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Profile of the integrated farming system adopters

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Abstract
The present study was undertaken with the main objective to study the profile of the integrated farming system adopters. The study was conducted in four districts of Konkan region of Maharashtra namely Ratnagiri, Sindhudurg, Raigad and Palghar district. In all 200 respondents were selected by using multi stage sampling techniques. The "Ex-Post-Facto" research design was used for conducting the study. The data were collected through the personal interview. The data collected were processed and statistically analyzed by using -statistical technique like frequency, percentage, mean and standard deviation. The analysis of data revealed that majority of the respondents (70.00 percent) was belonged to 'middle' age group while 43.50 percent of the respondents had obtained 'secondary' level of education. In case of farming experience, 69.000 percent of the respondents had 'medium' level of farming experience, 49.50 percent of the respondents were posed small land holding while 95.00 percent of respondents had farming as their major occupation. The average annual income of the respondents was found to be 8.37 lakh. In case of cropping pattern 68.00 percent of the respondents were posed fair cropping pattern. The majority of the respondents were having 'medium' level of productivity level, livestock possession, information seeking behavior, economic motivation, risk orientation while, 63.00 percent of the respondents were posed fair irrigation status.

Keywords: Profile, integrated farming system, adoption

Introduction
In India, agriculture plays a vital role in the Indian economy. Farming is the primary source of income for more than 70.00 percent of rural households. It is a significant sector of the Indian economy as it contributing over 18.80 percent of the country's GDP and employing more than 60.00 percent of the workforce (Economic Survey 2021-22). It appears that the majority of the Indian economy is rural and of an agricultural nature and depends on the country's cultivable land consisting majority of farmers (86.08 percent) are small and marginal. The population is growing more quickly than the size of the holding but our land resources are limited.

Agriculture has been linked to the development of staple food crops throughout the past few decades. The income from the farming system must be added to the agricultural income in order to increase it. Therefore, many additional jobs related to farming will be acknowledged as a component of agriculture as the process of economic development accelerates. Currently, in addition to farming farmers raise livestock, dairy products, goats, chickens and bees among other things. This type of system, which includes at least one aspect of farming is known as integrated farming system.

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.

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. A system approach is urgently needed to meet the demands of an ever-increasing population while maintaining ecological balance. Integrated farming systems appear to be a viable solution to the ever-increasing demand for food production, economic stability and nutritional security especially for small and marginal farmers with limited resources. It is a concept of ecological soundness that leads to sustainable agriculture as well as a reliable means of attaining pretty high productivity with a significant fertilizer economy.

Keeping above fact in view, the present study was designed to analyze the profile of the integrated farming system adopters in order to understand their socio-economic status and mindset with following specific objective;

1. To study the profile of respondents.

Methodology

The present study was conducted in four districts of Konkan region of Maharashtra. A multistage sampling procedure was adopted for the selection of respondents. In all 200 respondents were selected for study from the four districts of Konkan region of Maharashtra. The "*Ex-Post-Facto*" research design was used for the proposed study. The data were collected through the personal interview. The data collected were processed and statistically analyzed by using statistical technique like frequency, percentage, mean and standard deviation.The profile study included characteristics like age, education, farming experience, land holding, major occupation, annual income, cropping pattern, productivity level, livestock possession, information seeking behavior, economic motivation, irrigation status and risk orientation.

Results and Discussion

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

Profile of the respondents

Age

The data regarding age of the respondents is shown in Table 1. It is revealed from the Table 1 that majority of the respondents indicated that majority (70.00 percent) of the respondents belonged to 'middle' age category followed by 15.50 percent were 'old' category and rest 14.50 percent of the respondents were 'young' age category. The average age of the respondents was 47 years.

From above the data it can be concluded that majority of the respondents belong to 'middle' age category. The most likely reason is that the parental occupation must have been assumed by 'middle' age, as young children's were incapable of taking responsibility and also interested in obtaining employment in metropolitan cities and old age people might have shouldered off their occupation to descendant. Hence the respondents were found in middle aged category.

Education

The data regarding education of the respondents is shown in Table 2. The data presented in Table 2 indicated that, maximum number of respondents i.e. 43.50 percent were educated up to 'secondary' level, followed 29.50 percent of the respondents were educated up to 'higher secondary' level, 10.50 percent of the respondents were educated up to 'graduation and above', 10.00 percent of the respondents were educated up to 'primary school', 03.50 percent of the respondents were educated up to 'pre-primary' level and rest of 03.00 percent of the respondents were illiterate. The average educational level of the respondents was 10th standard.

