterprises. Integrated farming systems are less risky if managed efficiently, as they benefit from synergisms among enterprises, diversity in produce, and environmental soundness (Behera and France, 2016). The approach aims at increasing income and employment from small-holding by integrating various farm enterprises and recycling crop residues and by products within the farm itself (Rajju Priya Soni *et al.* 2014). Farming system approach is one of the important solutions to face this peculiar situation as in this approach the different enterprises can be carefully undertaken and the location specific systems are developed based on available resources which will result into sustainable development (Dashora and Hari Singh, 2014). Therefore, present investigation was undertaken to study effect of integrated farming system on the sustainable development of Tribal people in Pachamalai hill of Tiruchirappalli district.

METHODOLOGY

A study was undertaken to assess the effect of integrated farming system on sustainable development and contribution of IFS for livelihood security of Tribal people in Pachamalai hill of Tiruchirappalli district. Through field survey and farmers meeting at farm-level, the information was collected during March, 2017. Samples of 100 farmers were selected. A schedule was developed to know the adoption level of integrate farming system by the farmers which were measured. Accordingly, the respondents were grouped on the basis of percentage. In addition to that, the quantitative information on variables such as household characteristics, farm size, production, input use, and income were collected. The survey included several open-ended questions to elicit farmers' perceptions regarding the systems and the broader changes in their welfare.

Table 1. Profile characteristic of farmers

S.No	Characteristics	Frequency	S.No	Characteristics	Frequency
1.	Age		6.	Communication sources	
	Young (<35)	19		Radio	49
	Middle (35-50)	57		Television	100
	Old (>50)	24		News paper	78
2.	Educational status			Magazine	37
	Illiterate	2		Through farmers	99
	Functionally literate	7		Friends	95
	Primary	15		Relatives	86
	Middle	24		Neighbours	75
	Secondary	18		Village leaders	86
	Higher secondary	25		Government officials	28
	Collegiate	9		NGOs	46
3.	Occupational status		7.	Different IFS components adopted	
	Agriculture as primary	99		Agriculture	100
	Agriculture as secondary	1		Backyard poultry	97
4.	Farming experience			Goat rearing	57
	Low (<5 years)	15		Cattle rearing	15
	Medium (5-10 years)	32		Piggery	19
	High (> 10 years)	63		Mushroom production	-
5.	Farm size			Fishery	-
	Small (< 2 ac)	22		Rabbit rearing	2

	Marginal farmer (2-5 acre)	49			
	Large farmer (>5 acre)	29			

RESULTS AND DISCUSSION

From Table 1 it was observed that majority of the respondents were middle aged (35-50 years). Regarding educational status, the extremes were low viz., illiterate (2%) and collegiate (9%) and majority with higher secondary education (25 %). 99 per cent of the responded were agriculture based with a good farming experience of more than 10 years. Regarding their communication sources, Primarily it is through television and also through fellow farmers and their friends and relatives.

It was observed from the Table 1 that majority of the farmers adopted agriculture, backyard poultry, goat rearing for their sustainable lively hood, which was followed by cattle rearing and piggyery. Whereas the tribal people involvement in fishery and mushroom production was almost nil. The reasons for the high adoption of agriculture, backyard poultry and goat rearing might be due to the factor that they are being traditionally followed very easy to adopt and maintenance at minimum cost. The feed requirement for backyard poultry and goat rearing were derived from their own field was also one of the most significant factor in adopting the backyard poultry and livestock. Marketing of egg, milk and birds were very easy for them, which might be one of the reasons for high adoption. The reason for the less adoption of fishery and mushroom production might be due to the lack of awareness and training. Srinika *et al.* (2017) also stated that the lack of training facilities, high market price fluctuations, lack of credit facilities and high input costs were found to be the major constraints in adoption of farming systems by small and marginal farmers. More number of respondents revealed that adoption of integrated farming system increased the economic yield per unit area through providing money to the farmers round of the year, provided nutritional security, food security and increased input usage by the result of expected output. The results are in close proximity with the findings of Manjunatha *et al.*(2014) and Tarai *et al.* (2016). Ramroa *et al.* (2006) and Birbal sahu *et al.*

(2017) also reported that food security and employment generation through integrated farming system was highly feasible under integrated farming system, which helps in reducing migration of tribal people to rural areas.

Table 2. Effect of integrated farming system on development of tribals

S.No.	Developmental strategies	Number of respondents (%)		
		Low	Medium	High
1.	Food security	-	18	82
2.	Nutritional security	0	25	75
3.	Employment generation	0	45	55
4.	Income security			
	Low (<Rs.25000 per year)	-	25	-
	Medium (<Rs.250000-50000 per year)	-	-	32
	High(>Rs.50000 per year)	43	-	-
5.	Trans-migration	2	15	83
6.	Infrastructure development	11	24	65
7.	Education	-	12	88
8.	Reduced agricultural input cost	0	7	93
9.	Effective utilization of farm outputs	0	5	95
10.	Entrepreneurship development	23	51	26

Effect of integrated farming system on development of tribal's in Pachamalai hill in Tiruchirappalli district are given in Table 3. More number of respondents revealed that the lack of adoption of mushroom production and fishery was due to the lack of awareness and knowledge of these techniques. The lack of information and knowledge for each practice in the adoption of new system was the main constraint in the adoption of technology in the field. Vekateshwar Rao *et al.* (2017) stated that the technology adoption is a graded process in which a farmer has to pass through different stages like awareness, interest, evaluation, training and adoption. The next factor for non adoption of fishery and mushroom production was due to lack of skill and lack of adequate input for setting up of new production unit. The respondents also suggested that the technical guidance and local markets were very crucial for starting up the new system for this area. Singh *et al.* (2009) revealed that less reliable markets and non-availability inputs are the major constraints to promote integrated farming system in this area. However, the

government schemes and policies are required to harness and unleash the potential of small holder producers to build their sustainable livelihoods of tribal people. Similar views were expressed by Tarai *et al.* (2016).

Table 3. Farmers suggestions to promote integrated farming system in hilly areas

S.No.	Suggestions	Percent
1.	Government scheme should be increased	100.00
2.	Provide timely input subsidy	100.00
3.	Provide financial support to farmers	100.00
4.	Arrange regular training to the famers	98.00
5.	Need exposure visit on new technology	100.00
6.	Provide critical inputs based on location specific requirement	100.00
7.	Provide technical know how and follow up service	100.00
8.	Model units should be established in every block	100.00
9.	Establish direct marketing facility	100.00
10.	Encourage farmers club and producers commodity group	100.00

CONCLUSION

It is evident from the study that majority of the sample farmers of study were middle age group with higher secondary education. They are following integrated farming system based on their traditional knowledge and information through mass media. The integrated farming system enables the agriculture production system sustainable, profitable and productive in hilly region. Further involvement in integrated farming system only could develop the confidence level and socio economic status of tribal people. Hence, it is clear that the following interventions are required for them to adopt the integrated farming system in a sustainable and profitable manner. Thus there is a need to organize training programmes, establishment of model demo unit consisting of various components along with models of integrated farming systems to encourage the farmers to involve in integrated farming system in a systematic manner. So, that the farmers become aware of the concept of integrated farming system model for adoption. Moreover, it is necessary to face the challenges posed by present economic, political and technological environment. Under this study it was observed that integrated farming system became an integral

part of their life, which not only helps in livelihood security and sustainable development of tribal people, but also ensures food security.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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