



Integrated Farming System Model for the Farmers of Wardha District in Vidarbha

KEYWORDS

Integrated farming system

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ABSTRACT *The present study was undertaken in Wardha district of Vidarbha region with sample size of 120 respondents from 12 villages. Data was collected regarding farming systems adopted by the farmers and the economics of all farming systems with the help of pre structured and pretested interview schedule. It was found that cent per cent respondents had adopted agriculture and dairy farming followed by vegetables cultivation (83.33%) and fruit crops (65.00%). Integration of agriculture + dairy + vermicomposting + backyard poultry + apiculture + forage crop + sericulture was found beneficial on the basis of B:C ration combination of complimentary enterprises.*

INTRODUCTION

Indian economy is predominantly rural and agriculture oriented where the declining trend in the average size of the farm holding poses a serious problem. In agriculture 84.00 per cent of the holding is less than 2 acres. Majority of them are dry lands and even irrigated areas depend on the vagaries of monsoon. In this context, if farmers concentrated on crop production they will be subjected to a high degree of uncertainty in income and employment. Hence, it is imperative to evolve suitable strategy for augmenting the income of the small and marginal farmers by combining to increase the productivity and supplement the income. In an agricultural country like India, the average land holding is very small. The population is steadily increasing without any possibility of increase in land area. The income from cropping for an average farmer is hardly sufficient to sustain his family. The farmer has to be assured of a regular income for a reasonable standard of living by including other enterprises.

In view of the above facts there is strong need to commercialize agriculture and in order to ensure an all round development of farming families farming should be considered as a system in which crop and other enterprises that are compatible and complimentary are combined together. The study of farming systems and application of farming systems approaches can bring a ray of hope for the betterment of farmers. Keeping all these factors in mind the present study was conducted to suggest which particular mixture of crop, dairy and other farming systems can provide maximum benefit.

MATERIALS AND METHODS

The present study was carried out in Wardha district of Maharashtra State, where sample of 120 respondents from 12 villages were purposively selected who had been adopted farming system other than agriculture or subsystem of agriculture. Exploratory research design was used for investigation. For the present study interview schedule was found to be most convenient method for data collection from the farmers. The respondents were categorized with the help of mean and standard deviation. Findings regarding adoption of farming system in relation to selected variables viz. age, education, land holding, farming experience, sources of information, mass media participation, extension participation, organizational participation, economic motivation, innovativeness and risk orientation were included in study.

RESULTS AND DISCUSSION

Table 1. Distribution of respondents according to their

adoption of different farming systems.

Sr. No.	Farming system	Frequency	Percentage
1	Agriculture	120	100.00
2	Dairy	120	100.00
3	Horticulture/fruit crops	78	65.00
4	Vegetable cultivation	100	83.33
5	Forage crops	54	45.00
6	Goat rearing	27	22.50
7	Poultry	35	29.17
8	Apiculture	22	18.33
9	Sericulture	22	18.33
10	Vermicomposting	37	30.83

It was observed from the Table 1 that almost all the respondents have adopted agriculture and dairy farming followed by vegetable cultivation by 100 respondents (83.33%), horticulture by 65.00 per cent respondents, forage crops by 45 per cent respondents. Sericulture farming systems were adopted by only 18.33 per cent respondents in the study.

Table 2. Correlation coefficient of selected independent variables with integrated farming systems.

Sr. No.	Independent variables	Integrated farming system (r' value)
1	Age	0.0430
2	Education	0.1494
3	Land Holding (in hectare)	0.3736**
4	Farming Experience	0.1137
5	Source of Information	0.1065
6	Mass Media Participation	-0.0079
7	Extension Participation	0.3518**
8	Organizational Participation	0.2857**
9	Economic Motivation	0.0242
10	Innovativeness	0.1465
11	Risk Orientation	-0.2414**

**** Significant at 0.01 per cent level of probability.**

It is evident from Table 2 that amongst personal, situational and psychological characteristics, land holding was positively and significantly correlated with integrated farming system adopted by the respondents at 0.01 level of probability. It can be conclude that the respondents with large size of land

holding are trying to adopt different farming system for getting more monetary benefits from the integration of different farming systems.

The variables viz. extension participation and organizational participation were found positive and significant correlation with adoption of integrated farming systems respondents at 0.01 level of probability. High extension participation and organizational participation of respondents leads to more adoption of integrated farming system.

Risk orientation was negatively and significantly correlated with adoption of integrated farming systems by the respondents at 0.01 level of probability. It indicated that the respondents with high in risk orientation may get failure in getting benefits, hence not taking any risk of adoption of integrated farming systems.

While, other variables viz. age, education, farming experience, sources of information, mass media participation, economic motivation, innovativeness had found non-significantly correlated with adoption of integrated farming systems by the respondents.

