

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 fulfill 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 considered in for the study. Among them agriculture with backyard poultry , livestock and piggery which are were adopted by most of the respondents. The feedback of the f Farmers responses indicated that integrated farming system has 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 and attitude for regarding the adoption of more components in of integrated farming system. Therefore it was concluded from the study that integrated farming system is a multidisciplinary multidimentional whole farming approach, which is very effective in solving many problems of of achieving farmers' for their livelihood security.

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

INTRODUCTION

28 Globally, extreme poverty continues to be a rural phenomenon. The incidence and
29 severity of poverty —especially in India— are much higher in tropical and subtropical mountainous
30 regions, which are often poorly connected with markets and are inhabited mainly by ethnic
31 minorities. Poverty is recognized as a significant constraint to agricultural growth in upland
32 areas, because of poor people's need tend to concentrate their limited resources on low-value
33 food crops to ensure subsistence security and their the difficulties they face in mobilizing
34 production and investment resources (Scherr, 2000). Thus, people in mountainous areas tend to
35 be poorer and more food insecure compared to those in plain's (Templeton and Scherr, 1999).

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37 Out of 115 million operational holdings in India, a About 80 per cent of Indian farmers
38 are marginal and small farmers. To achieve sustainable development in income and employment
39 to full fill the basic needs of the farmers in plains and also in hilly areas, an integrated faming
40 system plays a vital role in India (Manjunatha et al. (2014). Integrated farming is a commonly
41 and broadly concept used word to explain a more integrated approach to farming as compared to
42 existing the monoculture approaches. It refers to agricultural systems that integrate both
43 livestock and crop production. Integrated farming system has revolutionized conventional
44 farming of livestock, aquaculture, horticulture, agro-industry and allied activities (Varughese
45 and Mathew, 2009). It could be crop -fish integration, livestock-fish integration, crop fish-
46 livestock integration or any other combinations of crop, livestock, fish and other enterprises.
47 Integrated farming systems are less risky if managed efficiently, as they benefit from synergies
48 sms among enterprises, diversity in produce, and environmental soundness (Behera and France,
49 2016). The approach aims at increasing income and employment from small-holding by
50 integrating various farm enterprises and recycling crop residues and by among products within
51 the farm itself (Rajju Priya Soni et al. 2014). Farming system approach is one of the an
52 important solutions to face this peculiar situation as in this approach the different enterprises can
53 be carefully undertaken and the location specific systems are developed based on available
54 resources which will result into sustainable development (Dashora and Hari Singh, 2014).
55 Therefore, present investigation was undertaken to study the effect of integrated farming system
56 on the sustainable development of Tribal people in Pachamalai hill of Tiruchirappalli district.

57

58 **METHODOLOGY**

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

69

70 **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

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	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				

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73 RESULTS AND DISCUSSION

74 From Figures Table in Table 1 it was observed shows that the majority of the
 75 respondents were middle aged (35-50 years). Regarding educational status, the extremes were
 76 low viz., illiterate (2%) and collegiate (9%) and majority are with higher secondary education (25
 77 %). 99 per cent of the responded were agriculture based with a good farming experience of more
 78 than 10 years. Regarding their communication sources, Primarily it is through television
 79 comes first folloed by and also through fellow farmers and their, friends and relatives.

Comment [h1]: You are not using percentage

80 It was is observed from in the Table 1 that majority of the farmers adopted agriculture,
 81 backyard poultry, goat rearing for their sustainable lively hood, which was followed by cattle
 82 rearing and piggery. _Whereaswhereas the tribal people involvement in fishery and mushroom
 83 production was is almost nil. The reasons for the high adoption of agriculture, backyard poultry
 84 and goat rearing might be due to the factor that they are being traditionally followed traditional
 85 farming practices very easy to adopt and maint maintaine enance at minimum cost. The feed
 86 requirement for backyard poultry and goat rearing were is derived fetched from their own fields
 87 is regarded was also as one of the most significant factors in adopting the backyard poultry and
 88 livestock. Marketing of eggs, milk and birds were is very quite convenient and easy for them,
 89 which might be one of the reasonsalso contribute to the for the high rates of adoption. The
 90 reason for the less none adoption of fishery and mushroom production might be attributed due to
 91 the lack of awareness and training. Srinika et al. (2017) also stated that the lack of training
 92 facilities, high market price fluctuations, lack of credit facilities and high input costs were found
 93 to be the major constraints in to adoption of farming systems by small and marginal farmers.

More large number of respondents revealed reported that adoption of integrated farming system has increased the economic yield per unit area through providing money to the farmers around of the year, provided nutritional security, food security and increased input usage by the depending on 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 who 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 reported 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

Comment [h2]: Is it tribal's or tribals in both cases the meaning is not clear

Comment [h3]: Discussions are not based on figures in table 3. There is no logic for using fishery and mushroom lack of adoption argument with table 3 findings figures

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 to new technology	100.00
6.	Provide critical inputs based on location specific requirement	100.00
7.	Provide technical know how 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

Comment [h4]: There is no comments from the author about the suggestions

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.

129 Thus there is a need to organize training programmes, establishment of model demo unit
130 consisting of various components along with models of integrated faming systems to encourage
131 the farmers to involve in integrated farming system in a systematic manner. So, that the farmers
132 become aware of the concept of integrated farming system model for adoption. Moreover, it is
133 necessary to face the challenges posed by present economic, political and technological
134 environment. Under this study it was observed that integrated farming system became an integral
135 part of their life, which not only helps in livelihood security and sustainable development of
136 tribal people, but also ensures food security.

137 **COMPETING INTERESTS**

138 Authors have declared that no competing interests exist.

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