A study on the information sources and influence of socio-personal attributes on information seeking behavior of aqua farmers

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 Received: 09.04.2020/Accepted: 01.05.2020

ABSTRACT

The present paper makes an attempt to identify the information seeking behaviour of aqua farmers in Andhra Pradesh and Tamil Nadu. Efforts were made to study the socio-personal characters of aqua farmers, channels of information and their utilization pattern and influence of social-personal characters on information seeking behavior of the farmers. The data were collected by using structured questionnaire. The study revealed that the technicians of the feed and other input companies, aquaculture consultants and fellow farmers were the most important information sources. Among the socio-personal attributes, educational status and trainings undergone had a significant influence on the information seeking behavior of the aqua farmers.

Keywords: Aquaculture; aqua farmers; extension; information

INTRODUCTION

Aquaculture of shell fishes and fin fishes is an important farming component and recognized as an important means for livelihood, rural development and food and nutritional security (Ayyappan and Diwan 2007). Aquaculture continued to grow more rapidly than any other animal food-producing sector and it has the potential to meet the growing demand for aquatic food in the coming years (Anon 2018). Worldwide the aquaculture sector has grown at an average rate of 5.8 per cent during 2000-2016 aquaculture production reaching up to 80.0 million tons in 2016 from a production of less than 1.0 million ton in the early 1950s.

Aquaculture production technology is constantly improved to deal with the emerging scenarios and the aqua farmers need to be educated on the better management practices (BMPs) to adjust themselves to the changing environments. Accordingly the scientific research is also advancing fast and new techniques are being added continuously. It is essential that the technology developed at the research institutes is communicated to the end users ie aqua farmers helping them to increase the productivity and livelihood in the changing environment. It has been proved elsewhere that without the spread of these aquaculture innovations from research system to client system, the problems of aqua farmers remain unsolved (Maguswi et al 2004, Udo et al 2005, Omoyeni and Yisa 2005). Aquaculture can play a much larger role in economic development if user interests and knowledge are better incorporated into research and extension processes and the quality of the extension services be upgraded to ensure that good technology is made available to users (Anon 2004, Maguswi et al 2004). Efficient extension services are required to support the existing farmers and the new entrants for effectively promoting equitable and sustainable development of aquaculture that will contribute to overall rural socio-economic life (Kumar 1999).

In successful extension service, acquisition of information has always been regarded as a factor playing an important role in molding human behaviour leading to decision for adopting of innovation. Information commodity should be seen and recognized as one of the essential resources needed by shrimp

farmers to aid them in taking proper decisions and improve farming practices (Shibanda 1996). Thus identifying information source and utilization by the aqua farmers can become a solid basis for developing meaningful aquaculture information warehouse. Keeping in view the significance of the information source and utilization of the aqua farmers the present study was undertaken to ascertain the information seeking behavior and influence of socio-personal attributes of the aqua farmers on their information seeking behaviour.

METHODOLOGY

Research locale

The study was conducted in two southern coastal states of India viz Andhra Pradesh and Tamil Nadu. The two states were purposively selected as Andhra Pradesh is the leading state in coastal aquaculture development with a contribution of more than 50 per cent of the country's area and nearly half of the farmed shrimp production whereas Tamil Nadu ranks first in terms of productivity in shrimp production in the country. Three districts each from the identified states were selected viz Nellore, Prakasam and Guntur from Andhra Pradesh and Cuddalore, Nagapattinam and Thanjavur from Tamil Nadu.

Respondents' sample size and sampling procedure

The respondents (aqua farmers) for the present study were selected randomly from the list of registered farms obtained from coastal aquaculture authority (CAA). A total of 120 aqua farmers from each state were selected randomly at the rate of 40 farmers from each district to constitute the total sample size of 240 respondents. A structured and pre-tested interview schedule was used for data collection. Farmers' socio-personal attributes viz age, education, aquaculture experience, trainings undergone, occupational status, farm size, social participation and entrepreneurial behaviour were studied.

