

Personality Factors Influencing the Adoption of Shrimp Culture Technologies

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ABSTRACT

Shrimp farming has emerged as sunrise sector in the aquaculture scenario of India. The present study revealed that personality characteristics such as social participation, information seeking behaviour, marketing behaviour, annual income, economic motivation and farm size together explained the largest per cent of the total variance on the overall extent of adoption of technologies by Shrimp farmers. The second level of influential variables on the extent of adoption were type of ownership and family size. The other factors on order of level of influence were socio-psychological, material and socio-personal factors.

Commercial shrimp farming has become a major money-spinner in the recent years. Cultured shrimps contribute about 50 per cent of the total Shrimp exports from India. Presently, an area of about 1,57,000ha is under farming with an average production of about 1,00,000 metric tones of Shrimp per year. Much of the credit for this, could be attributed to the Shrimp farmers who are the backbone of this industry. A number of technologies are being adopted by these farmers who are the backbone of this industry. A number of technologies are being adopted by these farmers to sustain increased production, in this sector. The personality traits of these Shrimp farmers have an important bearing on the extent of adoption of improved technologies in Shrimp culture.

The clear understanding of the multitude of components that results in adoption of

Shrimp culture technologies is of immense value. Hence the present study was undertaken with an objective of determining the personality factors which were responsible for the adoption of Shrimp culture technologies.

METHODOLOGY

A total of 60 Shrimp farmers were drawn, randomly from 6 villages belonging to 3 blocks of Nagapattinam district of Tamilnadu, using multi stage random sampling method. A total of 17 Socio - personal / Socio-psychological/ Socio-economic characteristics were selected for the study. Data was collected using structured interview schedules. The collected data was analysed by using factors analysis. In this study, factors analysis was used to group the variables into factors based on the communalities observed, and to find out the

relative importance of each factor in accounting for the particular set of variables being analysed. The method of factor analysis used for the study was principal component analysis and the rotation method was varimax rotation.

FINDINGS AND DISCUSSION

A close observation of Table 1 gives the factor loadings, communalities, eigen values and the percentage of variance explained by the factors. Out of the 15 profile

Table 1.
Factor Loadings of Profile Characteristics with Respect to
Extent of Adoption of Shrimp Culture Technologies

(n=60)

S.No.	Profile Characteristics	Factor I	Factor II	Factor III	Factor IV	Factor V	Communality
1.	Age	-0.0288	-0.344	0.275	-0.0035	0.778	0.801
2.	Education	0.446	0.358	0.146	-0.554	-0.0428	0.657
3.	Occupation	0.0265	-0.357	0.524	0.0641	0.345	0.526
4.	Farm size	0.631	0.101	0.386	-0.0794	-0.127	0.580
5.	Experience in Shrimp farming	0.401	-0.412	0.200	0.551	0.0075	0.674
6.	Annual income	0.706	0.0665	0.444	-0.0179	-0.168	0.728
7.	Family size	-0.0755	0.879	0.138	0.284	0.269	0.951
8.	Ownership of shrimp farm	-0.0347	0.890	0.173	0.291	0.232	0.962
9.	Marketing behaviour	0.707	0.156	0.299	0.101	-0.196	0.662
10.	Material possession	0.434	-0.129	-0.0405	0.659	-0.266	0.713
11.	Social participation	0.822	0.0505	-0.243	-0.164	0.118	0.797
12.	Information seeking behaviour	0.770	-0.0008	-0.253	-0.336	0.165	0.797
13.	Extension participation	0.538	0.0407	-0.556	0.123	0.293	0.701
14.	Economic motivation	0.674	-0.191	-0.269	0.127	0.188	0.615
15.	Risk orientation	0.0154	0.178	-0.561	0.247	0.0230	0.408
	Eigen values	3.986	2.238	1.751	1.464	1.169	7.047
	Percentage of variation explained	26.571	14.918	11.433	9.758	7.793	
	Cumulative % variation explained	26.571	41.489	52.922	62.680	70.473	

* Variables namely family type and credit orientation were excluded from factor analysis due to constant scoring.

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characteristics, five factors have been extracted and these five factors together explained total variance of these personality characteristics to the extent of 70.47 per cent.

In order to obtain a meaningful interpretation of the factors the factors were rotated through varimax rotation and the results are presented in Table 2.

