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FARMERS' KNOWLEDGE ON POND FISH FARMING

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ABSTRACT

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The purpose of this research study was to determine farmers' knowledge on pond fish farming and also to explore the relationships between ten characteristics of the pond farmers and their knowledge on pond fish farming. Data were collected from 101 pond farmers from 4 villages of Kajuri Union under Faridpur Sadar Upazilla by using a pretested interview schedule during 20th March to 12th April 2013. Descriptive statistics such as mean, standard deviation, range and percentage were used to describe the variables under consideration. Pearson product moment correlation coefficient was chosen as data analysis method. The study revealed that majority (44.6 percent) of the pond farmers' possessed medium knowledge, 25.7 percent possessed high knowledge and only 16.8 percent had low knowledge and 12.9 percent possessed very high knowledge on pond fish farming. Age, pond size, commercialization and training exposure of the pond farmers had positive significant relationship and problem faced had negative relationship with their knowledge on pond fish farming.

Key words: pond farmer, knowledge, pond fish farming

INTRODUCTION

Fisheries are one of the major components of agricultural activities. It is playing a significant role in nutrition, employment, income generation, foreign exchange earnings and in the economy of Bangladesh as a whole. Fisheries sector contributed 4.43% to national GDP and 22.21% to the agricultural GDP and 2.73% to foreign exchange earnings by exporting fish and fish products in 2010-11. Fish provides 60% of national animal protein consumption. Fisheries sector also plays an important role in rural employment generation and poverty alleviation. In 2010-11 the total fish production was 3.062 million Metric Ton (MT). Average annual growth rate of fish production in last 3 years is 6.11%. The Production from closed water bodies is increasing very sharply due to dissemination of adaptive technologies and need-based extension services rendered by the Department of Fisheries. There are 260 freshwater and 475 marine fish species in the country. About 12 exotic species are being cultured in the country. Of which 82% was from inland fisheries and the rest 18% from marine fisheries. On the inland fisheries, 63 percent were from open water flood plains, river capture fisheries and the rest 27% were from closed water pond, tanks culture fisheries. There are three categories of major fisheries resources, these are- Inland Capture (34%), Inland Culture (48%) and Marine Capture (18%). Inland fisheries comprises of rivers, ponds, estuaries, beels, floodplains, haors, baors, brackish water etc. In early sixties inland fisheries contributed about 90% of total fish production of the country. Fish production from aquaculture has increased to a great extent but open water fish production is in slow progress. Now only about 34% of the total fish production comes from inland open water (DoF 2010).

In fact, in a country like Bangladesh where fish farming has a long tradition, pond fish culture can be expected to play an important role in supplying ever-increasing fish needs of the people. It is very important to increase the production in pond fisheries with controlled water bodies as ponds and tanks through the introduction of modern and intensive culture method. The total number of ponds in Bangladesh is estimated to be about 2 million (BBS 2009). Department of Fisheries (DoF) is trying to disseminate fisheries innovation to the pond farmers. But no previous researcher had tried to find out the knowledge of farmers regarding pond fish farming. On these considerations, the researcher was keenly interested to undertake the research entitled "Farmers' Knowledge on Pond fish Farming" with the following objectives: i) to determine the farmers' knowledge on pond fish farming; ii) to assess some selected characteristics of the pond fish farmers; iii) to explore the relationship of farmers' selected characteristics with their knowledge on pond fish farming.

METHODOLOGY

The study was conducted at Kajuri union under Sadar Upazilla of Faridpur district. Out of 15 villages of Kajuri union, four were randomly selected. The selected villages were Mongolcot, Vatpara, Chormongolcot and Loskarkandi. The pond owners of selected four villages under Sadar Upazilla of Faridpur district were considered as the population of the study. A list of pond owners who are currently growing fish and fish fry in their pond was prepared with the help of Upazilla Fisheries Officer and his field staffs. The number of pond owners was 253 which constituted the population of the study. About 40 percent of the population was selected proportionally from the selected villages as the sample by following random sampling method. Data were collected from the sample farmers with the help of a pretested interview schedule during the period from 20th March to 12th April 2013. Descriptive analysis such as range, number and percentage distribution, mean and standard deviation were used whenever necessary. Pearson product moment coefficient was used in order to explore the relationship between the concerned variables.