It can be concluded that, nearby more than 95.00 percent of the respondents were educated to a satisfactory level, which in turn might have helped them in social mobility and information seeking.

However, the efforts should be made to educate the illiterate and school drop-outs through adult education and functional literacy programmes in villages to increase their level of education

Farming experience

The data regarding farming experience of the respondents is shown in Table 3. It was observed from Table 3 that, majority (69.00 percent) of the respondents had 'medium' years of farming experience followed by 18.00 percent of the respondents had 'high' years of farming experience and rest 13.00 percent of the respondents had 'low' years of farming experience. The average farming experience of the respondents was 28 years.

It can be concluded from above finding that the sampled respondents were having satisfactory experience in farming, majority of the respondents had medium to high farming experience. Since as younger generation are not interested to spend their time in agricultural activity, majority of respondent belonged to middle and old age group obliviously they had high farming experience because maximum efforts taken in their farming systems for better yield of crops.

Land holding

The data regarding land holding of the respondents is shown in Table 4. Data depicted in Table 4 revealed that, majority (49.50 percent) of respondents were 'small' land holding farmers followed by 23.00 percent of respondents were 'semi-medium' land holding farmers, 17.50 percent of respondents were 'marginal' farmers, and 08.00 percent of respondents were 'medium' land holding farmers and rest of 02.00 percent of respondents were the 'big' farmers.

It is clearly noticed that, majority (80.50 percent) of the respondents had small to medium area under cultivation. The possible reason of this finding is that inherited deviation of land from generation to generation leads to reduction in size at every generation and another one is that owing to typical geographical situation of Konkan region. The average land holding size is comparatively low.

Major occupation

The data regarding major occupation of the respondents is shown in Table 5. The data presented in Table 5 revealed that, majority of (95.00 percent of) the respondents had 'farming' as their major occupation followed by 04.00 percent percent of the respondents had 'business' as their major occupation and rest of 01.00 percent of the respondent had 'service' as their major occupation respectively.

With respect to occupational status of the respondents, it is observed that most of the farmers were engaged in agriculture alone as major occupation and only 05.00 percent depends on business and service. The prevailing trend of occupation in the rural areas might be the reason for the results. This may be attributed to the family status of the respondents. The other reasons could be interest of the respondents to continue the farming occupation.

Annual income

The data regarding annual income of the respondents is shown in Table 6. The data depicted in Table 6 revealed that, more than half of (66.00 percent) of the respondents possessed 'medium' level of annual income followed by 21.00 percent possessed 'low' level of annual income and rest of 13.00 percent of the respondents possessed 'high' level of annual income respectively. The average annual income of the respondents was 8.37 lakhs.

Such findings are due to the majority of the respondents were belonging small land holing and medium level of livestock possession category. Naturally, majority of the respondents possessed medium annual income group.

Cropping pattern

The data regarding cropping pattern of the respondents is shown in Table 7. A perusal of data displayed in Table 7 indicated that, slightly more than half (68.00 percent) of the respondents had 'fair' cropping pattern category followed by 20.50 percent of the respondents had 'poor' cropping pattern and 11.50 percent of the respondents had 'good' cropping pattern. The average cropping pattern score of the respondents was 5.28.

The findings lead to conclude that majority of the respondents belonged to 'fair' cropping pattern group. They might have been due to growing two or more crops per year. The prime reason was some demand in local market and it was very easy for them to sell the fresh produce.

Productivity level

The data regarding productivity level of the respondents is shown in Table 8. It can be observed from the Table 8 that, slightly more than half (68.00 percent) of the respondents belonged to 'medium' productivity level followed by 27.50 percent of the respondents were belonged to 'high' productivity level and rest of 04.50 percent were belonged to 'low' productivity level. The average productivity level score of the respondents was 2.28.

It can be concluded that most of the farmers had medium to high level of productivity this might be due to the adoption of integrated farming system.

Livestock possession

The data regarding livestock possession of the respondents is shown in Table 9. A perusal of data displayed in Table 9 clearly indicated that, slightly more than half (58.50 percent) of the respondents had 'medium' livestock possession whereas 29.00 percent of the respondents had 'low' livestock possession and 12.50 percent respondents had 'high' livestock possession.

