

## **Impact of Training on Adoption of Integrated Rice-Fish Farming Practices**

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### **ABSTRACT**

*The present investigation was undertaken to study the impact of training on aquaculture under DBT's Women Bioresource Complex Project in terms of extent of adoption of integrated rice-fish farming practices by women farmers. The Assam Agricultural University, Jorhat in collaboration with the Department of Biotechnology (DBT), Govt. of India, New Delhi had launched the Women Bioresource Complex project in three selected villages of Jorhat district of Assam. Under the project, training on integrated rice-fish farming was given to women farmers during July, 2007. A total sample of 150 women farmers, consisting of 75 trained and 75 untrained, women farmers was selected for the study. The purposive cum proportionate random sampling method was followed for selecting the respondents. The findings indicate that only few of the trained respondents had adopted the recommended practices. None of the untrained respondents were found to adopt the recommended practices. Study further revealed that majority of the adopter women had medium level of adoption of recommended practices. The findings of the correlation analysis revealed that extent of adoption of recommended practices had positive and significant relationship with operational land holding, mass media exposure and availability of fish pond. While in case of age, educational level and contact with project staff, it was positive but non significant. It can be inferred from the study that extension agencies should be geared up and should continue their efforts in accelerating the rate of adoption of different practices. The positive and significant relationship between extent of adoption of recommended practices with size of operational land holding, mass media exposure and availability of fish pond ensures the possibility of manipulating these crucial factors in order to bring about desirable changes in the adoption behaviour of women farmers.*

**Keywords :** *Extent of adoption; Impact of training; Women farmer; Integrated rice fish farming;*

Agriculture the single largest production endeavour in India, contributing 22% of GDP (India, 2008), is increasingly becoming a female activity. Women's contribution to agriculture whether it be subsistence farming or commercial agriculture, when measured in terms of the number of tasks performed and time spent, is greater than men. She performs wide spectrum of duties in running of farm, family and also in management of livestock. Despite significant contribution of women in Agriculture, those engaged in the formulation of extension policies have often tended to neglect the women farmers and their productive role. However, with the changing scenario, the need for involving changes in extension programmes and approaches is being felt for capacity building and skill up gradation of farm women. Special extension and technology

dissemination programmes for women farmers are being implemented by different agencies in Assam, as elsewhere in the country. In order to empower the women farmers technically as well as economically, the AAU, Jorhat had launched "DBT's Women Bioresource Complex Project" in three selected villages of Jorhat district of Assam, in collaboration with Department of Biotechnology (DBT), GOI, New Delhi. Under the project, training on integrated rice-fish farming was given to women farmers during July, 2007. Hence it was felt necessary to critically analyse the extent of adoption of various aspects of integrated Rice-fish farming practices and its correlating factors. Hence a research study was planned and conducted.

The present study was undertaken with the following specific objectives in Jorhat district of Assam.

1. To study the extent of adoption of recommended integrated rice-fish farming practices.
2. To find out the relation of a set of selected independent variables with extent of adoption of recommended integrated rice-fish farming practices.

## METHODOLOGY

Three villages, namely Satai Bhakat Gaon, Satai Bhakat Gaon No. 2 and Hatigarh Baghmora of Jorhat district of Assam in India were purposively selected being the DBT's women bio-resource complex project area, as the locale of the study. A total of 75 trained women farmers from the three above mentioned villages of Jorhat district were selected as beneficiary respondents by following proportionate cum random sampling technique. Further, by following match sampling technique, 75 untrained women farmers were selected as control group of respondents from the same villages. Thus, 150 women respondents constituted the final sample. The extent of adoption of integrated rice-fish farming practices was the dependent variable. The independent variables were age, education, operational land holding, extension contact, mass media exposure and availability of fish pond. Data were solicited by personal interview method with the help of structured schedule. Data thus collected was analysed using appropriate statistical technique.

The extent of adoption of integrated rice-fish farming practices was measured on all the twenty-eight (27 practices and 1 sub practice) practices against a three-point rating scale of 2 for "full adoption", 1 for "partial adoption" and 0 for "non adoption". On the basis of scores obtained respondents were categorized into three categories, viz., low, medium and high adopters on the basis of mean and standard deviation.