Information seeking behaviour

An ex post-facto research design was employed to study the information seeking behaviour of the aqua farmers. The information seeking behavior in the present study was operationalised as the extent to which an individual approached different kinds of sources, the frequency of seeking the information from the source and sharing and confirmation of the received information. This was measured on three groups of information sources viz institutional sources, mass media sources and private extension sources. A summated scoring procedure was developed to study the information seeking behavior of the respondents ie information source (1 score for each information source used), frequency of use (frequent- 2, occasional- 1 and never- 0) and level of satisfaction (satisfied- 1 and not satisfied- 0). The scores on the parameters were added to arrive the information seeking behaviour of the respondents. Data collected were analyzed using the statistical package for the social sciences (SPSS). Appropriate statistical procedures for description (frequencies, per cent, mean and standard deviation) were used.

RESULTS and DISCUSSION

Socio-personal attributes of aqua farmers

Table 1 presents the socio-personal characteristics of the aqua farmers.

Age is an important factor as it reveals the mental maturity of a farmer to take decisions regarding his farming activities. It was observed that majority of the respondents belonged to middle age group (47.92%) followed by old (40.83%) and young (11.25%) age groups. This may be because of the fact that the respondents were the early majority of the farmers who started shrimp farming in early 1990s when it was introduced in India as a commercial export-oriented farming activity. Similar findings were reported by Kumaran et al (2003).

Educational status of aqua farmers plays a vital role in enhancing their understanding and comprehension of the given technical information on shrimp farming. It facilitates in motivating them towards knowing new practices and helps in convincing the farmers to adopt recommended farming activities. Hence the literacy level of aqua farmers was investigated in the present study. Majority of the farmers were literate with nearly half of the respondents (46.25%) educated up to higher secondary level followed by graduation and above level of education (19.17%). About one-sixth of the farmers (16.25%) were educated up to middle school level and 12.50 per cent of the respondents were educated up to primary level. On a whole about 94 per cent farmers selected in the present study were educated. On adoption of shrimp culture techniques, Swathi Lekshmi et al (2005) and information utilization of shrimp

Table 1. Socio-personal attributes of aqua farmers (n= 240)

Component	Respondents	
	Frequency	Percentage
Age (years)		
Young (up to 34)	27	11.25
Middle (35 to 44)	115	47.92
Old (45 and above)	98	40.83
Educational status		
Illiterate	14	5.83
Primary education	30	12.50
Middle education	39	16.25
Higher secondary education	111	46.25
Collegiate and above	46	19.17
Occupational status		
Aquaculture as primary occupation	212	88.33
Aquaculture as secondary occupation	28	11.67
Farm size (ha)		
Marginal farmers (up to 2)	63	26.25
Small farmers (2-5)	128	53.33
Big farmers (>5)	49	20.42
Farming experience (years)		
Up to 5	76	31.67
5-10	111	46.25
>10	53	22.08
Number of trainings undergone		
No training	214	89.17
Up to 2	19	7.92
>2	7	2.92
Social participation		
No participation	84	35.00
As member	131	54.58
As office bearer	25	10.42
Entrepreneurial behaviour*		
Focusing on opportunities and not problems	230	95.83
Inclined to taking risks	230	95.83
Seeking constant improvements	240	100.00
Developing new idea that could lead to diversification in existing business	230	95.83
Encouraging flexibility	204	85.00
Finding viable options for optimum utilization of resources	230	95.83

*Multiple responses

farmers, Kumaran et al (2004) reported similar findings.

Occupational status indicates the extent of involvement of a farmer in shrimp farming operations. More than three-fourth (88.33%) of the farmers were engaged in aquaculture alone for their livelihood and rest (11.67%) had other occupations as well in addition to aquaculture. It is evident that shrimp aquaculture being a relatively risky farming activity requires the farmer's full time involvement and attention (Swathi Lekshmi et al 2005, Kumaran et al 2017).

The distribution of farmers according to farm size indicated that about 80 per cent of the respondents

belonged to the small (53.33%) and marginal (26.25%) categories of farmers. Big farmers holding more than 5 ha of shrimp farm were 20.42 per cent. The findings are in conformity with the reports of MPEDA that majority of the shrimp farmers in the country belonged to the category of small farmers (Yadava 2002, Anon 2006).