For measuring knowledge on pond fish farming, 23 question regarding pond fish farming were asked to the selected pond owners. Two (2) score was assigned for each correct answer and zero (0) for wrong or no answer. Score (1) was also assigned for partially correct answer. Thus the knowledge on pond fish farming score of the respondent could range from 0 to 46, where zero indicating very poor knowledge and 46 indicate the very high knowledge on pond fish farming.

Age of a pond owner was measured by counting the actual years from his/her birth to the time of interview. Education of a pond owner was measured by the number of years of schooling completed in an educational institution. A score of one (1) was given for each year of schooling completed. If a pond owner didn't know how to read and write, his education score was zero, while a score of 0.5 was given to a pond owner who could sign his name only. If a pond owner did not go to school but studied at home or adult learning center, his educational status was determined by equivalent formal schooling year. Land possession of a pond farmer referred to the total area of land in hectare on which his/her family carried out farming operations. Pond size was estimated on consideration of full benefit of the pond owners from pond fish farming in terms of hectare. Annual family income of a pond farmer was measured in thousand taka. Annual income from pond fish farming was measured in thousand taka. Commercialization of fish products score of a farmer was determined by the ratio of value of crops sold out of the total value of crops raised and it could range from 0 to 100, while 0 indicating no commercialization and 100 indicating very high commercialization (Karim and Mahboob, 1974; Ali 2008). Training exposure of a pond farmer was measured by the total number of days he/she participated in different training programs. Extension contact score of a respondent was determined by summing up his/her scores for contact with five selected media with four alternative responses as 'regularly', 'occasionally', 'rarely' and 'not at all' basis and weights were assigned as 3, 2, 1 and 0 respectively. Thus possible extension contact score could vary from zero (0) to 15, where zero indicated no extension contact and 15 indicated the highest level of extension contact. For measuring problem faced the respondents were asked to respond to four alternative responses as 'severe problem', 'moderate problem', 'low problem' and 'not at all' for each of six selected problems. Scores were assigned to those alternative responses as 3, 2, 1, and 0, respectively. Finally, the problem faced in pond fish farming could range from 0 to 18 where '0' indicated no problem and '18' indicated high problem.

RESULTS AND DISCUSSION

Knowledge of pond farmers on pond fish farming

Pond farmers' knowledge scores could range from 0 to 46. But their observed knowledge scores ranged from 21 to 45, the mean being 32.36 and standard deviation 6.41. Based on the observed knowledge scores, the pond farmers were classified into four categories are: 'low knowledge', 'medium knowledge', 'high knowledge' and 'very high knowledge'. The distribution of the pond farmers according to their knowledge level is shown in Table 1.

Table 1. Distribution of the pond farmers according to their knowledge on pond fish farming

Categories (scores)	Pond farmers (n=101)		Mean	SD
	Number	Percent		
Low knowledge (up to 25)	17	16.8		
Medium knowledge (26-34)	45	44.6		
High knowledge (35-40)	26	25.7	32.36	6.41
Very high knowledge (above 40)	13	12.9		
Total	101	100		

Source : Author's estimation

Data presented in the Table 1 reveals that more than three-fifths (61.4 percent) of the pond farmers possessed low to medium knowledge and 25.7 percent of the farmers had high knowledge and 12.9 percent had very high knowledge on pond fish farming. Knowledge is considered as vision of an explanation in any aspect of the situation regarding pond fish farming.

Selected characteristics of the pond farmers

Selected characteristics of the pond farmers have been presented in Table 2, which indicates that majority (64.4 percent) of them were middle aged farmers with 'primary level' and 'secondary level' of education (71.3 percent). Overwhelming majority of the farmers had small land possession (84.2 percent), medium pond size (54.5 percent), low to medium annual family income (92.08 percent) and low to medium annual income from pond fish farming (96.04 percent). Majority of the farmers had medium commercialization of fish (51.5 percent), no training (71.3 percent), very low extension contact (58.4 percent) and medium problem faced in pond fish farming (50.5 percent).