## RESULTS AND DISCUSSION

*Extent of adoption of recommended practices* : An attempt was made to analyse the level of adoption of individual practice of integrated rice-fish farming by the respondents. Some of the individual practices were adopted in full, or not at all. While among some practices, partial adoption was recorded. The results presented in Table 1 reveal that only 22 (29.33 %) trained women respondents were practically involved with the integrated

rice-fish farming enterprise, remaining 53 (70.67 %) trained women respondents were found to be "not at all" involved in the integrated rice-fish farming activities. The findings further revealed that none of the untrained respondents (n=75) had adopted the integrated rice-fish farming practices in their respective farms. Therefore the frequency and percentage distribution of trained women farmers only presented in the Table 1.

Moreover, out of the recommended 28 practices of integrated rice-fish farming, 11 practices had been fully adopted by all the adopters i.e. 29.33 per cent of the trained women farmers. The recommended practice – "recommended insecticide to protect the paddy seed at the seed bed under integrated rice-fish farming" had lowest full adoption with only 4 per cent of the trained women farmers.

*Distribution of adopters according to their extent of adoption of overall recommended practices of integrated rice-fish farming* : The distribution pattern of the adopters (n=22) only according to their extent of adoption of integrated rice-fish farming practices are presented in Table 2. Among adopters, majority (72.73%) had medium level of adoption, followed by low level of adoption with 18.18 per cent.

Table 2. Distribution of adopters according to their extent of adoption of overall recommended practices of integrated rice-fish farming (N=22)

S No.	Category	Trained respondents			
		(No. & %)	Mean Score	S.D	C.V.
1.	Low	04 (18.18)	89.18	8.57	9.61
2.	Medium	16 (72.73)			
3.	High	02 (9.09)			

The table also revealed that only 9.09 per cent of adopters had higher level of adoption. The mean adoption score 89.18 with co-efficient of variation (CV) 9.61 per cent indicated that there was very less variation among the adopters in relation to adoption of recommended practices. The findings of this study is found to be inconsistent with the findings of Barman (1998), he reported that both the trained and untrained groups of respondents were found to adopt the recommended practices even through there were significant difference in the extent of adoption between the two groups.

This may be due to the fact that the integrated rice-fish farming is a highly location specific and labour

Table 1. Frequency and percentage distribution of respondents according to their extent of adoption of recommended integrated rice-fish farming practices

S. No.	Practices	Frequency and percentage distribution of respondents		
		Fully adopted (FA)	Partially adopted (PA)	Not adopted (NA)
1.	Land suitable for integrated rice-fish farming	22 (29.33)	0(0.00)	53 (70.67)
2.	Minimum area recommended for integrated rice-fish farming	15 (20.00)	7 (9.33)	53 (70.67)
3.	Topography of the paddy field suitable for integrated rice-fish farming	22 (29.33)	0(0.00)	53 (70.67)
4.	Percentage (%) of total area used for paddy cultivation under integrated rice-fish farming	22 (29.33)	0(0.00)	53 (70.67)
5.	Percentage (%) of total area used for construction of channel for fish production under integrated rice-fish farming	22 (29.33)	0(0.00)	53 (70.67)
6.	Size of peripheral dyke under integrated rice-fish farming	19 (25.33)	3 (4.00)	53 (70.67)
7.	Size of the peripheral channel construction for production of fish under integrated rice-fish farming	19 (25.33)	3 (4.00)	53 (70.67)
8.	Size of the channel construction in middle of the paddy field for production of fish under integrated rice-fish farming	17 (22.67)	5 (6.67)	53 (70.67)
9.	Recommended varieties of <i>Sali</i> rice under integrated rice-fish farming system	22 (29.33)	0(0.00)	53(70.67)
10.	Recommended species of fish under integrated rice-fish farming system	22 (29.33)	0(0.00)	53 (70.67)
11.	Time (month) of main field preparation under integrated rice-fish farming	22 (29.33)	0(0.00)	53 (70.67)
12.	Time (month) for construction of channel for fish production under integrated rice-fish farming	22 (29.33)	0(0.00)	53 (70.67)
13.	Recommended seed rate of <i>Sali</i> rice under integrated rice-fish farming	19 (25.33)	3 (4.00)	53 (70.67)
14.	Size of fingerling suitable for stocking in the channel under integrated rice-fish farming	16 (21.33)	6 (8.00)	53 (70.67)
15.	Recommended numbers of fingerlings /ha	14 (18.67)	6 (8.00)	55 (73.34)
16.	The plastic bags used for transporting the fingerlings should be supplied with oxygen	22 (29.33)	0(0.00)	53 (70.67)
17.	The fingerlings should be transported during morning or evening hours of the day	22 (29.33)	0(0.00)	53 (70.67)
18.	The plastic bags containing fingerlings should be kept in the water for sometimes and then fingerlings should be allowed to move freely into the water	20 (26.67)	2 (2.67)	53 (70.67)
19.	Recommended combination of fish species under integrated rice-fish farming [% of species composition (nos/bigha)]	17 (22.67)	2 (2.67)	56 (74.67)
20.	Proper time for sticking the fish in the channels under integrated rice-fish farming	11 (14.67)	6 (8.00)	58 (77.33)
21.	Amount of lime applicable to the channels for fish production under integrated rice-fish farming	11 (14.67)	8 (10.67)	56 (74.67)
22.	i) Fertilizer application in rice	19 (25.33)	3 (4.00)	53 (70.67)
	ii) Fertilizer application in fish	14 (18.67)	2 (2.67)	59 (78.67)
23.	Recommended insecticide to protect the paddy seed at the seed bed (along with dose) under integrated rice-fish farming	3 (4.00)	7 (9.33)	65 (86.67)
24.	Recommended insecticide to protect the paddy seed at the main field (along with dose) under integrated rice-fish farming	16 (21.33)	6 (8.00)	53 (70.67)
25.	Dose of 'Susoma' (supple-mentary feed) supplied to the fish under integrated rice-fish farming (kg/day/bigha)	20 (26.67)	2 (2.67)	53 (70.67)
26.	Time of harvesting of <i>Sali</i> paddy under integrated rice-fish farming	22 (29.33)	0(0.00)	53 (70.67)
27.	Time of harvesting of fish under integrated rice-fish farming	22 (29.33)	0(0.00)	53 (70.67)

