

## Impact of Training on Knowledge Level of Integrated Rice-Fish Farming Practices

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### ABSTRACT

*The present investigation was carried out in the Jorhat district of Assam based on proportionate random sampling to study the impact of training in terms of level of knowledge enhanced by the trained women farmer on integrated rice-fish farming practices. The Assam Agricultural University had launched the project "DBT's Women Bioresource Complex" in Jorhat district in collaboration with Department of Biotechnology (DBT), Govt. of India. Under the project, training on integrated rice-fish farming was imparted to some selected women farmers during July, 2007. A total of 150 women respondents (75 trained and 75 untrained women respondents) constituted the sample of the present study. The study reveals that the level of knowledge of trained women farmers ( $\bar{X}_1=20.23$ ) was significantly higher than the untrained women farmers ( $\bar{X}_2=6.79$ ), which can be attributed to impact of training programme. The findings of correlation analysis further shows that independent variables age, operational land holding and mass media exposure had negative and non-significant relationship with knowledge level, while, in case of educational level, contact with the project staff and availability of the fish pond, it was found to be positive but non-significant.*

**Key words:** Training; Knowledge; Integrated rice-fish farming;

**A**griculture the single largest production endeavour in India, contributing 22% of GDP (India, 2011), 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 in 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 Assam Agricultural University, Jorhat had launched "DBT's Women Bioresource Complex Project" in the Jorhat district of Assam, in collaboration with

Department of Biotechnology, GOI, New Delhi. Under the project, training on Integrated rice-fish farming (IRFF) was given to women farmers in between July, 2007 to July 2009. The present investigation was carried out to study the impact of training in terms of level of knowledge enhanced on IRFF practices.

### METHODOLOGY

A proportionate random sampling method was followed for selecting the respondents. The total sample size was 150 (75 trained and 75 untrained women farmers). The data were collected by personal interview method with the help of structured schedule. After collecting, data were tabulated and analyzed. The frequency, percentage, means, standard deviation, coefficient of variance, Pearson's product moment correlation and Z-test were the statistical techniques used for the analysis of data.

In order to find out the distribution of the respondents according to their level of knowledge and to measure the significance of difference between the mean score of knowledge, a knowledge test was developed for the study. While administering the final

knowledge test, score '1' (one) was assigned for a correct answer and score '0' (zero) was assigned for an incorrect answer. Total questions including to test the knowledge level of the respondent were 33 and thus , a respondent could score maximum 33. The score so obtained under various questions were summed up. On the basis of the total score obtained, respondents were categorized into three classes i.e. low, medium and high level of knowledge using the procedure followed by Dasgupta (1989).

Category	Score
Low	Below ( $\bar{X} - Sd$ )
Medium	( $\bar{X} - Sd$ ) to ( $\bar{X} + Sd$ )
High	Above ( $\bar{X} + Sd$ )

Finally, to measure the significance of difference between the mean score of knowledge of trained and untrained farmers , "Z" test was done.

## RESULTS AND DISCUSSION

The present study was conducted after two years of completion of the project. Therefore, knowledge level of trained women farmer was compared with the knowledge level of untrained women farmer. Both the beneficiary (trained) and non-beneficiary (untrained) respondents were included in the sample to avoid personal bias. The findings of the study are represented under two major headings:

*Distribution of respondents according to their knowledge level on IRFF practices :* The distribution of both trained and untrained groups of respondents having correct knowledge was studied in relation to all 33 aspects of 28 practices of IRFF.

The Table 1 reveals that in relation to all the aspects , the percentage of trained respondents having correct knowledge was higher than the untrained respondents . In case of trained group, more than 80 per cent respondents had correct knowledge on 11 practices of IRFF (Table 1). While, less than 50 per cent trained respondents possessed correct knowledge on 10 aspects of 6 practices. However, less than 50 per cent untrained respondents were found to possess correct knowledge on 28 aspects of 23 practices . None of the untrained respondents had knowledge on 5 aspects of 4 practices. *Distribution of respondents according to their level of knowledge on IRFF :* It is evident from the Table 2 that half of the trained respondents (50.67%) had

medium level of knowledge on recommended practices followed by higher level of knowledge with 48.00 per cent . Only 1.33 per cent of trained respondents were found to possess low level of knowledge on recommended practices. On the other hand, in case of untrained group of respondents, majority of the respondents (73.33%) possessed medium level of knowledge on recommended practices followed by lower level of knowledge with 26.67 per cent.

The two groups differed significantly on mean knowledge score on IRFF practices. The calculated value of 'Z' (12.92) was found significant at 0.01 level of probability (Table 2). Hence, it may be inferred that the trained women farmers had significantly higher level of knowledge on recommended practices than those of untrained women farmers. This is may be due to the fact women farmers of that area are not experienced in Rice-Fish Farming. Further training on IRFF practices helped the trained respondents to develop a good knowledge base on Rice-Fish farming and understood the advantages of the same.

*Relationship between a set of selected independent variables with level of knowledge enhanced :* The findings (Table 3) reveals that the correlation between knowledge level and age, operational land holding, mass media exposure, was negative and non-significant. Similarly, the correlation between knowledge level and education, contact with project staff was also non-significant but the r-value was positive.

*Inter-correlation among different variables:* The findings presented in the Table 4 reveal that the Mass Media exposure had significant but negative correlation with Educational level of the trained respondents. This may due to the fact that the trained respondents though low in education might have more exposure to TVs and Radio.

Moreover, they might have developed a habit of even reading literature after the training as free literature on integrated rice-fish farming was provided to the trainees. In addition the availability of fish pond also had significant but negative correlation with mass media exposure. This may be due to the fact that in absence of a fish pond they might have understood the futility of enjoying TV and radio programmes on rice fish farming.

