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Factors influencing knowledge level of shrimp farmers towards better management practices (BMPs) in Nellore district of Andhra Pradesh

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ABSTRACT

Aquaculture is recognized as the best alternative to meet the world's protein demand. Constant growth of aquaculture production in recent years would contribute to reducing the fishing pressure on natural fish stock. But, due to diseases and poor farm management by the farmers resulted low production at farmers' door. So, knowledge about Better Management Practices (BMPs) is a prerequisite for prevention of outbreak of diseases and to get better yield. Keeping these facts in mind this study was conducted to find out the factors influencing the knowledge level of shrimp farmers about Better Management Practices. This study was conducted in the predominant shrimp farming district i.e. Nellore district of Andhra Pradesh. A total of 150 shrimp farmers were selected from the district by using simple random sampling technique. The data were collected with the help of structured interview schedule. The study revealed that over half of the respondents had medium level of knowledge about BMPs in Vannamei culture followed by 24.67 per cent had medium level of knowledge and only 23.33 per cent had high level of knowledge. Correlation analysis revealed that, education, farming experience, annual income, annual expenditure, land holding, ownership, material possession, social participation, mass media participation, cosmo politeness, extension agency contact, innovative proneness, credit orientation, value orientation, risk orientation, economic motivation were significantly correlated with the knowledge level of respondents (P<0.01). Multiple regression analysis showed that four variables namely farming experience, mass media exposure, extension agency contact and land holding were significantly influenced variation in knowledge level of farmers and they contributed 82 per cent variation in explaining the variability in the knowledge level of the shrimp farmers towards the better management practices.

***Keywords*:** Better management practices, knowledge level, vannamei farming

Shrimp culture is playing a key role in exports and obtaining foreign currency, which is very important to the country to develop economically. Improved methodologies are supporting more production within the confined land. After massive attack of White Spot Syndrome Virus (WSSV), until 2009-10 half of the shrimp farms were abandoned in India and after promoting the *Litopenaeus vannamei* farming, those farms which were abandoned were being renovated. Development of shrimp farming in India grew at a phenomenal rate in the last decade, especially after introduction of *Litopenaeus vannamei* which favoured mushrooming growth of shrimp farms in the country. Because of its raising demand in the international market, all farmers are shifting the farming from *Penaeus monodon* to *Litopenaeus vannamei*. Because of its high stocking densities and less prone to crowding stress, farmers are stocking the PL (Post Larvae) at very high rate, which leads to stress followed by disease outbreak. Implementing the Better Management Practices (BMPs) can be the better way to get rid of the diseases from the aquaculture sites. These practices also helpful in restricting any pathogens enter into the natural water bodies from the infected aquaculture ponds and also from natural water bodies to aquaculture ponds. So, knowledge plays a preliminary role in the adoption of BMPs. Keeping these facts in view the study was conducted to know knowledge level of the farmers about BMPs and the factors influencing the knowledge level of shrimp farmers.

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MATERIALS AND METHODS

The present study was carried out in Nellore district of Andhra Pradesh state of India, purposively in view of availability of vast and potential area of brackish water resources ideally suited for taking up of the *L. vannamei* farming and it is predominant district in *L. vannamei* production in the country. The District has a coastal line of 169 km, covering 12 mandals (Sub-districts). Out of 12 mandals 5 mandals namely Vidavalur, Indukurpeta, Thotapalli Gudur, Kota and Vakadu were selected by simple random sampling without replacement technique.

The nature of the study demanded that the respondents should be the persons engaged in *L.*

vannamei farming and the priority given to those have at least one year of experience. From five mandals, 30 farmers were selected by using simple random sampling. So, 150 farmers were constituted the sample of the study.

Based on review of literature and discussion with scientists, age, family size, family type, education, farming experience, occupation, annual income, annual expenditure, land holding, ownership, material possession, social participation, mass media participation, cosmopoliteness, extension agency contact, innovative proneness, credit orientation, value orientation, risk orientation, economic motivation were taken into account as independent variables for the study. The scales developed and used by earlier researchers (Maheswari 2003; Ali Hassan, 2006; Sathishkumar, 2008 and Goswami, 2010) for measurement of variables were utilized with necessary modifications. The dependent variable of the study was knowledge level of farmers about better management practices which was developed by different institutes namely, Central Institute of Brackishwater Aquaculture (CIBA), Coastal Aquaculture Authority (CAA) and Network for Aquaculture Centers in Asia-Pacific (NACA).

Data were collected from the selected respondents during March-June 2014 with the help of pre-tested structured schedule through personal interview method. Every effort was made to elucidate the questions by using translated questionnaire in the local language (Telugu) to get accurate and authentic data from the selected respondents.

RESULTS AND DISCUSSION

The results of the study revealed that the majority of shrimp farmers belonged to the middle age group (52.67%), had small (68.00%) and nuclear type (62.00%) family. With regard to education, majority of the respondents were collegiate (39.33%) to secondary (19.33%) level, most of the respondents had high level of farming experience (61.34%) and they had vannamei farming as their primary occupation (93.33%). They had medium level of income (55.34%) and expenditure (54.67%), majority of them had large (78.67%) and leased farms (57.34%), majority (62.00%) of the shrimp farmers fall under medium level of material possession and had medium level (44.67%) of social participation.

With regard to communication and psychological variables, most of the respondents had medium level of mass media participation (50.00%), cosmopoliteness (54.00%) and extension agency contact (38.67%). They had medium (46.00%) to high (31.33%) level of innovative proneness, whereas credit orientation is high (39.33%). They had medium level of value (60.67%) and risk (47.34%) orientation and exhibited medium (44.67%) to low (34.00%) level of economic motivation.