It means that most of the respondents had satisfactory number of livestock. This must help them to develop their subsidiary occupation and ultimately employment.

Information seeking behavior

The data regarding information seeking behavior of the respondents is shown in Table 10. The data presented in Table 10 revealed that, majority (73.00 percent) of the respondents were having 'medium' information seeking behavior followed by 14.00 percent of the respondents were having 'high' information seeking behavior and rest of 13.00 percent of the respondents were having 'low' information seeking behaviour. The average information seeking behaviour score of the respondents was 79.16.

The medium to higher levels of the information seeking behavior of the respondents might be owing to their satisfactory educational status, satisfactory knowledge level further, and majority of the respondents possessed marginal to small land holding hence they would like to achieve higher returns by adopting the innovations intensively. It means that most of the integrated farming system adopter farmers had satisfactory exposure to various information sources. This might have helped them to develop their knowledge and attitude with regard to integrated farming system.

Economic motivation

The data regarding economic motivation of the respondents is shown in Table 11. The data presented in Table 11 revealed that, majority (79.00 percent) of the respondents were having 'medium' economic motivation followed by 12.50 percent of the respondents were having 'high' economic motivation and 08.50 percent of the respondents were having 'low' economic motivation.

Medium to high economic motivation of integrated farming system adopters indicates that IFS approach is a lucrative subsidiary income generating avenue for the farming community.

Irrigation status

The data regarding irrigation status of the respondents is shown in Table 12. It can be viewed from above Table 12 that, majority (63.00 percent) of the respondents were possessed 'medium' level irrigation status followed by 31.00 percent of the respondents were possessed 'high' irrigation status and 06.00 percent of the respondents were possessed 'low' irrigation status.

These findings lead to conclude that majority of the respondents were having medium irrigation status. This might be the due to the fact that the high cost of irrigation equipments and machineries.

Risk orientation

The data regarding risk orientation of the respondents is shown in Table 13. The data presented in Table 13 revealed that, slightly more than half (60.50 percent) of the respondents had 'medium' level of risk orientation followed by little more than one fourth (26.50 percent) had 'low' level of risk orientation and rest 13.00 percent had 'high' level of risk orientation.

The probable reason might be that majority of the respondents possessed small land holding. The most of farmers belongs to this category does not take higher risk and willing to take risk only if they had assurance of making profit, hence risk orientation of respondent is medium level.

Table 1: Distribution of the respondents according to their age

Sr. No.	Age (years)	Respondents (N=200)	
		Frequency	Percentage
1.	Young (upto 35)	29	14.50
2.	Middle (36 to 59)	140	70.00
3.	Old (60 and above)	31	15.50
	Total	200	100.00
Mean = 47 S.D.= 12			

Table 2: Distribution of the respondents according their education

Sr. No.	Education (Standard)	Respondents (N=200)	
		Frequency	Percentage
1.	Illiterate (0)	06	03.00
2.	Pre-primary (1^{st} to 4^{th} std.)	07	03.50
3.	Primary (5^{th} to 7^{th} std.)	20	10.00
4.	Secondary (8^{th} to 10^{th} std.)	87	43.50
5.	Higher secondary (11^{th} to 12^{th} std.)	59	29.50
6.	Graduate and above (13^{th} and above)	21	10.50
	Total	200	100.00
Average = 10 std			

Table 3: Distribution of the respondents according their farming experience

Sr. No.	Farming experience (Years)	Respondents (N=200)	
		Frequency	Percentage
1.	Low (upto 17)	26	13.00
2.	Medium (18 to 39)	138	69.00
3.	High (40 and above)	36	18.00
	Total	200	100.00
Mean = 28 S.D. = 11			

Table 4: Distribution of the respondents according their land holding

Sr. No.	Land holding (ha)	Respondents (N=200)	
		Frequency	Percentage
1.	Marginal (up to 1.00)	35	17.50
2.	Small (1.01 to 2.00)	99	49.50
3.	Semi-medium (2.01 to 4.00)	46	23.00
4.	Medium (4.01 to 10.00)	16	08.00
5.	Big (10.01 and above)	04	02.00
Total		200	100.00

Table 5: Distribution of the respondents according their major occupation

Sr. No.	Major occupation (score)	Respondents (N=200)	
		Frequency	Percentage
1.	Business	08	04.00
2.	Cultivation	190	95.00
3.	Service	02	01.00
	Total	200	100.00

