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Association between Profile of the Respondent and Impact of Integrated Farming System in Terms of Change in Employment Generation

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

The present study highlights about impact of integrated farming system on doubling farmers' income. The study was conducted in four district of Konkan regions of Maharashtra namely Ratnagiri, Sindhudurg, Raigad and Palghar district, India. For farmers with limited resources, the Integrated Farming System (IFS) is the only way to ensure a stable living and a means of subsistence. Sustainable livelihood through crop diversification, including the introduction of high-

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value crops, planned strategies for overcoming various obstacles, and the road of successful marketing, all made possible by integrated farming modules that are ideal for farmers to encourage scientific farming practices. The present study was conducted in four district of Konkan region of Maharashtra. A multistage sampling procedure was adopted for the selection of integrated farming system adopters. In all 200 respondents were selected for study from the four districts of Konkan region. The “Ex-Post-Facto” research design was used for the proposed study. The impact of the integrated farming system was found to be significantly correlated with thirteen selected independent variables, including age, farming experience, major occupation, annual income, cropping pattern, livestock possession, information seeking behavior, economic motivation, irrigation status, and risk orientation. Additionally, the impact of the integrated farming system was found to be highly correlated with education, land holding, and productivity level, particularly in terms of the change in employment generation.

Keywords: Association; profile of the integrated farming system adopters; impact; integrated farming system.

1. INTRODUCTION

“India's economy is heavily dependent on agriculture. For almost seventy percent of rural households, farming is the main source of income. It employs more than 60.00 percent of the workforce and accounts for over 18.80 percent of the GDP of India, making it a key sector of the economy (Economic Survey 2021-22). Based on the country's cultivable land, it seems that the bulk of India's economy is rural and agricultural, with the majority of the country's farmers (86.08 percent) being small-scale and marginal. The population is growing more quickly than the size of the holding but our land resources are limited. The Integrated Farming System (IFS) is the only option for a secure life for resource-poor farmers can sustain their livelihood. Sustainable livelihood through integrated farming modules that are appropriate for farmers to promote scientific farming practices, crop diversification including the introduction of high-value crops and planned strategies for resolving a number of challenges and the path of profitable marketing. During the last few decades, various authors have given definition of IFS as a combination of at least one component of farming plus one component of livestock” [1,2,3]. As a result, small and marginal farmers can combine a viable crop with horticulture, livestock, fisheries and other components to reduce risks while generating additional revenue and employment from the same plot of land. By recycling the trash from one component into other integrating diverse components with the crop will boost profitability. It is imperative to adopt a systemic strategy in order to satisfy the needs of a growing population while preserving natural equilibrium. A potential answer to the growing need for food supply, economic stability, and nutritional security seems to be integrated farming systems. Particularly for resource-constrained small and marginal farmers. Ecological soundness is a notion that leads to sustainable agriculture and a dependable way to achieve relatively high production with a substantial fertilizer economy.

Keeping above fact in view, the present study was designed to analyze the association between the profile of the respondents and impact of integrated farming system.

1.1 Objective

1. To study the association between the profile of the resondents and impact of integrated farming system.

2. METHODOLOGY

The present study was conducted in four district of Konkan region of Maharashtra. A multistage sampling procedure was adopted for the selection of integrated farming system adopters. In all 200 respondents were selected for study from the four districts of Konkan region. The “Ex-Post-Facto” research design was used for the proposed study. The literal meaning of ex-post facto is from “what is done afterwards”. It means something done or securing after one event with a respective effect on the event. An ex-post factor be search is a systematic empirical enquiry in which the researcher does not have direct control over the variables because their manifestations have already occurred or because they are inherently not manipulable. ‘Impact of integrated farming system on doubling farmer’s income’ was the dependent variable, while the personal and socio-economic characteristics of the respondents were considered as independent variables. This variable was

measured as follows. The impact on employment generation was measured by collecting the data of employment generation of year 2012 and 2022 and then calculated in terms of per cent change as follows,

% Change in employment generation=

$$\frac{Employment\ generation\ of\ year\ 2022 - Employment\ generation\ of\ year\ 2012}{Employment\ generation\ of\ year\ 2012} \times 100$$

On the basis of per cent change, the respondents were classified into three categories by using the formula mean ± SD. The personal, socio-economic and psychological variables were considered as independent variable.The data were collected through the personal interview. The data collected were processed and statistically analyzed by using statistical technique like frequency, percentage, mean, SD and chi-square test. The independent variable studied were age (chronological age of respondent at the time of interview), education (formal education successfully completed by the respondent at the time of interview), farming experience (number of year spend by the farmer in actual farming), land holding, major occupation, annual income, cropping pattern, productivity level, livestock possession, information seeking behavior, economic motivation, irrigation status and risk orientation. The dependent variable under study was impact of integrated farming system.