## CONCLUSION

Training is recognized as one of the most effective

**Table 1. Frequency and percentage of respondents according to their knowledge level on recommended integrated rice-fish farming (IRFF) practices**

Knowledge item of Practice for IRFF	Trained (n=75)	Untrained (n=75)
Land suitable	53 (70.67)	22 (29.33)
Minimum area recommended	65 (86.67)	14 (18.67)
Topography of the paddy field	68 (90.67)	55 (73.33)
Percentage (%) of total area used for paddy cultivation	45 (60.00)	8 (10.67)
Percentage (%) of total area used for construction of channel for fish production under IRFF	49 (65.33)	7 (9.33)
Size of the peripheral dyke constructed under IRFF	45 (60.00)	3 (4.00)
Size of the peripheral channel constructed under IRFF	42 (56.00)	3 (4.00)
Size of the channel in middle of the paddy field for production of fish	43 (57.33)	2 (2.67)
Recommended varieties of <i>Sali</i> rice	71 (94.67)	43 (57.33)
Recommended species of fish	69 (92.00)	14 (18.67)
Time (month) of main field preparation under IRFF	72 (96.00)	59 (78.67)
Time (month) for construction of channel for fish production	58 (77.33)	10 (13.33)
Recommended seed rate of <i>Sali rice</i>	61 (81.33)	27 (36.00)
Size of fingerlings suitable for stocking in the channels (length in cm)	68 (90.67)	9 (12.00)
Recommended numbers of fingerlings per hectare	47 (62.67)	4 (5.33)
Oxygen content etc. during transportation of fingerlings	58 (77.33)	11 (14.67)

Transportation period of fingerlings during the day	70 (93.33)	15 (20.00)
Changing the fingerlings to the pond from the bag	61 (81.33)	25 (33.33)
Recommended combination of fish species under IRFF	33 (44.00)	2 (2.67)
Proper time for stocking the fish in the channels under IRFF	48 (64.00)	5 (6.67)
Amount of lime applicable to the channels for fish production	28 (37.33)	15 (20.00)
Recommended insecticide to protect the paddy seed at the bed along with dose under IRFF	16 (21.33)	0 (0.00)
Recommended insecticide to protect the paddy crop at the main field (along with dose)	14 (18.67)	0 (0.00)
Dose of 'Susoma' (supplementary feed) supplied to the fish (kg/day/ha)	57 (76.00)	0 (0.00)
Time (month) of harvesting of <i>Sali</i> paddy	73 (97.33)	57 (76.00)
Time (month) of harvesting of fish	68 (90.67)	49 (65.33)
Dose and method of fertilizer application in rice under IRFF		
Name of the fertilizer	56 (74.67)	21 (28.00)
Basal dose per ha	11 (14.67)	5 (6.67)
Split dose per ha	10 (13.33)	7 (9.33)
Time of application	29 (38.67)	12 (16.00)
Dose and method of fertilizer application in fish under IRFF		
Name of fertilizer	17 (22.67)	5 (6.67)
Dose per ha	6 (8.00)	0 (0)
Time of application	22 (29.33)	0 (0)

**Table 2. Distribution of respondents according to the level of knowledge on IRFF**

Category	Score range	Trained respondents (n =75 )				Untrained respondents (n =75 )				'Z' value
		No. (%)	MS	S.D.	C.V.	No. (%)	MS	S.D.	C.V.	
Low	0-4	01 (1.33)				20 (26.67)				12.92**
Medium	4-23	38 (50.67)	20.23	7.59	37.53	55 (73.33)	6.79	5.14	73.73	
High	23-32	36 (48.00)				0 (0)				

\* Significant at 0.05 level of probability    \*\* Significant at 0.01 level probability    MS =Mean score

**Table 4. Inter correlation among different variables**

	Age	Edu.	OLH	CPS	MME	AP	KL	EA
Age	1							
Edu.	0.047	1						
OLH	-0.082	0.094	1					
CPS	0.056	-0.053	0.004	1				
MME	-0.141	-0.344**	0.065	-0.039	1			
AP	0.036	-0.081	-0.153	0.056	-0.375**	1		
KL	-0.106	-0.177	-0.043	0.106	-0.127	0.001	1	
EA	0.021	-0.107	0.189*	0.098	0.210*	0.233*	-0.014	1

Edu. : Education  
 OLH : Operational Land Holding  
 CPS : Contact with Project Staff  
 MME : Mass Media Exposure  
 AP : Availability of Fish Pond  
 PE : Previous Experience  
 KL : Knowledge Level  
 EA : Extent of Adoption

**Table 3. Relationship between a set of selected independent variables with level of knowledge enhanced**

Variables	'r' value	't' value
Age	-0.106	-0.911
Education	0.177	1.539
Operational land holding	-0.043	-0.364
Extension contact	0.106	0.907
Mass Media Exposure	-0.127	0.001
Availability of fish pond	0.086	0.741

\* Significant at 0.05 level probability

\*\* Significant at 0.01 level probability

way of developing positive attitude, knowledge and skill of farm women. Training courses, under the project

were organized for farm women with the purpose of imparting knowledge and develop new skills required for adoption of the technology and build up scientific attitude among farm women. The study shows ,the trained women farmer had significantly higher level of knowledge on integrated rice-fish farming practices than those of untrained women farmer . Adequate knowledge is expected to motivate and inspire the women to try out agricultural technology feasible in their situation. Of course, the development departments have to be ready with timely availability of good quality input in adequate amount to fulfil farmer's demand.

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