The results of the study also showed that more than half (52.00%) of the respondents had medium level of knowledge about better management practices followed by one fourth (24.67%) had low level of knowledge and nearly same number of respondents (23.33%) had high level of knowledge (Table 1). The findings of the study were in agreement with the results obtained by Naik (2005), Thippeswamy (2007) and Kumar (2009).

Table 1: Distribution of respondents based on their knowledge level

Sl. No.	Category	Nellore			
		Frequency	Percentage	Mean	Standard deviation
1.	Low	37	24.67	73.87	2.92
2.	Medium	78	52		
3.	High	35	23.33		
	Total	**150**	**100.00**		

Correlation analysis revealed that education, farming experience, annual income, annual expenditure, land holding, ownership, material possession, social participation, mass media participation, cosmopoliteness, extension agency contact, innovative proneness, credit orientation, value orientation, risk orientation and economic motivation were positively and significantly ($P<0.01$) correlated with knowledge of the shrimp farmers towards the BMPs (Table 2).

The multiple regression analysis is undertaken to determine the extent of contribution of independent variables to the knowledge of shrimp farmers towards better management practices. Results in this study revealed that, farming experience, land holding, mass media exposure and extension agency contact had significantly influenced the knowledge of the shrimp farmers and can be termed as good predictors of the

knowledge of the shrimp farmers and the multiplication of these variables could help in further influencing the knowledge of the shrimp farmers towards better management practices (Table 3). Significant changes in the knowledge of shrimp farmers can be effected through manipulating and bringing positive changes in these variables, thereby improving their sustainable production with improved knowledge. Further it may be observed that 82 per cent of the variations in the knowledge level of the shrimp farmers towards the better management practices are due to the combined influence of the selected variables included in the analysis.

Mass media exposure showed the significant relation with the knowledge next to farming experience (Table 3). Bharathamma *et al.* (2006) also noticed significant relation between mass media and the knowledge level of farmers. Extension agency contact and land holding are third and fourth variables in terms of extent of influence they have on knowledge level of farmers.

Table 2: Correlation between the independent variables and their knowledge

Variable No.	Name of the variable	Correlation co-efficient (r)
		Pearson co-efficient
X1.	Age	- 0.153 NS
X2.	Family size	0.015 NS
X3.	Family type	- 0.018 NS
X4.	Education	0.391**
X5.	Farming experience	0.732**
X6.	Occupation	0.034 NS
X7.	Annual income	0.328**
X8.	Annual expenditure	0.331**
X9.	Land holding	0.243**
X10.	Ownership	0.390**
X11.	Material possession	0.369**
X12.	Social participation	0.337**
X13.	Mass media participation	0.485**
X14.	Cosmopoliteness	0.405**
X15.	Extension agency contact	0.549**
X16.	Innovative proneness	0.390**
X17.	Credit orientation	0.380**
X18.	Value orientation	0.377**
X19.	Risk orientation	0.436**
X20.	Economic motivation	0.312**

*Note: *, **Significant at 5% and 1%, level of probability, respectively*

Table 3: Distribution of independent variables based on extent of contribution to knowledge level

Independent variables	Unstandardized co-efficients		Standardize co-efficient	t	Rank
	B	SE	Beta		
Farming experience	2.515	0.172	0.759	14.584**	I
Land holding	0.618	0.291	0.107	2.119*	IV
Mass media exposure	0.379	0.117	0.285	3.240**	II
Extension agency contact	0.280	0.126	0.138	2.225*	III

Note: $R^2 = 0.82$, SE(est) = 1.340

So it may be concluded from the study that medium to high level of knowledge of farmers about Better Management Practices (BMPs) is a prerequisite for adoption of BMPs which will reduce the mortality rate of the shrimps at farm level. So, greater extension education efforts are needed to educate the farmers for adoption of BMPs. Though shrimp farmers had medium level of extension agency contact, they are mainly consulted the progressive shrimp farmers and technicians and very few of them had contacted with the scientists and negligible number of respondents had consulted Fishery Development Officers (FDOs) for adoption of BMPs. Therefore, opportunities must be provided

to the shrimp farmers to interact with the scientists and FDOs by conducting extension campaigns to get scientific and location specific information about BMPs.

REFERENCES

Ali Hassan. 2006. Identification of training needs of women self-help groups of southern coastal districts of Tamilnadu. *M.F.Sc. Thesis,* FC&RI, TANUVAS, Thoothukudi.

Bharathamma, G. V., Angadi, J. G., Hirevenkanagoudar, L. V., and Natikar, K. V. 2006. Empowerment of rural women through income generating activities. *Karnataka J. Agri. Sci.,* 1**9**: 600-602.

Goswami, B. 2010. Factors affecting attitude and adoption behaviour of fish farmers towards scientific fish culture in two districts of West Bengal, India.

Kumar, S. 2009. A study on technological gap in adoption of the improved cultivation practices by the soyabean growers. *MSc (Agri) Thesis*. University of Agricultural Sciences, Dharwad.

Maheswari, U. 2003. application of costing techniques to aquariculture. *M.F.Sc. Thesis,* FC&RI, TANUVAS, Thoothukudi.

Naik, R. D. 2005. A study on knowledge and adoption pattern of improved sugarcane practice in Bihar district. *M.Sc (Agri) Thesis.* University of Agricultural Sciences, Dharwad.

Sathishkumar, K. 2008. Adoption of ornamental fish culture technology among fish farmers. *M.F.Sc. Thesis,* FC&RI TANUVAS, Thoothukudi.

Thippeswamy, R. 2007. A study on knowledge and adoption of plant protection measures in coconut cultivation by farmers of chitraduga district. *M.Sc (Agri) Thesis,* University of Agricultural Sciences, Dharwad.