Indian Journal of Extension Education
Vol. 54, No. 3, 2018 (26-30)

Factors Influencing the Knowledge Level of Beneficiaries of Fish Farmers Development Agency (FFDA) on Scientific Fish Culture Practices in West Bengal, India

S. Das[1], S. S. Dana[2] and B. Saha[3]

ABSTRACT

The present study was conducted to determine the relationship between socio-personal, socio-economic, psychological and communication variables of Fresh Water Fish Farmers Development Agency's (FFDA) beneficiaries and their knowledge level about scientific fish culture practices. The data were collected from randomly selected 60 FFDA's beneficiaries cum fish farmers of 4 blocks of North-24 Parganas district of West Bengal with the help of structured interview schedule. Results revealed that variables like age, farming experience, occupation, land holding, ownership of pond, fish production, annual income from fish farming, risk orientation, economic motivation and extension agency contact were significantly correlated with the knowledge level of beneficiaries. Further, to predict the extent of relationship among independent variable and knowledge level of respondents step-wise multiple regression analysis was done. From regression analysis it was found that risk orientation and occupation were found to have positive association with knowledge level at 0.05 level of probability whereas, age was found to have positive association with knowledge level of beneficiaries at 0.01 level of probability. It was also revealed that 32.3 per cent of the variations of knowledge level were due to the combined influence of these three variables.

Key words : Adoption, FFDA, fish culture, knowledge test

INTRODUCTION

In India, West Bengal has been playing a significant role in regard to fish culture since time immemorial due to its vast inland water resources and large number of fishermen population. The present annual fish production in West Bengal is about 16.71 lakh tons (Hand Book of Fisheries Statistics, 2016). Still there is an immense scope to increase the fish production level. One of the known factors responsible for increasing fish production is knowledge level of farmers on scientific fish culture practices. Knowledge about scientific fish culture practices also plays an important role in improving adoption behavior of farmers towards scientific technologies. Therefore, it is very necessary to increase the access of information down to the block level for improvement of adoption behavior of farmers under village conditions.

Keeping these factors in view, FFDAs were established during 1973-74 at the district level with the main objective of serving as a nucleus centre to provide much needed mechanism for promoting scientific fish farming practices. It provides training in order to disseminate the information about scientific fish culture practices among the farmers so that they could increase their knowledge level.

In the present context, reviews on the topic of the present study showed that a very few indirect

Department of Fishery Extension, Faculty of Fishery Sciences, West Bengal University of Animal & Fishery Sciences, Kolkata-700 094, West Bengal, India

researches carried out to address the knowledge level of the beneficiaries towards scientific fish culture practices and it's correlation with different socio-personal and economic variables in the fishery potent state like West Bengal with special reference to Fresh Water Fish Farmers Development Agency. Thus, the present study was undertaken with the objective to measure the relationship between a set of independent variables and knowledge level of beneficiaries and their degree of correlations.

MATERIALS AND METHODS

The study was conducted in North 24-Parganas district of West Bengal, India in the year of 2017. There are 22 blocks in North 24-Parganas district. Out of these 22 blocks, 4 blocks were selected on the basis of higher concentration of beneficiaries by simple random sampling without replacement technique. The selected blocks were Bongaon, Gaighata, Barrackpore-I and Habra-I. From each block, 15 FFDA's beneficiaries were selected by simple random sampling without replacement technique as they were progressive in pursuing different fisheries activities. Thus, total 60 farmers constituted for the sample of the study. Ex-post-facto research design was used for conducting the study systematically. Knowledge level was taken as dependent variable. Age, family size, family type, caste, religion, educational qualification, farming experience, marital status, occupational status, land holding, ownership of pond, selling price, fish production, annual income from fishery, marketing of produce, marketing behavior, vehicle used for transportation, risk orientation, economic motivation, credit orientation, mass media exposure, extension agency contact variables were taken as independent variables. To measure the knowledge level of the farmers, a test was used with necessary modifications as developed by Ebel and Damrin (1960). The procedure of construction of knowledge test includes item collection which was composed of a set of objective type questions covering different aspect of composite fish culture practices which plays an important role to carry on fish farming in a scientific way. '1' score was given for 'yes' response and '0' score for 'no' response. Further, the raw knowledge score which was derived from qualitative data collected from personal interview of each individual respondent was converted into a 'Knowledge Index (KI)', by using the following formula (Goswami and Samajdar, 2016)-

$$KI = \frac{\text{Number of correct responses}}{\text{Total number of knowledge items}} \times 100$$

Data were analyzed with the help of correlation and regression analysis.

RESULT AND DISCUSSION

The result of the present study showed that majority (66.67 per cent) of the respondents had medium level of knowledge followed by 20 per cent had low knowledge level and rest of the respondents i.e. 13.33 per cent of the respondents had high level of knowledge about scientific fish culture practices. The similar type of findings was reported by Beerannavar (1995), Arivikkarasu (2005) and Kumar (2008).