3. RESULTS AND DISCUSSION

The findings of the present study as well as relevant the discussion has been summarized under the following heads:

1. Association between profile of the respondents and impact in terms of change in employment generation.

3.1 Age and Change in Employment Generation

The association between age of the respondents (X_1) and impact in term of change in employment generation was significant. It means that age was influencing to increase employment generation of the integrated farming system adopter.

This indicated that as age of the beneficiaries increased, there was decrease in their employment generation and *vice versa*. It means middle age respondents had taken more advantage of integrated farming system. The middle age might be more eager in creating employment by practicing various farming system.

The finding is similar with the findings of Ali [4], Sirohiya et al*.* [5], Soni et al*.* [6], Singh et al*.* [7], Dhande [8], Korde [9].

3.2 Education and Change in Employment Generation

The association between education of the respondents (X_2) and impact in term of change in employment generation was significant. It means that education was influencing factor to increase employment generation by integrated farming system adopters.

Table 1. Association between profile of the respondents and impact in terms of change in employment generation due to IFS

S.I.No.	Independent Variable	Variable Code	X Value	Degree of freedom
1.	Age	X_1	11.84*****	4
2.	Education	X_2	27.96******	10
3.	Farming experience	X_3	10.72*****	4
4.	Land holding	X_4	24.84******	8
5.	Major occupations	X_5	12.90*****	4
6.	Annual income	X_6	9.912*****	4
7.	Cropping pattern	X_7	10.50*****	4
8.	Productivity level	X_8	13.36******	4
9.	Livestock possession	X_9	12.90*****	4
10.	Information seeking behavior	X_{10}	13.22*****	4
11.	Economic motivation	X_{11}	11.05*****	4
12.	Irrigation status	X_{12}	10.37*****	4
13.	Risk orientation	X_{13}	13.20*****	4

***** = *Significance at 0.05 level*
****** = *Significance at 0.01 level*

The probable reason for this trend might be that educated integrated farming system adopters had better access to farm information sources and had ability to grasp things, analyzeand interpret them in a proper way in creation of employment through integrated farming system.

The finding is similar with Ghosh et al. [10], Sharma et al. [11], Ugalmugale[12], Meenakshi [13], Rathod and Pawar [14], Sharma and Badodiya[15].

3.3 Farming Experience and Change in Employment Generation

The association between farming experience of the respondents (X_3) and impact in term of change in employment generation was significant. It means that farming experience of adopters was influencing to increase in employment generation by integrated farming system adopters.

The findings show that with increasing farming experience, the integrated farming system of the respondent improved remarkably. The individuals having small to medium area and satisfactory farming experience look towards agriculture as an economic activity. This might have been help for more utilization of labour.

The finding is similar with findings of Raykar[16], Neha Kale [17].

3.4 Land Holding and Change in Employment Generation

It is observed from Table 1 that, the association between land holding of the respondents (X_4) and impact in term of change in employment generation by integrated farming system adopters was highly significant. It means that land holding was influencing to increase in employment generation by integrated farming system adopters.

The finding shows that as the area under integrated farming system increases, the number of labour required to carry out integrated farming system practices increase. A farmer who has brought more area under integrated farming system is obviously interested in adoption of innovative practices on their farm. Such individuals look towards agriculture as an economic activity. Therefore, they might have been required more labour to increase integrated farming system production.

The findings were supported by findings of Sirohiyaet al. [5], Soni et al. [6], Parate [18] and Rathod and Pawar [14].

3.5 Major Occupation and Change in Employment Generation

It is observed from Table 1 that, the association between major occupation of the respondents (X_5) and impact in term of change in employment generation was significant. It means that major occupation of adopters was influencing to increase employment generation under integrated farming system.

3.6 Annual Income and Change in Employment Generation

It is observed from Table 1 that, the association between annual income of the respondents (X_6) and impact in term of change in employment generation was significant. It means that annual income of adopters was influencing to increase employment generation under integrated farming system.

