Profile and Information Source Utilization Behaviour of Shrimp Farmers in North Konkan Region, Maharashtra

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ABSTRACT

Shrimp farming is playing a pivotal role in the socio-economic development of our country. Shrimp aquaculture has developed very fast in Maharashtra since last decade. Shrimp farming activities have also generated employment along the coastline. As this sector is growing at a good pace and the state is earning valuable foreign exchange it is necessary to study the profile of shrimp farmers. The right information at the right time is crucial for being successful in any farming system. Sustainable shrimp aquaculture farming system is also dependent on correct information. In view of this, an investigation was undertaken to study the profile and information sources utilized by shrimp farmers in North Konkan region, Maharashtra. Information was collected randomly from 108 shrimp farmers, Maharashtra using an interview schedule. Descriptive statistics were used to determine the profile and information sources utilized by shrimp farmers. Results indicated that the majority of shrimp farmers in the North Konkan region were in the young age group (up to 35 years old), with 32.41% having secondary education. About 41.67% had experience up to 5 years. Majority of shrimp farmers had taken ponds on lease basis and were having farming areas up to 2 ha. Annual income of the majority of shrimp farmers (85.19%) is above 20 lakhs. Aqua company technicians/input dealers (100%) were the primary information source, followed by fisheries institutions (97.22%). Social media/internet was the third major source of information used by shrimp farmers (93.51%). The study suggested that it would be better if private and government sector extension mechanisms work together through convergence. It is also suggested that, internet/social media-based information exchange along with strengthening the digital extension system can be a viable strategy to provide right information and services to farmers.

Key Words: Profile, Source of information, Shrimp farmers, North Konkan, Maharashtra.

INTRODUCTION

Shrimp aquaculture has been practiced in India for centuries in a traditional manner in a certain coastal state, but made its presence felt by contributing to the socio-economic development of the country. Shrimp farming provides direct employment to about 0.3 million people and ancillary units provide employment for 0.6 to 0.7 million people in our country (Unnithan, 2006). Shrimps are called as the Pinkish Gold of the sea because of its universal appeal, unique taste, high unit value realisation and increasing demand in the world market (Gitte *et al*, 2021).

Information is a catalyst for solving any problem and a very important tool for country's economic development. The success of any farming system relies on having the right information at the right time. In the same way sustainable aquaculture farming system is also dependent on correct information. In the Indian context, it is known that India occupies the second position in the world with respect to cultured shrimp production. However, in the context of governance it has been reported by many studies that the role of Government has been regulatory and input companies have played an important role as information providers.

Study of shrimp farmers profile is important because, on one hand, it influences the farming practices adopted by the farmers, and on the other hand, it reflects the outcomes of farming practices and performance. Lack of authentic information on the socio-economic condition of target group is one of the serious obstructions in the successful implementation of developmental policies (Sheikh and Goswami, 2013). The success behind the increased cultured Shrimp production has been attributed to the production, dissemination and adoption of a number of

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improved technologies. The information sources utilized by shrimp farmers to build their knowledge base are crucial for the diffusion and adoption process, ultimately fostering the development of the shrimp industry.

Though shrimp industry is flourishing but it has several production risk factors starting from pond preparation to harvest and the farmers should have adequate knowledge and skill of shrimp farming technologies to prevent and manage risks. Therefore, information is a critical resource in operation and management of shrimp farming. The present study is an attempt to understand the profile and sources of information utilized by shrimp farmers in North Konkan region, Maharashtra.

MATERIALS AND METHODS

Maharashtra state has about 10,400 ha area which is reported to be suitable for brackishwater aquafarming. This suitable area is located in Konkan region, Maharashtra comprising South Konkan (Ratnagiri and Sindhudurg district) and North Konkan (Palghar-Thane and Raigad, district). Among these, North Konkan region (Palghar-Thane and Raigad, district) contribute significantly to the shrimp production. North Konkan region (Palghar and Raigad district) has 198 registered shrimp farms. Out of this, information was randomly collected from 108 shrimp farms comprising 58 shrimp farms from Palghar and 50 shrimp farms from Raigad district.

To achieve the objectives of the study, information regarding profile and information sources utilized by shrimp farmers was collected. Profile of shrimp farmers comprised personal information (age, religion, educational status, occupation status and years of experience in shrimp farming) and enterprise information (ownership of farm, water spread area of farm, financial assistance, Coastal Aquaculture Authority (CAA) registration status, number of crops per year, stocking density, types of harvesting, annual income). Information related to various source used by shrimp farmers was also collected. Descriptive statistics was used to interpret the findings appropriately.

RESULTS AND DISCUSSION
Profile of shrimp farmers

Information related to profile of shrimp farmers (personal profile and enterprise information) in North Konkan region, Maharashtra were collected and same is presented in Table 1.
The results revealed that, higher percentage of shrimp farmers were found dominant under, young age group (Up to 35 years). Majority of shrimp farmers (95.37%) belongs to Hindu religion and only few farmers along the North Konkan region were following Islam (4.63%). Similar type of result was reported by Naik (2020) in South Konkan region, Maharashtra and Sen and Roy (2015) in Tripura.