Farming experience acquired by a farmer may pave way for successful farming and it may have its own influence on his knowledge seeking and adoption behaviour including rejection of an innovation. Nearly half of the respondents (46.25%) had farming experience of 5-10 years and 31.67 per cent had experience of up to 5 years. Only 22.08 per cent respondent farmers had experience of more than 10 years. It could be observed that the farmers had considerable level of farming experience.

Training is a planned communication process which essentially aims at providing the skills, knowledge and attitude in accordance with the specified objectives related to the desired pattern of behaviour. In the present study majority of the farmers (89.17%) had not attended any formal training programme related to shrimp farming. However it was found that they had attended awareness meetings organized at their village level by the extension agencies.

Participation in any formal and informal institution enhances one's social mobility. It makes the individual to have a good relationship with other members of the society which in turn helps him to gather new ideas and information. It was observed that majority of the farmers had participated as members or office bearers in social institutions like shrimp farmers' association. Over one-third of the farmers (35.00%) did not have any social participation. This may be because of the fact that at some places farmers had organized themselves into farmers' groups to procure quality seed and protect themselves against local social problems. Further MPEDA also organized small scale farmers into groups to adopt better management practices collectively.

Entrepreneurial behavior of an individual is the degree to which he is relatively earlier in innovativeness and taking risk than other members of his social system. It shows the desire and interest of an individual to seek changes in farming. The results show that all the farmers were seeking regular improvement in the shrimp farming. Majority of the farmers (95.83%) reported that they focused on the opportunities and not problems, were inclined to take risks and had been finding viable options for optimum utilization of resources. More than one-third of the farmers (85%) agreed upon encouraging flexibility while the others didn't agree on to it. On a whole the aqua farmers were highly entrepreneurial.

Information seeking behaviour of aqua farmers

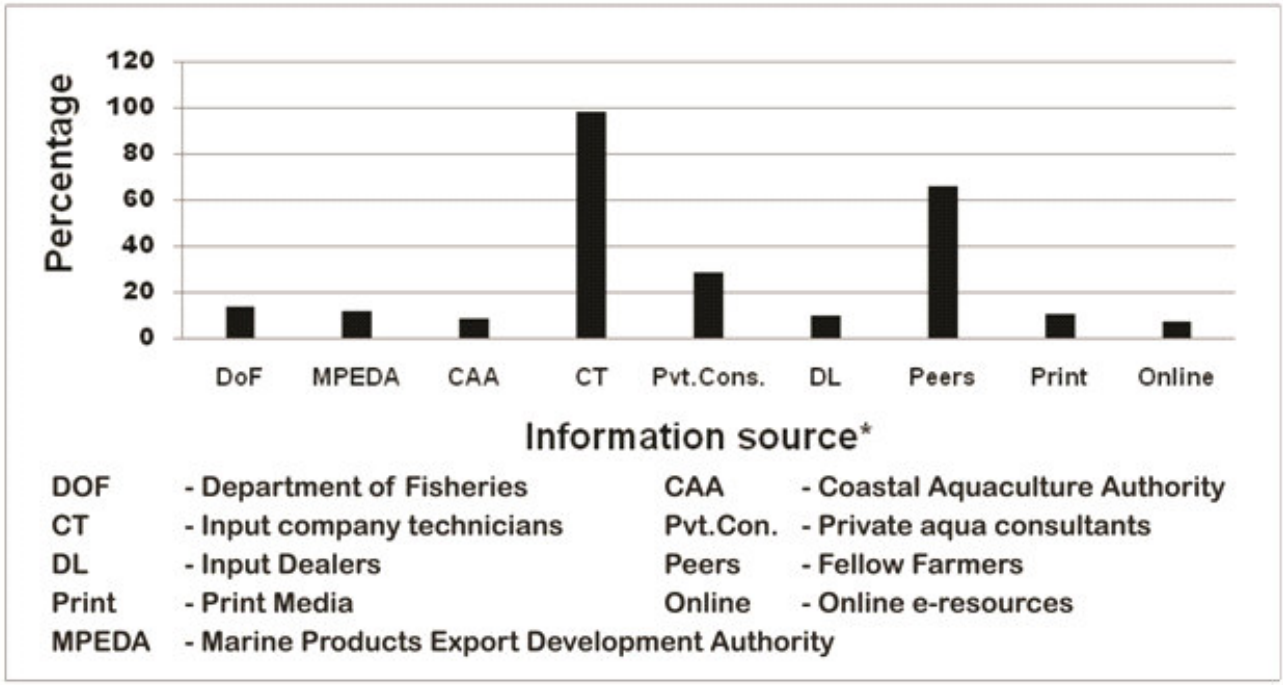
Adequate, appropriate and timely information is necessary for making intelligent decisions in shrimp farming. Knowledge on information sources of shrimp farmers and their extent of utilization is essential for formulating appropriate extension and communication strategies. Hence information seeking, checking and sharing behaviour of shrimp farmers was studied and the results are presented in Table 2 (Fig 1).

