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STUDIES ON IMPACT OF TRAINING PROGRAMMES ON LEVEL OF ADOPTION OF IMPROVED PRACTICES AMONG FISH FARMERS OF NORTH BIHAR

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The study was conducted in four blocks of Kosi region of North Bihar during 2013-14 to find out the adoption behaviour of fish farmers. Thirty trained and thirty untrained fish farmers were interviewed personally with the help of pre-tested interview schedule. The study reveals that pond preparation techniques viz. pond cleaning and drying, repair and maintenance of pond bundh, control of aquatic weed, removal of wild fish by fish toxicant were fully adopted by 14, 12, 11, 11, 11 farmers, respectively among thirty trained fish farmers. Trained fish farmers look precaution measures against fish diseases. There was significant difference between trained and untrained groups in respect to level of adoption of improved fish farming, z value 4.86 Significant at 1% level of probability.

Key words : Trained, untrained, adoption, fish farming, North Bihar.

INTRODUCTION

For enhanced production in fish enterprise, training of fish farmers and the adoption of the recent technologies to them is inevitable. Training programmes on composite fish farming, which needs a periodical evaluation to improve practices among the fish farmers. In the fisheries, field studies on adoption are of Ray & Haque (2000), Haque & Ray (2003), Balasubramaniam & Kaul (2001 & 2002) and Sharma *et al.* (2005). The present study was undertaken to find out the extent of adoption of recommended practices of trained and untrained fish farmers and to measure the adoption level of improved fish farming practices among respondents.

MATERIALS AND METHODS

The study was conducted during 2013-2014 purposely in Kosi region of North Bihar. Thirty trained and thirty untrained fish farmers were selected randomly from four blocks of the two districts *viz.* Saharsa and Purnea. All the respondents were practicing fish culture in leased pond from Government agency.

Data was collected using a pre-tested schedule. Twenty recommended practices in fish culture were listed and included in the schedule. The following pattern of differential weightage for each practice was followed.

Items	Score
Full adoption	2
Partial adoption	1
Non-adoption	0

The procedure followed by Sengupta (2006) for the calculation of adoption index was used to measure the adoption level of each respondent:

$$\text{Adoption Index} = \frac{\textit{Adopt.score one has got}}{\textit{total adopt.score one could get}} \times 100$$

Analysis of Problem : "Low yield of fish" was identified as the top most problem in composite fish culture. The causes for the problem were analyzed with the help of diagrammatic aid to sort out the inter- related factor for preparing action plan. (Fig. 1). The problem cause diagram showed bio-physical factors and socio- economic conditions for low yield of fish. The socio- economic cause for low yield of fish are (i) traditional thinking, (ii) lack of technical knowledge, (iii) poor economic condition of fish farmer, (iv) high cost of inputs, (v) fear of poisoning, theft and enemity. Whereas bio-physical factors are (i) practice of traditional fish farming technique, (ii) Disease problem, (iii) Reduction of productivity zone, (iv) effect of carnivorous fish and (v) no use of supplementary feed and fertilizers.

Most important training needs are on Prophylactic measure against fish disease; Emergent problem in fish culture. Estimation of pH and use of time in fish pond, technique to enrich natural food in pond for organic fish farming and fish seed rearing in seasonal pond for practicing fish farmer, one training need was identified for rural youth on composite fish culture in small ponds.

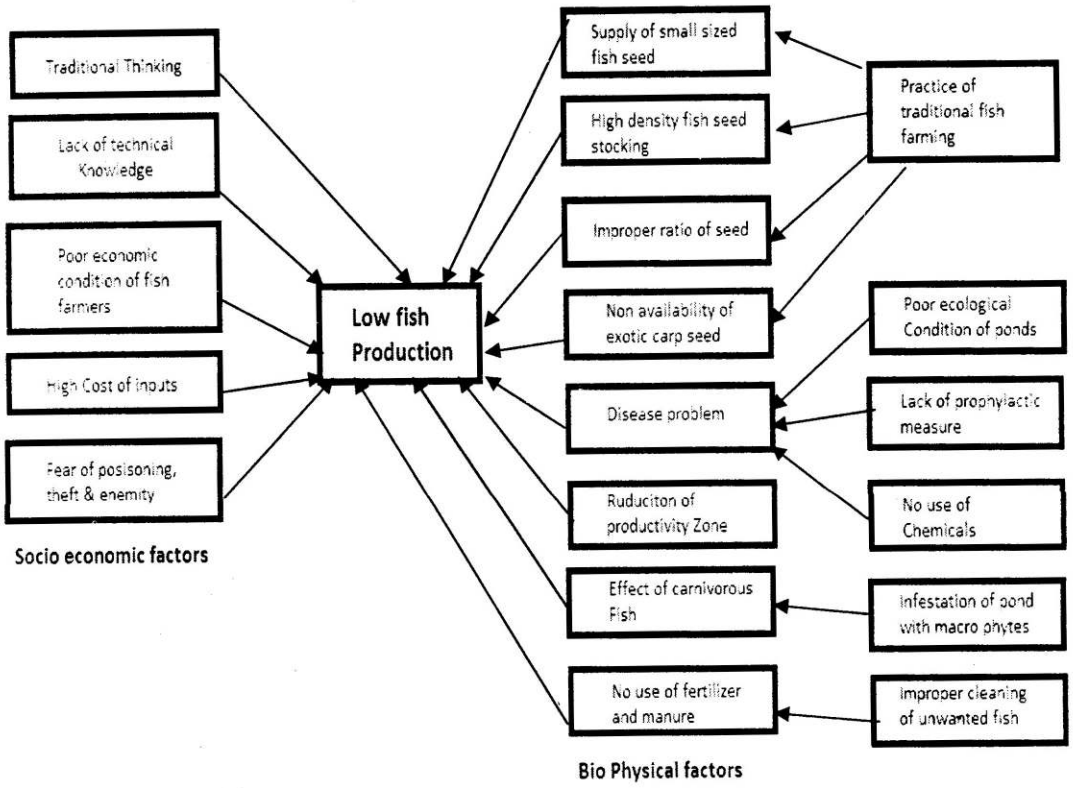

Fig. 1 : Problem cause diagram on Fish culture.