As far as educational level of shrimp farmers is concerned, higher percentages of shrimp farmers (32.41%) were educated up to secondary level, followed by higher secondary (25.93%). Similar results were reported by Salunkhe (2018) in his study in North Konkan region of Maharashtra. He recorded that higher percentage of shrimp farmers (41.51%) were educated up to secondary level.

Angela and Sharma (2023) in a study in Tamil Nadu reported that, all shrimp farmers had shrimp farming as their primary occupation, nearly half (48%) had agriculture as their secondary occupation and 30% had business as their secondary occupation. Result of the present study are in line with this study. Naik (2020), found that, majority of farmers (76.27%) in the North Konkan Region, Maharashtra were primarily engaged in aquaculture and other business activities.

The study revealed that, around 41.67% shrimp farmers had experience up to 5 years, followed by shrimp farmers (20.37%) with 6-10 years of experience in shrimp farming. Similar result reported by Patil and Sharma (2022), Kumaran *et al* (2003).

Majority of shrimp farmers (62.04%) in North Konkan region had taken pond on lease basis, while 37.96% shrimp farmers had their own ponds. Similar

Table 1 Profile of shrimp farmers in North Konkan region, Maharashtra

Sr. No.	Profile characteristic	Categorys	Number	Percentage
Personal information				
1	Age (Years)	Young Age (Up to 35)	48	44.44
		Middle Age (36-50)	37	34.26
		Old Age (Above 51)	23	21.30
2	Religion	Hindu	103	95.37
		Islam	5	4.63
3	Education status	Illiterate	0	0
		Primary	20	18.52
		Secondary	35	32.41
		Higher Secondary	28	25.93
		Graduate	9	8.33
		Fisheries Graduate	5	4.63
		Post Graduate	9	8.33
		Diploma in fisheries	2	1.85
4	Occupation status	Aquaculture	93	86.11
		Aquaculture and agriculture	15	13.89
5	Experience in shrimp farming (years)	0 to 5 yrs.	45	41.67
		6 to 10 yrs.	22	20.37
		11 to 15 yrs.	16	14.81
		16 to 20 yrs.	9	8.33
		21 to 25 yrs.	9	8.33
		26 to 30 yrs.	6	5.56
		31 to 35 yrs.	1	0.93
Enterprise information				
1	Ownership of farm	Own	41	37.96
		Leased	67	62.04
2	Waterspread area of farm (ha)	0 to 2	37	34.26
		2 to 4	32	29.63
		4 to 6	13	12.04
		6 and above	26	24.07
3	Financial assistance	Own	92	85.19
		Bank	16	14.81
4	CAA registration	Registered	71	65.74
		Not-registered	37	34.26
5	Number of crops per year	One	3	2.78
		Two	104	96.30
		Three	1	0.93
6	Stocking density (nos./m^2)	10-30	53	49.07
		31-50	45	41.67
		51-70	8	7.41
		71-90	1	0.93
		91-110	1	0.93
7	Types of harvesting	One time	8	7.41
		Multiple time	100	92.59
8	Annual Income	Up to 19 lakhs	16	14.81

type of observations was reported by Swathilekshmi *et al* (2005) in their study and recorded that 88.34% of shrimp farmers in Nellore district, Andhra Pradesh and 99.33% in Nagapattinam district, Tamil Nadu, operated their farms on lease basis. Naik (2020), in his study in South Konkan region, Maharashtra reported that, maximum number of the shrimp farmers (64.41%) operating their farm on lease basis whereas, 35.59 % shrimp farmers had own farms.

Majority of shrimp farmers (34.26%) in Palghar and Raigad district (North Konkan region) were having shrimp farming area up to 2 ha, 29.63% shrimp farmers were having shrimp farming area between 2-4 ha. The present study is in accordance with results reported by Salunkhe (2018), Srinivas and Vankatraylu (2016), Randive (2008) and Gawde (2006).

The study revealed that, maximum percentages of shrimp farmers (85.19%) use their own fund for establishing shrimp farming, while 14.81% shrimp farmers' dependent on bank for financial assistance. Similar type of observation was reported by Naik (2020) mentioned that, majority of shrimp farmers (76.27%) relied on their own funds for their farming operations.

Results revealed that, majority of shrimp farmers (65.74%) were registered with CAA whereas, 34.26% shrimp farms were not registered with CAA. Similar observations were reported by Naik (2020) in his study mentioned that, 52.54% shrimp farms in the South Konkan region were registered with the CAA, while the remaining 47.46% shrimp farms were not registered with CAA.

Higher percentages of shrimp farmers (96.30%) in North Konkan region were taking two crops per year and only 2.78% shrimp farmers taking only one crop per year. However, only one farmer was practicing three crops per year. Similar findings were reported by Patil *et al* (2019), indicating that 94.55% of shrimp farmers were taking two crops annually. In line with the present study, Naik (2020) in his study recorded that, around 91.53% of shrimp farmers in the South Konkan region of Maharashtra were taking two crops per year.