The above results indicate that some of the characteristics of the respondents had influenced their adoption of integrated farming systems. This results obtained are in conformity with the findings of Singh and Baruah (2012).

Economic analysis of different farming systems
Table 3. Economics of different farming system

Sr. No.	Farming System	Average total income (Rs.)	Average total expenditure (Rs.)	Average net profit (Rs.)	Average B:C ratio
1	Agriculture	173833	83760	90073	2.28
2	Dairy farming	139143	102743	36399	1.38
3	Horticulture/ fruit crop	306590	188167	118423	1.76
4	Vegetable crops	30983	19531	11339	1.56
5	Forage crops	58642	23454	35188	2.71
6	Goat rearing	26478	12500	13978	2.21
7	Backyard poultry	3955	1200	2755	3.34
8	Apiculture	36415	13067	23348	2.82
9	Sericulture	61663	25581	36082	2.42
10	Vermicomposting	46878	9781	37097	4.89

Agriculture and all allied enterprises presented in Table 3 were found beneficial in farmers' situation. It is inferred that among all ten farming systems vermicomposting had given maximum net profit with B:C ratio 4.89. It was followed by backyard poultry (3.34), apiculture (2.82), forage crop (2.71), sericulture (2.42), agriculture (2.28) and goat rearing (2.21). All above enterprises were giving more than two rupees on expenditure of one rupee. Below two, fruit crops, vegetable crops and dairy farming were giving 1.76, 1.56 and 1.38 B:C ratio, respectively.

Integrated Farming System Model

The model of integrated farming system given in Fig. 1 is the combination of various farming systems such as vermicomposting (B:C ratio = 4.89), backyard poultry (B:C ratio = 3.34), apiculture (B:C ratio = 2.82), forage crops (B:C ratio = 2.71), sericulture (B:C ratio = 2.42) with agriculture (B:C ratio = 2.28)

and dairy farming (B:C ratio = 1.38) are complementary to each other and helps to generate more income that improves socio-economic status of farmers.

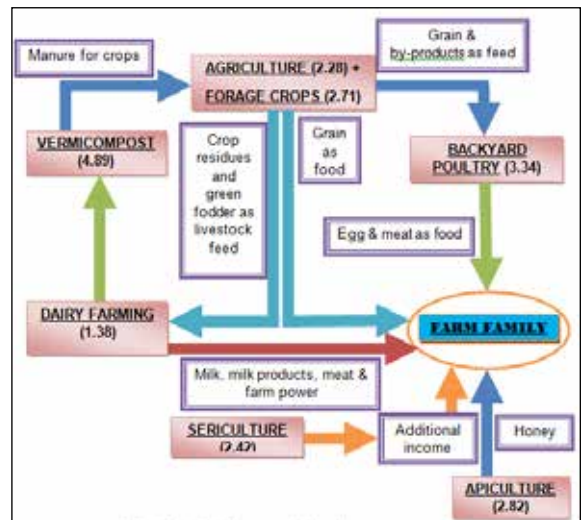
On the basis of Benefit-Cost ratio and combination of different farming systems complementary to each other in farmers' situation, the above model is prepared which is beneficial to almost all farmers. Vermicomposting helps to generate income by selling vermicompost and vermiculture which provide maximum net return to the farmers. Labour requirement of vermicomposting was also very low, even women member can manage it very effectively. It also provides manure of high fertility status to their own farms. Therefore, it was complementary to the agriculture enterprise.

Sole crop or intercropping of forage crops like sorghum and maize also provide additional benefits in the form of economic produce and bi-produce. It was complementary to agriculture and dairy farming. Even though the dairy farming requires more labour and skilled workers, it provides milk, better monetary returns and family health. It also provides FYM for manuring the crops. It clearly indicated that dairy farming was very important in integration of farming systems as a best complementary enterprise to the other farming systems.

Backyard poultry was found very effective, supplementary and domestic enterprise which can be handled by even old or child members of family. It could provide egg and

Integrated farming system model

Irrespective of B:C ratio compatibility of farmers and complementary combination of different farming system was prepared for the farmers of Wardha district which is given Figure 1.



meat which was like by almost all non vegetarians. Backyard poultry provided bound income to the women members of the family which contributed in their economic empowerment, its B:C ratio was also found very high. Apiculture was also found to be a good subsidiary occupation in combination with agriculture. It requires no labour which can be manage by any family member with some training. Sericulture is one of the farming systems which provided better returns to the farm family in addition to the agriculture.

Integration of different farming systems were also found beneficial by Ramrao et al. (2005), Sharma et al. (2008) and Chan-nabasavanna et al. (2009) in their research of different States.

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