Table 2.
Rotated Factor (Varimax) Matrix of Fifteen Profile Characteristics

S.No.	Profile Characteristics	Factors				
		1	2	3	4	5
1.	Age	-0.029	-0.344	0.275	-0.004	0.778
2.	Education	0.446	0.358	0.146	-0.554	-0.043
3.	Occupation	0.026	-0.357	0.524	0.064	0.345
4.	Farm size	0.631	0.101	0.386	-0.079	-0.127
5.	Farm Experience	0.401	-0.412	0.200	0.551	0.0071
6.	Annual income	0.706	0.066	0.444	-0.018	-0.168
7.	Family size	-0.075	0.879	0.138	0.284	0.269
8.	Type of ownership	-0.035	0.890	0.173	0.291	0.232
9.	Marketing behaviour	0.707	0.156	0.289	0.101	-0.196
10.	Material possession	0.434	-0.129	-0.041	0.659	-0.266
11.	Social participation	0.833	0.051	-0.243	-0.164	0.118
12.	Information seeking behaviour	0.770	-0.000	-0.253	-0.336	0.165
13.	Extension participation	0.538	0.041	0.555	0.123	0.293
14.	Economic motivation	0.674	-0.191	-0.268	0.127	0.188
15.	Risk orientation	0.015	0.178	-0.561	0.247	0.023
	Eigen values	2.789	2.626	2.007	1.676	1.472
	% of variation explained	18.594	17.509	13.383	11.171	9.815
	Cumulative % variation explained	18.594	36.103	49.487	60.658	70.473

A cursory look at Table 2 shows the interpretation of the rotated factors in the varimax matrix. A total of five factors have been identified as having maximum percentage variance. Each factor column was scanned for identifying a few profile characteristics with significantly high loadings. Thus from each factor column, the profile characteristics

having a factor loading of more than 0.5 were selected. Thus the selected factors loadings from each factor column was selected and presented in Table 3.

An analysis of Table 3 shows the grouping of the profile characteristics under each factor with respect to their factors loadings.

Table 3.
Profile Characteristics with Factor Loadings Under Different Factors with Respect to Extent of Adoption of Shrimp Culture Technologies

	Profile characteristics	Factor loadings
Factor I	Farm size	0.631
	Annual income	0.706
	Marketing behaviour	0.707
	Social participation	0.833
	Information seeking behaviour	0.770
Factor II	Economic motivation	0.674
	Family size	0.879
Factor III	Type of ownership	0.890
	Occupation	0.524
	Extension participation	0.555
Factor IV	Risk orientation	0.561
	Education	0.554
	Farm experience	0.551
Factor V	Material possession	0.659
	Age	0.778

Factors I

It consists of profile characteristics which explained 18.59 per cent of the total variance on the overall extent of adoption of technologies by Shrimp farmers. These include social participation (0.833), information seeking behaviour (0.770), marketing behaviour (0.707), annual income (0.706), economic motivation (0.674) and farm size (0.631).

It could be observed that social participation had the highest factor loading, followed by information seeking behaviour, followed by economic factors. Hence this factor was termed as "Socio-economic" factor.

Commercial shrimp farming in India was started in the 1990's and most of the improved technologies in disease, feed and water

management was introduced only after 1995. Hence the situation warrants a regular update of knowledge of improved technologies and their consequent adoption in the field level. Shrimp farmers in the study area were observed to have a well knit association i.e. the Shrimp farmers association of which all the farmers were invariably members. These associations promoted Joint/Collective decision making for adoption of important technologies such as disease and water management. Besides the farmers have to keep abreast of the latest information on the improved technologies to get a healthy crop and there by earn profitable returns. Hence the social and economic factors in their personality were bound to have a profound impact on their adoption behaviour. Similar results were reported by Nagabhushanam and Nanjayan (2002), who reported that the socio-economic status of

farmers had relatively higher factor loading, among different factors for sustainable agriculture.

Factor II

The second factor accounted for 17.51 per cent of the total variance. The two characteristics which had significant loadings on factor II were type of ownership (0.890) and family size (0.879) respectively. Since these two characteristics were of more personal importance they were demarcated as 'Personal' factor.

Factors III

The third factors accounted for 13.38 per cent of the total variance. Among the characteristics which had significant loading on Factor III were risk orientation (0.561), extension participation (0.555) and occupation (0.524). These three variables go hand in hand in explaining the extent of adoption of Shrimp culture technologies. It appears natural that as the risk orientation increases, his extension participation also increases and the farmers tendency to practice shrimp farming as a primary enterprise also increases. Since the characteristics with the highest factor loading in this group was risk orientation, this factors was termed as 'Socio-psychological' factor.

Factor IV

The characteristics which had significant loadings on factor IV were material possession (0.659), farm experience (0.551) and education (0.554). Since the characteristics material possession had the highest factor loading this

factor was termed as 'Material' factor. This factor accounted for 11.17 per cent of the total variance.

Factor V

This factor accounted for 9.8 per cent of the total variance. This factor had the characteristics age with a factor loading of 0.778, and was named as 'Socio-personal' factor.

CONCLUSION

It could be inferred from the foregoing study that the Socio-economic factor accounted for the maximum percentage of the total variables on the overall extent of adoption of technologies by shrimp farmers. The multitude variations in the characteristics which constitute the socio-economic factors were found to be have maximum influence on the adoption of the various agencies like MPEDA (Marine Products Export Development Authority) and Research Institutes should be focused on strengthening of farmers associations, formation of aqua clubs and use of modern communication media such as ICT Chaupals and village knowledge centers to provide timely and accurate information to farmers on improved Shrimp farming technologies.

REFERENCE

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