Maximum number of shrimp farmers (49.07%) of the present study area were maintaining stocking density between 10-30 nos./m^2, while 41.67% shrimp farmers were practicing stocking density of 31-50 nos./m^2 and 7.41% shrimp farmers adopted stocking density between 51-70 nos./m^2. Rest of the shrimp farmers were adventurous to adopt stocking density above 71 nos. per square meter. Similarly, Naik (2020) reported that maximum shrimp farmers (44.07%) were maintaining stocking density ranging from 31 to 40 nos./m^2. Kumaran *et. al.* (2008) observed that 84.73% shrimp farmers from east coast adhered to the maximum stocking density allowed by CAA for *L. vannamei* shrimp farming, compared to 29.36% in the west coast.

Results revealed that, majority of the shrimp farmers (92.59%) doing partial harvesting (multiple time) of shrimps, while only 7.41 % shrimp farmers doing one-time harvesting. Similar results were reported by Naik (2020) in his study along South Konkan region mentioned that, majority of the shrimp farmers (89.93 %) doing partial harvesting while, only 10.17 % shrimp farmers doing one-time harvesting. However, Pravin and Ravindran (2005), reported that harvesting can be done partially and totally depending on the demand of market and availability of material.

Annual income of majority of shrimp farmers (85.19%) in North Konkan region, Maharashtra is above 20 lakhs, while 14.81% of shrimp farmers

annual income is up to 19 lakhs. Similar type of results was reported by Naik (2020) mentioned that, annual income of 49.15 % shrimp farmers in the South Konkan region is above 20 lakh.

Source of information used by shrimp farmers

The information sources used by shrimp farmers of North Konkan region, Maharashtra is presented in Fig 1.
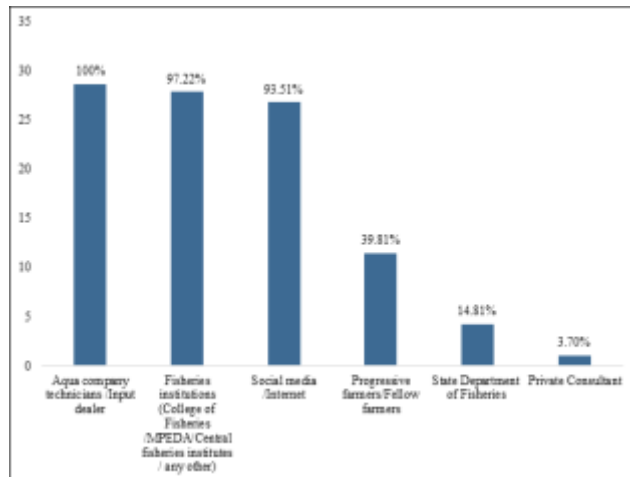

Fig. 1. Source of information used by shrimp farmers

In North Konkan region (Raigad and Palghar district), aqua company technicians/ input dealers (100%) were the main source of information for majority of shrimp farmers. Similar result reported by Patil and Sharma (2022) along the Maharashtra mentioned that, aqua company technicians/ input dealers were the main source of information for majority of shrimp farmers (78.15%). These findings were in conformity with the findings of Sathe (2008) who reported that feed technicians/Input dealers were most used source of information for shrimp farmers in Maharashtra.

Fisheries institutions (97.22%) was the second major source of information for majority of shrimp farmers. Patil and Sharma (2022) reported that, fisheries institutions/organizations like ICAR-CIFE, MPEDA and College of Fisheries was the third major source of information for 55.63% shrimp farmers. Kumaran *et al* (2012) have also reported that about 24% shrimp farmers of Tamil Nadu and Andhra Pradesh used public extension agencies such as DoF and MPEDA.

Social media/internet (93.51%) was ranked third major source of information for shrimp farmers. Patil and Sharma (2022) in his study in Maharashtra reported that, use of social media/internet was second major source of information for majority of shrimp farmers (70.19%). Similar results were reported by Okumu (2013) mentioned that, internet, mobile phones and computer ranked the highest in the most preferred ICT tools used in the promotion of aquaculture. Ijatuyi (2016) also reported that mobile phone was the most useful source of information. Patil and Sharma (2023) reported that internet/social media was the main source of information for majority of fisheries officials (74.25%).

CONCLUSION

Developing effective policies for the shrimp farming sector requires a comprehensive understanding of farmers' profiles. This insight is crucial for the targeted design of programs, prioritizing development efforts based on the factors that motivate farmers.

Aqua company technicians/input dealers were the first and foremost major source of information followed by fisheries institutions/organizations like college of fisheries, Ratnagiri, MPEDA, ICAR-Fisheries institutions were second major source of information. The use of internet/social media were the third major source of information used by shrimp farmers.

It would be better if private sector and government sector work together through convergence, considering the higher influence of the private sector compared to public sector extension services.

In times of uncertainty, access to reliable information on new technologies, government schemes, market prices, etc., will facilitate better decision-making. Maximum shrimp farmers are already using mobile phones, social media and internet therefore, internet/social media-based information exchange along with strengthening of digital extension system can be a viable strategy to provide right information at right time to farmers.

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