RESULTS AND DISCUSSION

The results of the study as indicated in Table I reveal that pond preparation techniques *viz.* pond cleaning and drying, repair and maintenance of pond bundh, control of aquatic weed, removal of wild fish by fish toxicant were mostly adopted by the trained fish farmers compared to untrained farmers. Both the trained and untrained groups did not adopt the techniques of plankton estimation because of lack of plankton net. Trained fish farmers took precaution during fish farming practices.

The results of the study as indicated in Table IV reveal that 53.33 per cent of the trained group had medium adoption level followed by 40.00 per cent high adoption categories whereas in untrained group 50 per cent had medium adoption level followed

Table I : Problem and intervention on fish culture.

Problem	Intervention point	Key question	Hypothesis	Type of intervention
Low yield of fish	*supply of small sized fish seed *Non availability of exotic crap seed	How good quality seed can be achieved?	Proper management of nursery pond	Training
	*Disease problem	How and where prevention Measure will be applied?	- Practice of prophylactic measurement -Knowledge about emergent problem & their remedy	Training
	*High cost of inputs (fertilizer & feed)	What are the possible solutions?	-Integrated fish farming (duck, cattle and poultry)	Training and demonstration.
	*no use of supplementary feed	Which is the locally available suitable feed?	- Proper feeding management. -Productivity improvement through nature food in pond.	Training

Table II : Training need for Practicing fish farmer & Rural Youth of Village.

Title of Training		Participants
1.	Prophylactic measure against fish disease	Practicing farmer
2.	Emergent problem in fish culture	-do-
3.	Estimation of pH and use of lime in fish pond	-do-
4.	Technique to enrich natural food in ponds	-do-
5.	Organic fish farming	-do-
6.	Fish seed rearing in seasonal pond	-do-
7.	Composite fish culture in small ponds	Rural youth

Table III : Showing Adoption of individual recommended composite fish farming practices by fish farmers.

S. No.	Recommended practices	Trained Farmers			Untrained Farmers		
		FA	PA	NA	FA	PA	NA
1.	Pond cleaning and drying	14	06	10	06	10	14
2.	Repair and Maintenance of pond bundh	12	08	10	-	-	30
3.	Control of aquatic weed	11	10	09	06	14	10
4.	Removal of wild fish by fish toxicant	11	06	14	04	04	20
5.	Fish species combination in composite fish farming	21	09	-	15	-	15
6.	Species ratio	10	15	05	06	09	05
7.	Stocking rate	12	18	-	09	16	10
8.	Stocking size	08	20	02	05	07	20
9.	Stocking time	30	-	-	16	03	11
10.	Correct method of stocking	20	10	-	04	06	20
11.	Estimation of pH	06	06	18	-	-	30
12.	Use of time	23	04	03	06	18	06
13.	Manure application	16	12	02	10	18	02
14.	Fertilizer application	-	06	24	-	06	24
15.	Estimation of plankton	-	-	30	-	-	30
16.	Supplementary feeding	14	09	07	04	16	10
17.	Precaution against diseases	21	05	04	06	08	06
18.	Treatment of diseased pond	08	11	11	05	07	18
19.	Fortnightly netting and sampling	02	10	18	-	05	25
20.	Record keeping	04	07	19	-	08	22

FA : Fully adopted; PA : Partially adopted; NA : Not adopted; Mean adoption index = 42.6.

Table IV : Showing Distribution of respondents according to their adoption level.

S. No.	Category	Trained fish farmers		Untrained fish farmers		Total	
		Frequency	%	Frequency	%	Frequency	%
1.	Low (0-20)	2	6.67	14	46.67	16	26.67
2.	Medium (20-40)	16	53.33	15	50.00	31	51.67
3.	High (Above 40)	12	40.00	1	03.33	13	21.67

Table V : Showing Comparison between trained and untrained fish farmers with respect to level of adoption.

Variable	Mean Score		Standard Deviation		Z value
	Trained farmers	Untrained farmers	Trained farmers	Untrained farmers	
Level of adoption	21.9	12.17	6.24	4.61	4.89*8*

* Significant at 10% level of probability

by 46.67 per cent and 3.33 per cent low and high adoption categories, respectively. Thus, 51.67 per cent of total respondents were in medium category. Findings are in line with the findings of Balasubramaniam & Kaul (2002). They found the majority of respondents belonged to medium category in adoption of improved technologies. It is evident from Table V that there was significant differences between trained and untrained groups in respect of level of adoption of improved fish farming (Sharma *et al.*, 1988).

It is a good sign that majority of trained fish farmers had utilized training programmes to a considerable extent. However, as most of the fish farmers fall in medium adoption category, suggesting the needs of follow-up training guidance to motivate the farmers to adopt improved and scientific fish farming practices. There is a significant difference between adoption level.

Study reveals trained and untrained fish farmers with respect to level of adoption and thus subsequent implementation of training programmes will go a long way in increasing the level of adoption of improved fish farming practices. As the fish farmers belong to poor community most of them desire financial help to adopt or to continue scientific fish culture. For adoption of scientific fish culture along with training and demonstration, financial help is also essential as a tool for motivating the poor fish farmers.

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