intensive technology. The rate of adoption depends upon the availability of resources such as suitable land, manpower, irrigation facility, raw materials along with knowledge and previous experience on integrated rice fish farming. The trained respondents were given specific training, while untrained respondents were neither trained up nor experienced on rice-fish farming related matters. Moreover, availability of suitable land, manpower and other resources along with technical assistance might have provided the confidence and support to the trained women farmers to adopt the integrated rice-fish farming practices.

*Relationship between a set of selected personal and socio-economic variables with extent of adoption:*

It can be seen from the Table 3 that extent of adoption was positively and significantly related with size of operational land holding. *Prakash (2007)* also reported that size of operational land holding had positive and significant relationship with extent of adoption. The size of operational land holding might have provided the confidence and support to the women farmers to make decision on integrated rice-fish farming. The positive and significant relationship of mass media exposure with extent of adoption indicates that the women farmers, who had higher mass media exposure, had higher extent of adoption. Similar findings found by *Ahire et al. (2007)* reported that mass media exposure was found to have a positive and significant contribution to adoption level. This may be due to the fact that more exposure to the mass media helped the respondents in acquiring more information as well as in developing confidence in them and thereby increasing the credibility of technology.

The findings on correlation analysis further reveals that the availability of fish pond had significant and positive correlation with extent of adoption. It indicates that in case of women farmers having fish ponds, the

extent of adoption of recommended integrated rice-fish farming was more. This may be due to the fact that, women farmers having fish ponds, had knowledge and skill on fish rearing and thus it might help them to develop an attitude that adoption will result in increased profit.

Table 3. Relationship between a set of selected personal and socio-economic variables with extent of adoption

S.No.	Variables	'r' value	't' value
1.	Age	0.021	0.179
2.	Education	0.107	0.925
3.	Operational land holding	0.189	1.675*
4.	Extension Contact	0.098	0.845
5.	Mass Media Exposure	0.210	1.877*
6.	Availability of fish pond	0.233	2.105*

\* Significant at 0.05 level probability;

\*\* Significant at 0.01 level probability

However, age, education and contact with project staff did not reveal any relationship with extent of adoption of recommended integrated rice-fish farming practices.

## CONCLUSION

It can be concluded that only few of the trained women farmers had adopted the integrated rice-fish farming practices. Majority of the adopter women farmers had Medium level of adoption of recommended practices. It implies that extension agencies should be geared up and should continue their efforts in accelerating the adoption of different practices. Further it can be observed that, the mass media exposure, size of operational land holding and availability of fish ponds had direct effect on extent of adoption. Therefore, it is possible for the extension agencies to manipulate these crucial factors in order to bring about desirable changes in the adoption behaviour of women farmers.

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