This indicated that annual income was significant aspect in generation of employment in integrated farming system. It can be concluded that as the annual income of the respondent increased, the increased change was noticed in employment generation through adoption of integrated farming system.

This observation is supported by the findings of Chapkeetet al. [19], Sharma and Badodiya[15], Dhenge[20].

3.7 Cropping Pattern and Change in Employment Generation

It is observed from Table 1 that, the association between cropping pattern of the respondents (X_7) and impact in term of change in employment generation was significant. It means that cropping pattern was one of the factors in influencing to increase in employment generation by integrated farming system adopters.

The farmers with fair cropping system instead of mono cropping pattern obliviously create employment.

Similar finding were reported by Dhande, S. J. [8].

3.8 Productivity Level and Change in Employment Generation

It is observed from Table 1 that, the association between productivity level of the respondents (X_8) and impact in term of change in employment generation was highly significant. It means that productivity level was influencing to increase in employment generation by the integrated farming system adopters.

It can be concluded that higher the productivity, higher was the economic motivation and *vice-versa*. Other way round, it can be said that higher yield gained by the respondent under integrated farming system definitely motivate to adopt more practices on their farm which result into creation of employment.

The finding is tune with finding reported by Neha Kale [17].

3.9 Livestock possession and change in employment generation

It is observed from Table 1 that, the association between livestock possession of the respondents (X_9) and impact in term of change in employment generation was significant. It means that livestock possession was influencing to increase in employment generation by the integrated farming system adopters.

Integration of livestock with agriculture was taken up seriously by more number of farmers under integrated farming system because of this they can afford to utilize more labour on their farm. Livestock is vital for practicing integrated farming system. In fact livestock possession more effective in creating additional income and employment to farmers.

The finding is similar with finding reported by Parihar (2008) and Damor (2013).

3.10 Information Seeking Behaviourand Change in Employment Generation

It is observed from Table 1 that, the association between information seeking behaviour of the respondents (X_{10}) and impact in term of change in employment generation was significant. It means that information seeking behaviour was influencing to increase in employment generation by the integrated farming system adopters.

The probable reason might be that an individual, who utilizes maximum sources of information frequently, for seeking guidance on new developments and his own field problems, gains better knowledge about the integrated farming system. His frequent interactions with various sources of information lead to development of positive attitude towards new technology, learning of new skills and getting motivation to adopt the new technology fully on his farm. This adoption of new technologies results in increasing employment generation and the same is proven in this result.

The finding is similar with Ali [4], Jadhav [21], Jatav et al. [22], Badodiyaet al. [23], Hiwarkar[24], Ganesanetal.[25], Yadav [26], Neha Kale [27], Tomar [28].

3.11 Economic Motivation and Change in Employment Generation

It is observed from Table 1 that, the association between economic motivation of the respondents (X_{11}) and impact in term of change in employment generation was significant. It means that economic motivation was influencing to increase in employment generation by integrated farming system adopters.

It might be due to the reason that every farmer involved in the integrated farming activity was expected higher yield and returns.

3.12 Irrigation Status and Change in Employment Generation

It is observed from Table 1 that, the association between irrigation status of the respondents (X_{12}) and impact in term of change in employment generation was significant. It means that irrigation facility was influencing to increase in employment generation by integrated farming system adopters.

Availability of irrigation facilities and their irrigation potential significantly affect the cropping pattern, and also the integration of livestock, poultry and fishery farming by many folds which result into utilization of more labour as compare to mono cropping. Thus availability of irrigation under integrated faming system affects employment creation.

The finding is in line with finding reported by Jayanthi [2], Jadhav [21], Ingole [29].

3.13 Risk Orientation and Change in Employment Generation

It is observed from Table 1 that, the association between risk orientation of the respondents (X_{13})

and impact in term of change in employment generation was significant. It means that risk orientation was influencing to increase in employment generation by the respondents.

Therefore, respondent who take at least a calculated risk would necessarily have more favorable attitude towards integrated farming system and employment generation.

This finding is in tune with the findings of Ali [4], Rana [30,31].

4. CONCLUSION

A few independent variables that significantly affect integrated farming systems have been uncovered by the study. The influence of the integrated farming system on the creation of jobs was significantly correlated with characteristics such as production level, land ownership, and education. This suggests that in order to increase the amount to which farmers embrace integrated agricultural systems, these elements should be given more weight and appropriately regulated.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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