Relationship between independent variables and knowledge level of beneficiaries about scientific fish culture practices:

To measure the relationship between independent variables and knowledge level of beneficiaries, correlation was carried out. The result from correlation was given in table 1.

The study revealed that age was positively and significantly correlated with knowledge level of beneficiaries at 5% level of probability. This inferred that farmers of higher age group had high knowledge level regarding recommended fish farming practices. But this was contradicted with the findings of Bhatkar *et al.* (1995) and Kanavi (2000). It was clear from table 1 that farming experience was positively and significantly correlated at 5% level of probability with the knowledge level of farmers. It indicated that with increasing the year spend by the farmers for fish farming the knowledge level of farmers also increases. The result was in agreement with the

Table 1: Correlation of different independent variables with the knowledge level of beneficiaries towards scientific fish culture as dependent variable (N=60)

Name of the variable	Pearson correlation coefficient (r)
Age	0.293*
Family size	-0.025 NS
Family type	-0.166 NS
Caste	-0.040 NS
Religion	0.153 NS
Educational qualification	-0.109 NS
Farming experience	0.262*
Marital status	-0.213 NS
Occupation	0.278*
Land holding	0.291*
Ownership	0.361**
Selling price	0.208 NS
Fish production	0.324**
Annual income from fishery	0.276*
Marketing of produce	-0.001 NS
Marketing behavior	0.038 NS
Vehicle used for transportation	0.060 NS
Risk orientation	0.287*
Credit orientation	-0.108 NS
Economic motivation	0.145*
Mass media exposure	0.153 NS
Extension agency contact	0.246*

NS=Non significant, * = Correlation is significant at the 0.05 level of probability (2-tailed), ** =Correlation is significant at the 0.01 level of probability (2-tailed).

findings of Mahesh Babu (2015). It was found that occupation had positively significant correlation with the knowledge level of farmers. It means farmers who took fish farming as main occupation had higher knowledge level. The result was in agreement with the findings of Maiti (2016). Table 1 also depicts that there was a positive and significant relationship between land holding and knowledge level of farmers. With increasing the area of land used for fish culture, the knowledge level of farmers also increases. The result was in consonance with the findings of Mahesh Babu (2015). The result of the study indicated a positive and significant relationship between ownership of land and knowledge level of farmers. The finding was in conformity with the findings reported by Mahesh Babu (2015). It is observed that the fish production had positive and significant correlation with the knowledge level of farmers at 1% level of probability. It implies that with increasing the knowledge level of farmers the fish production also increases. The result was in consonance with the findings of Mahesh Babu (2015). The result indicated that there was a positive and significant relationship between income and knowledge level at 5% level of probability. It implied that with increasing the knowledge level of farmers the income from fish farming also increases. The result was in line with the findings of Mahesh Babu (2015).

Risk orientation was positively and significantly correlated with knowledge level of farmers at 5% level of probability. The finding was in line with the findings of Naik *et al.* (2013). He found that risk orientation had positively significant correlation (at 1% level of probability) with the knowledge of scientific fish culture practices of fish farmers. Results of the study revealed that there was a positively significant correlation between the knowledge level of farmers and the extension agency contact at 5% level of probability. It indicated that frequently contact with extension agencies could increase the knowledge level of farmers. These findings were in line with the findings of Gangadharappa (1979), Somasundaram and Singh (1979) who indicated the presence of a positive and significant association between extension participation and gain in knowledge. The possible reason for this trend may be that, the farmers who had participated in training courses, attended meeting, field days, tours, farmer's fair might have come in closer contact with extension personnel and progressive farmers and thus leading to increased knowledge about cultivation practices which might have motivated them to adopt positive actions.

Extent of contribution of independent variables on the knowledge level of the beneficiaries towards scientific fish culture practices:

To predict the extent of relationship among the

Table 2: Stepwise multiple regression of knowledge level of beneficiaries with independent variables (N=60)

Independent variables	Unstandardized coefficient		Standardized coefficient	t	Rank
	B	SE	Beta		
Occupation	6.220	3.032	0.229	2.051*	III
Age	3.749	1.333	0.335	2.812**	I
Risk orientation	5.069	2.330	0.260	2.176*	II

N.B: R^2=0.323, SE (est.) = 8.84, * = Correlation is significant at the 0.05 level of probability, ** =Correlation is significant at the 0.01 level of probability

independent variable and the knowledge level of beneficiaries step-wise multiple regression analysis was done. It was observed that three variables *viz.*, occupation, age and risk orientation were significant in multiple regression analysis in explaining the variations in the knowledge level of the beneficiaries. Further, it may be observed from the table 02 that 32.3 per cent of the variations in the knowledge level of the beneficiaries towards scientific fish culture practices were due to the combined influence of the selected variables included in the analysis. The independent variables were ranked on the basis of standard beta values to find out their relative importance in predicting the dependent variable. Age, risk orientation and occupation occupied the first, second and third rank respectively and they have relative importance in predicting the beneficiaries' knowledge level. These variables could be termed as good predictors of the knowledge level of beneficiaries. A significant change in the beneficiaries' knowledge level can be effected through manipulating, and bringing positive changes in these variables thereby improving their production levels with increased adoption.