Table 6: Distribution of the respondents according their annual income

Sr. No.	Annual income (Rs. in Lakh)	Respondents (N=200)	
		Frequency	Percentage
1.	Low (upto 4.54)	42	21.00
2.	Medium (4.55 to12.20)	132	66.00
3.	High (12.21 and above)	26	13.00
	Total	200	100.00
Mean = 8.37 Lakh 1/2 S.D.= 3.83			

Table 7a: Distribution of the respondents according to their cropping pattern

Sr. No.	Cropping pattern (score)	Respondents (N=200)	
		Frequency	Percentage
1.	Poor (upto 2.93)	41	20.50
2.	Fair (2.94 to 7.63)	136	68.00
3.	Good (7.64 and above)	23	11.50
	Total	200	100.00
Mean = 5.28 S.D.=2.35			

Table 7b: Season wise crop grown by integrated farming system adopter farmers

Sr. No.	Respondents (N=200)		
	Season and crops	Frequency	Percentage
1.	***Kharif***		
A)	Rice	198	99.00
B)	Finger millet	21	10.50
2)	***Rabi***		
A)	Tomato	22	11.00
B)	Lablab bean	30	15.00
C)	Brinjal	15	07.50
D)	Cow pea	15	07.50
E)	Watermelon	10	05.00
F)	Chilli	38	19.00
G)	Cucumber	18	09.00
3)	**Annual**		
A)	Papaya	05	02.50
4)	**Perennial**		
A)	Mango	118	59.00
B)	Cashewnut	90	45.00
C)	Coconut	25	12.50
D)	Aracanut	26	13.00
E)	Banana	12	06.00
F)	Sapota	16	08.00
G)	Mogara	12	06.00

Table 8: Distribution of the respondents according to their productivity level

Sr. No.	Productivity level (score)	Respondents (N=200)	
		Frequency	Percentage
1.	Low (upto 1.78)	09	04.50
2.	Medium (1.79 to 2.78)	136	68.00
3.	High (2.79 and above)	55	27.50
	Total	200	100.00
Average = 2.28 S.D. = 0.50			

Table 9: Distribution of the respondents according to their livestock possession

Sr. No.	Livestock possession (score)	Respondents (N=200)	
		Frequency	Percentage
1.	Low (upto 3.59)	58	29.00
2.	Medium (3.60 to 8.57)	117	58.50
3.	High (8.58 and above)	25	12.50
	Total	200	100.00
Mean= 6.08 S.D.= 2.49			

Table 10: Distribution of the respondents according to their information seeking behavior

Sr. No.	Information seeking behavior (score)	Respondents (N=200)	
		Frequency	Percentage
1.	Low (upto 67.18)	26	13.00
2.	Medium (67.19 to 91.05)	146	73.00
3.	High (91.06 and above)	28	14.00
	Total	200	100.00
Mean= 79.16 S.D.= 11.89			

Table 11: Distribution of the respondents according to their economic motivation

Sr. No.	Economic motivation (score)	Respondents (N=200)	
		Frequency	Percentage
1.	Low (upto 21.35)	17	08.50
2.	Medium (21.36 to 26.29)	158	79.00
3.	High (26.30 and above)	25	12.50
	Total	200	100.00
Mean= 23.82 S.D.= 2.47			

Table 12: Distribution of the respondents according to their irrigation status

Sr. No.	Irrigation status (score)	Respondents (N=200)	
		Frequency	Percentage
1.	Poor (upto 0.7)	12	06.00
2.	Fair (0.8 to 2.66)	126	63.00
3.	Good (2.67 and above)	62	31.00
	Total	200	100.00
Mean= 1.68 S.D.= 0.98			

Table 13: Distribution of the respondents according to their risk orientation

Sr. No.	Risk orientation (score)	Respondents (N=200)	
		Frequency	Percentage
1.	Low (upto 11.89)	53	26.50
2.	Medium (11.90 to 16.65)	121	60.50
3.	High (16.66 and above)	26	13.00
	Total	200	100.00
Mean= 14.27 S.D.= 2.38			

Implication

The study has portrayed the profile of the integrated farming system adopters in terms of selected personal, socio-economic and psychological characteristics. The personal, socio-economic and psychological characteristics of the IFS adopters may help agricultural development agencies for executing appropriate strategic plans to enhance adoption of IFS. Majority of the selected respondents were found to be in the middle aged group which implies implementation of IFS approach in rural areas could attract and retain middle aged groups in agriculture

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