Table 2. Salient features of the pond farmers

Characteristics	Range		Categories	Farmers		Mean	SD
	Possible	Observed		No.	%		
Age (years)	-	18-65	Young (up to 30)	21	20.80	40.85	10.08
			Middle aged (31-50)	65	64.40		
			Old aged (>50)	15	14.90		
Education (schooling years)	-	0-18	Illiterate (0)	09	5.90	7.56	4.13
			Can sign only (0.5)	06	8.90		
			Primary (1-5)	12	11.90		
			Secondary (6-10)	60	59.40		
			Above secondary (>10)	14	13.90		
Land possession (hectare)	-	0.18-2.10	Marginal (up to 0.20)	1	1.0	0.58	0.33
			Small (0.20-1.00)	85	84.20		
			Medium (1.01-1.80)	14	13.90		
			Large (>1.80)	1	1.0		
Pond size (hectare)	-	0.07-0.76	Small pond (up to 0.10)	36	35.60	0.21	0.17
			Medium pond (0.11-0.50)	55	54.50		
			Large pond (>0.50)	10	9.90		
Annual family income ('000'Taka)	-	40-600	Low income (up to 50)	49	48.52	139.15	93.95
			Medium income (51-150)	44	43.56		
			High income (>150)	8	7.92		
Annual income from pond fish farming ('000'Taka)	-	10-250	Low income (up to 50)	54	53.47	60.37	44.86
			Medium income (51-150)	43	42.57		
			High income (>150)	4	3.96		
Commercialization (score)	0-100	52-95	Low (up to 60)	13	12.90	76.00	12.00
			Medium (60.1-80)	52	51.50		
			High (>80)	36	35.60		
Training exposure (number of days)	-	00-14	No training (0)	72	71.30	1.46	2.83
			Low training (1-3)	17	16.80		
			Medium training (>3)	12	11.90		
Extension contact (score)	0-15	1-9	Very low (up to 3)	59	58.40	3.80	2.23
			Low (4-6)	25	24.80		
			Medium (>6)	17	16.80		
Problem faced (score)	0-18	2-15	Low (up to 5)	41	40.60	6.47	3.11
			Medium (6-11)	51	50.50		
			High (>11)	9	8.90		

SD = Standard deviation

Source: Author's estimation

Relationship of theselected characteristics of pond farmers with their knowledge on pond fish farming

The summary result of correlation analysis has been presented in Table 3.

Table 3. Pearson product moment correlation coefficient analysis of ten independent variables with their knowledge on pond fish farming

Independent variables	Calculated value of "r"	Dependent variable
Age	0.244*	Knowledge on pond fish farming
Education	0.016	
Land possession	0.188	
Pond size	0.295**	
Annual family income	0.055	
Annual income from fish farming	0.091	
Commercialization	0.285**	
Training exposure	0.206*	
Extension contact	0.0981	
Problem faced	-0.232*	

*Correlation is significant at the 0.05 level of probability

**Correlation is significant at the 0.01 level of probability

Source : Author's estimation

Table 3 reveals that age, pond size, commercialization and training exposure had significant positive relationship with their knowledge on pond fish farming. Possible reason might be age, large pond size, high commercialization and higher training received facilitates individuals to receive more information related to pond fish farming which ultimately increase the understanding and knowledge level of the pond farmers. On the other hand problem faced had significant negative relationship with their knowledge on pond fish farming.

Problem is something that is difficult to deal with or difficulty in understanding something. Problem creates negativity in farming. A farmer faced more problems he/she will be discouraged to go for more production. So, for smooth farming there should be as less problem as possible. Education, land possession, annual family income, annual income from fish farming and extension contact had no significant relationship with their knowledge on pond fish farming.

CONCLUSION

On the basis of findings it was found that majority of the pond farmers had medium to high knowledge on various aspects of pond fish farming. Their knowledge was particularly lower in such aspect of pond culture as fish disease management, fish harvesting and marketing and release of fish fry in ponds. These facts lead to the conclusion that the production of pond fisheries will not be possible to improve to a significant extent unless the concerned authorities take proper steps to improve their knowledge in overall management of pond and in particular the aspects in which their knowledge is poor. They should provide proper training on fish farming, marketing opportunity and available credit facility to increase their total production which will ultimately uplift their socio-economic condition.

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