Development of Model

Finally the fitted equation stands as

$$\mathbf{Y=a+b_1X_1+b_2X_2+b_3X_3}$$

Where, Y=Knowledge level,

a=Constant,

b_1= 6.22, b_2= 3.749, b_3= 5.069

X_1= Occupation, X_2= Age, X_3= Risk orientation

Knowledge level= $42.984+6.22\ X_1+3.749X_2+5.069X_3$

CONCLUSION

It can be concluded from the above study that knowledge is considered as a critical input for adoption of scientific fish farming practices. Age, occupation, risk orientation were influencing the knowledge level of farmers. Knowledge about improved technologies is essential for adoption of technologies. The mean score of the knowledge of the beneficiaries was found to be 76.06, which is not a healthy sign as far as state department of fishery is concerned and suggests that there are a lot that need to be done in the extension system with regard to empowering the farmers educationally so that they can be able to increase the fish productivity in a sustainable way. Thus it was suggested that technology dissemination system must be focused on the need of the fish farmers by organizing awareness campaigns, field day, demonstration, exhibitions, krishan gosti, krishan mela etc. so that farmers may be able to acquire latest knowledge on scientific fish culture practices.

ACKNOWLEDGEMENTS

The authors would like to thank Vice Chancellor, West Bengal University of Animal & Fishery Sciences for his support and guidance. Acknowledgements are due to all the respondents and officials for their cooperation.

Paper received on : November 16, 2017
Accepted on : November 21, 2017

REFERENCES

Bhatkar, P.S., Sindhe, P.S. and Bhople, R.S. (1995). Influence of socio-economic and psychological factors gain in knowledge by sugarcane growers. *Maharashtra Journal of extension education*, **14:** 207-209.

Das, S. (2017). Impact assessment of the activity of Fish Farmers Development Agency (FFDA) in improving the socio-economic conditions of freshwater fish farmers of West Bengal. M.F.Sc. thesis, WBUAFS, Kolkata, West Bengal.

Directorate of Fisheries, Government of West Bengal. (2015-16). In: *Handbook of Fisheries Statistics, Annual Report of Department of Fisheries*. Government of West Bengal, Meen Bhawan, Salt Lake, Sector-V.

Ebel, R.L. and Damrin, D.E. (1960). Tests and Examinations Encyclopedia of Educational Reasearch Ed. Harris C.W., The MacMillan Company, New York.

Gangadharappa, N.R. (1979). A critical analysis of knowledge level and adoption behaviour of trained and untrained farmers in Malaprabha Command Area of Karnataka State. M.Sc. (Ag.) thesis (Unpub.), University of Agricultural Sciences, Bangalore.

Goswami, B., & Samajdar, T. (2016). Knowledge of Fish Growers about Fish Culture Practices. *Indian Research Journal of Extension Education*, *11*(2), 25-30.

Kanavi, V.P. (2000). Study on the knowledge and adoption behaviour of sugarcane growers in Belgaum district of Karnataka. M.sc. (Ag.) thesis, University of Agricultural Sciences, Dharwad.

Mahesh Babu, Y. (2015). Studies on adoption of better management practices (BMPs) of Newly entrant species, *Litopenaeus vannamei* in brackish water sector of Andhra Pradesh, India. M.F.Sc. thesis, WBUAFS, Kolkata, West Bengal.

Maiti, T., Dana, S. S., & Bandyapadhya, U. K. (2016). Factors associated with the knowledge level of BFDA farmers about improved brackish water farming practices. *Journal of Crop and Weed, 12*(2), 68-71.

Naik, A.S., Mahesh, V., Kumar, J., Benakappa, S., Anjanayappa, H.N. and Somashekara, S.R. (2013). A Study on the Knowledge Level on Scientific Fish Culture of Fish Growers' in Karnataka. *Trends in Biosciences*, **6(*4*):** pp. 431-434.

Somasundaram, D. and Singh, S.N. (1979). Differential characteristics of adopters and non-adopters small farmers growing paddy. *The madras agricultural journal*, **66:**250-254.

Beerannavar, B. (1995). A study on knowledge and adoption of improved dairy management practices by farmers trained by KVK, Hanumanamatti. M.F.Sc.(Ag.) thesis (Unpub.), U.A.S., Dharwad.

Arivukkarasu, K. (2005). Extension service requirements for the effective transfer of fisheries technologies. M. F. Sc. thesis (Unpub.), TANUVAS, Thoothukudi.

Kumar, S. K. (2008). *Adoption of composite fish culture technology among the fish farmer of Thanjavur district.* M.F.Sc thesis, TANUVAS, Chennai.