

Factors associated with the knowledge level of BFDA farmers about improved brackish water farming practices

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Received: 23-06-2016; Revised: 15-09-2016; Accepted: 30-09-2016

ABSTRACT

Brackish Water Fish Farmers Development Agency (BFDA), as a nodal agency at district level was set up in the year 1983-84 with a view of popularization of modern brackish water farming technique to the poor rural farmers in the light of their socio-economic conditions. Knowledge is considered as a critical input for improving the brackish water farming. Keeping these facts in mind, the present study was formulated in the district of PurboMedinipur, West Bengal, India, with a sample of 120 respondents from 6 blocks namely- Nandakumar, Chandipur, Contai-I, Contai-3, Nandigram-1 and Nandigram-2, selected through simple random sampling without replacement. Results revealed that family type, education, occupation, mass media participation, stocking density, farming responsibility, BFDA assistance, frequency of technical advice, perception about BFDA and usefulness of technical advice were significantly correlated with knowledge level. While observing regression values, extension agency contact, farming responsibility and frequency of technical advice were found to have positive association at 0.05 level of probability. Whereas family size, caste, landholding, annual income, mass media exposure and BFDA assistance were found to have positive association at 0.01 level of probability. Usefulness of technical advice and perception about BFDA were found to have negative association at 0.01 level of probability.

Keywords: BFDA farmers, communicational variables, knowledge, socio-economic, socio personal.

Indian coastal zone is endowed with natural resources in the forms of brackish water, mud flats, swamps, marshes, lagoons, mangroves, backwaters and estuaries. Shrimp aquaculture expanded significantly during the 1980s and now represents a multi-billion dollar industry and accounts for 15 per cent of the internationally traded seafood products (FAO, 2013b). The Government of India during the 7th five year plan period introduced establishment of Brackish water Fish Farmers Development Agencies (BFDA) for providing a package of technical, financial and extension support to the shrimp aqua-culturists; strengthening the technical wing in the State Fisheries Directorate; establishing demonstration-cum- training centre and establishment of brackish water shrimp farms and hatcheries in the Government sector under the centrally sponsored scheme. Brackish Water Fish Farmers Development Agency (BFDA), as a nodal agency at district level was set up in the year 1983-84 with a view of popularization of modern brackish water farming technique to the poor rural farmers in the light of their socio-economic. In all coastal states 39 BFDA has been established and in West Bengal 3 BFDA has been established. Although the farmers have adopted few brackish water practices but they did not have requisite knowledge to adopt scientific culture practices. Different studies indicated that knowledge played a significant role in adoption of improved farming practices. Keeping these facts in the mind the present investigation was conducted to study

the factors associated with the knowledge level of BFDA farmers about improved brackish water farming practices

MATERIALS AND METHODS

The study was conducted in Purbo Medinipur district of West Bengal which comprises of 25 blocks. Out of these 25 blocks, 16 blocks are brackish water blocks. Now from 16 blocks, 6 blocks were selected by simple random sampling without replacement technique. The selected blocks were Nandakumar, Chandipur, Contai-I, Contai-III, Nandigram-I and Nandigram-II. From each block 2 gram panchayats were selected by simple random sampling without replacement technique. Thus total 12 gram panchayats were selected for the study. From each gram panchayat, 10 farmers were selected by simple random sampling without replacement techniques. Thus total 120 farmers constituted the sample of the study. So multistage random sampling was used for selection of sample. Ex-post-facto research design was utilized for conducting the study systematically.

Knowledge level was taken as dependent variables. Knowledge was measured with the help of test developed by Mahesh Babu (2015) with necessary modification. Socio-personal: age, family size, family type, caste, religion, education, land holding; socio-economic: annual expenditure, marketing behavior, annual income, farming experience, occupation, selling price; communicational: mass media participation,

extension agency contact; situational: water source, average water depth of pond, farming responsibility, stocking density, culture period, production; about BFDA:BFDA assistance, frequency of technical advice, perception about BFDA and usefulness of technical advice were taken as independent variables. Data were collected with the help of structured interview schedule and were analyzed with the help of correlation and regression analysis.

RESULTS AND DISCUSSION

The result of the present study showed that majority (75 percent) of the respondents had medium level of knowledge, 15 per cent had low level of knowledge and only 10 per cent had high level of knowledge.

Table 1: Correlation between the independent variables and knowledge level of farmers. (N=120)

Name of the variable	Person coefficient correlation (r)
Age	0.0589 NS
Family size	0.0575 NS
Family type	0.1756*
Caste	0.1118 NS
Religion	0.0564 NS
Education	0.2651**
Farming experience	0.0486 NS
Occupation	0.1553*
Land holding	0.0307 NS
Annual expenditure	0.0667 NS
Annual income	0.0352 NS
Marketing behavior	0.1152 NS
Selling price	0.0715 NS
Mass media participation	0.1644*
Extension agency contact	0.0839 NS
Water source	0.0952 NS
Average water depth of pond	0.0185 NS
Stocking density	0.1565*
Farming responsibility	0.3109**
Culture period	0.0715 NS
Production	0.0544 NS
BFDA assistance	0.1586*
Frequency of technical advice (N=102)	0.2594**
Perception about BFDA	0.2002**
Usefulness of technical advice (N=102)	0.1981*

Note : NS = Non significant, *, ** = significant at 5 per cent and 1 per cent level of probability, respectively.