Among the various information sources consulted, technicians of the feed and other input companies were the primary information source on all aspects of farming as reported by 97.92 per cent farmers. These marketing personnel of the feed and input companies visited their client farmers once a week and provided technical counseling on the farming practices. Necessary information was written by them in the daily routine register kept at farm and the same was followed in total. Through mobile phones they could be easily accessed for any advice at any time. The input companies organised farmers meetings at shrimp farm clusters in the beginning of culture operations and educated the farmers on the management practices to be followed using appropriate audio-visuals and farm literature. This formed the basis for the farmers to begin with the culture operations. Further farmers were taken on field tours to various shrimp farming areas and provided an opportunity to interact with shrimp farmers of other places within and outside the country. Even successful farmers were given awards and they were used as a medium for convincing other farmers. Most of the farmers availed feed and other inputs on credit basis from local feed dealers which were repaid after the harvest. Instances of 'buyback' arrangements were also found among the farmers and input traders in both the states. Due to these reasons the private technicians were the 'apparent' source of information for the farmers. The findings of the present study are in line with the findings of earlier studies on information source utilization of shrimp farmers in Tamil Nadu (Kumaran et al 2004, Kumaran 2006), studies on mariculture practices and extension needs of shrimp farmers conducted in Kerala

Table 2. Information seeking, sharing and triangulation behavior of aqua farmers (n= 240)

Information source	Response (%)*	Information received	Extension approach	Frequency	Triangulation
Public funded extension sources					
Department of fisheries	14.17	Regulations and guidelines	Group/mass contact	Occasional	Fellow farmers, input company technicians/private consultants
MPEDA	12.08	Farming practices and schemes	Group/mass contact	Occasional	Fellow farmers, input company technicians/private consultants
Coastal aquaculture authority	9.25	Regulations and guidelines	Group/mass contact	Occasional	Fellow farmers, input company technicians/private consultants
Private extension sources					
Input company technicians	97.92	Day to day farming activity	Individual contact	Often	Fellow farmers
Private consultants	29.17	Day to day farming activity	Individual contact	Often	Fellow farmers
Input dealers	10.00	Day to day farming activity	Individual contact	Often	Fellow farmers, input company technicians/private consultants
Fellow farmers/peers	66.25	Day to day farming activity	Individual contact	Often	Fellow farmers, input company technicians/private consultants
Mass media					
Printed material	11.25	Farming practices and schemes	Mass contact	Often	Fellow farmers, input company technicians/private consultants
Online resources	8.75	Farming practices and schemes	Mass contact	Often	Fellow farmers, input company technicians/private consultants

*Multiple responses



***Multiple responses**

Fig 1. Information sources of aqua farmers

and Andhra Pradesh respectively (Anon 1998, Ponnusamy et al 1999) and studies on knowledge level of shrimp farmers in east and west coasts of India (Kumaran et al 2017).

About two-third of the respondents (66.25%) reported that peers (fellow farmers) were the important information source. Further the farmers cross-checked the information obtained from other sources with their fellow farmers. Homophilous nature, familiarity and credibility factors strongly facilitated the information exchange among themselves. Farmer to farmer communication was found to be effective in spread of information (Turongruang and Demaine 2002, Kumaran 2006).