To measure the relationship between independent variables and Knowledge level of farmers, the correlation was carried out and was presented in the table 1. Out of 25 variables studied, family type, education, occupation, mass media participation, stocking density, farming responsibility, BFDA assistance, frequency of technical

advice, perception about BFDA and usefulness of technical advice were found to have significant correlation with knowledge level of the farmers and remaining variables like age, family size, caste, religion, farming experience, land holding, annual expenditure, annual income, marketing behavior, selling price, extension agency contact, water source, average water depth of pond, culture period and production were not significantly correlated. It is also clear from the table that among the socio-personal variables, education was significantly correlated with the knowledge level of respondents at 1 per cent level of probability, whereas family type was correlated at 5 per cent level of probability. With regard to socio-economic variables, only occupation was significantly correlated at 5 per cent level of probability. Regarding communicational variables, it is a striking feature that, only mass media participation was significantly correlated with the knowledge level of the farmers at 5 per cent level of probability, whereas extension agency contact was not significantly correlated with the knowledge level of the farmers. It is also observed that among the situational variables, stocking density and farming responsibility were significantly correlated with the knowledge level of the farmers at 5 per cent level of probability and 1 per cent level of the probability respectively whereas others variables like water source, average water depth of the pond, culture period and production per hector had not significant correlation with the knowledge level of the respondents. With regards to variables about BFDA, it showed that all the variables had significant relation with the knowledge level of the respondents. BFDA assistance and usefulness of technical advice had significant correlation with the knowledge level at 5 per cent level of the probability whereas frequency of technical advice and perception about BFDA had significant correlation at 1 per cent level of the probability. In the study it is observed that age has a non-significant relationship with the knowledge level of the farmers. A similar finding was reported by Mahesh Babu (2015). It indicates that the age is not a factor for knowledge, irrespective of age, all had knowledge about BFDA farming practices. It is also observed that family size and adoption level of farmers exhibit a non-significant relationship. The results imply that the number of members in a family does not influence the knowledge level. A significant relationship exists between education and knowledge level of farmers. The finding is in line with the findings reported by Mahesh Babu (2015). The results imply that education helps to acquire knowledge about improved practices. A significant relation exists between mass media participation and adoption behavior of the farmers. Farmers gain more knowledge related to farming practices when exposed to different mass media

sources. As it can help them to broaden their knowledge base. It also gives them a chance to learn about the useful role of the various associated benefits like training, credit and subsidy, etc.

Multiple regressions analysis is undertaken to determine the extent of contribution of independent variables to the knowledge of farmers in table 2. It can be concluded that in the study area, variables like family size, caste, land holdings, annual income, extension agency contact, mass media exposure, farming responsibility, average water depth of pond, BFDA assistance, frequency of technical advice, perception about BFDA and usefulness of technical advice are significant in multiple regression analysis in explaining the variation of knowledge of the farmers and these twelve variables influence the knowledge of the farmers can be termed as good predictors of knowledge of farmers. Further it may be observed from the table that 56 per cent of the variations in the knowledge of farmers are due to the combined influence of the selected

variables included in the analysis. R² value of 0.56 reveals the significant regression at 5 per cent or 1 per cent level. The independent variables are ranked on the basis of standard Beta values to find out their relative importance in predicting the dependent variables. So it can be concluded that significant changes in knowledge of fish farmers can be effected through manipulating, and bringing positive change in these variables, thereby improving their production levels with increased adoption.

It can be concluded for the above study, knowledge is considered as a critical input for adoption of improved brackish water farming practices. family size, caste, land holdings, annual income, extension agency contact, mass media exposure, farming responsibility, average water depth of pond, BFDA assistance, frequency of technical advice, perception about BFDA and usefulness of technical advice are influencing the knowledge level of farmer, so concerted educational effects are needed to educate the farmers about improved brackish water farming practices.

Table 2: Distribution of independent variables based on extent of contribution to knowledge level (N=120).

Independent variables	Unstandardized		Standardize	t	Rank
	coefficient	SE	coefficient		
	B	SE	Beta		
Family size	2.050	0.738	0.179	2.776**	V
Caste	-1.932	0.609	-0.213	3.173**	IV
Land holdings	0.254	0.053	0.394	4.764**	I
Annual income	2.255	0.626	0.275	3.601**	III
Extension agency contact	0.653	0.286	0.195	2.282*	VIII
Mass media exposure	0.264	0.063	0.385	4.664**	II
Farming responsibility	0.249	0.067	0.205	2.490*	VII
Average water depth in pond	-1.817	0.540	-0.248	-3.362	XII
BFDA assistance	2.055	0.729	0.159	2.672**	VII
Frequency of technical advice	0.438	0.181	0.132	2.231*	IX
Usefulness of technical advice	-0.284	0.087	0.228	-3.239**	XI
Perception about BFDA	-1.789	0.523	0.199	-3.051**	X]

Note : R² = 0.56, SE(est)=3.94, *, ** = significant at 5% and 1% level of probability respectively.

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