Aquaculture consultants were the important source of information for over one-fourth of the respondents (29.17%). Shrimp farmers of Thanjavur district in TN and Prakasam and parts of Guntur districts in AP were totally dependent on aqua-consultants for their technical advice. These consultants visited their clients' farms on alternate days and provided technical advices. They were paid proportionately to the production. Farm publications and online resource were referred by 11.25 and 8.75 per cent of the respondents. Farm literature in the form of manuals, booklets, journals etc supplied by the public and private extension agencies was an important information source for the farmers. Similar observations were also reported by Kumaran et al (2004) and Kumaran (2006).

Among the public extension system, the marine products export development authority (MPEDA), department of fisheries (DoF) and coastal aquaculture authority (CAA) were the information sources for 12.08, 14.17 and 9.25 per cent farmers respectively. MPEDA with an aim of increasing fish production and exports, operated several subsidy-oriented programmes and organized awareness campaigns against the use of antibiotics and other chemicals in shrimp culture to ensure high quality standards of farmed shrimp. It also promoted collective farming at cluster level with proper farm practices to ensure disease free shrimp culture. To avail institutional credit from nationalized banks the aqua projects of farmers/entrepreneurs needed to be recommended by MPEDA and DoF. The DoF, the main extension service provider of the state played a major role in facilitating farmers to register their farms with CAA. Implementation of welfare measures consumed their maximum time leaving practically no time for extension work. Kumaran et al (2004) also reported similar kind of findings in information seeking behaviour among the shrimp farmers in Tamil Nadu. The shrimp farmers approached public extension services mainly for regulatory guidelines and obtaining registration which was mandatory. The public extension agencies conducted awareness meetings and distributed printed literature to disseminate the information. They followed mostly group and mass contact programmes to reach the farmers.

Influence of socio-personal attributes on information seeking behavior of aqua farmers

A multiple regression analysis was carried out to assess the degree of influence of socio-personal attributes of aqua farmers on their information seeking behavior (Table 3). The coefficient of determination (R^2) denotes the amount of variability explained by the variables included under the study. The analysis revealed that 44.70 per cent (R^2= 0.447) of variance in the information seeking behaviour of shrimp farmers was influenced by the socio-personal attributes. Among the attributes educational level and the trainings undergone had a significant influence at 1 and 5 per cent levels of significance respectively.

It is evident that higher educational level and more participation in training programmes would facilitate the respondents in accessing the key information sources and triangulate the information with other sources. The findings are supported by the results reported by Bhople et al (1995), Srinivasa Reddy (1995), Patil (2006), Kalita et al (2019) and Mahindarathne and Min (2019) that educational level and participation in trainings would enhance the information seeking and utilization behaviour of the farmers.

CONCLUSION

The present study revealed that shrimp farmers mostly consulted technicians of the feed and other inputs and aquaculture consultants for all the technical aspects of aquaculture. Peers (fellow farmers) were their important information source and also the source for triangulating the information obtained from others. Public funded extension agencies were the information sources for few farmers only. While private extension sources were consulted for technical aspects related to shrimp farming, the public extension service providers were consulted for regulatory guidelines and developmental schemes. A multiple regression analysis carried out to assess the influence of socio-personal

Table 3. Influence of socio-personal attributes of aqua farmers on information seeking behavior (n= 240)

Attribute	Regression coefficient (b)	SE
Age	-0.04444	0.036
Educational status	0.582**	0.205
Farming experience	0.117	0.103
Occupational status	1.117	0.974
Farm size	-0.04442	0.081
Social participation	0.542	0.526
Entrepreneurial behaviour	0.159	0.307
Trainings undergone	1.044*	0.541

*Significant at 5% level of significance, **Significant at 1% level of significance

attributes of aqua farmers on their information seeking behavior showed that educational status and trainings undergone had a significant influence. Hence it is suggested that extension personnel may organize training programmes for the farmers in their neighborhood during the farming season at suitable intervals. Such training programmes would provide opportunity for learning from more than one source ie from trainer and fellow farmers attending the trainings.

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