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Communication Behaviour of Fish Farmers of the FFPO on Scientific Fish Farming

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ABSTRACT

The study examined the communication behaviour of within Fish Farmers Producer Organizations (FFPO) in the Purba Medinipur District of West Bengal in 2023. Using a descriptive research design, data were collected from 120 fish farmers representing four FFPOs in the district. 62.5 per cent regularly contacted fellow farmers for information among (personal localite channels) and, 57.5 per cent reached out to private company consultants, extension workers, or input dealers (personal cosmopolite channels). In terms of impersonal cosmopolite channels, 95 per cent used mobile apps and the Internet as their primary sources of fish-farm-related information. Fish farmers predominantly used personal localite channels to purchase improved seed varieties (80.83%) and feeding practices (72.5%). Personal cosmopolite channels were mainly employed to avail financial benefits (79.16%) and disease diagnosis and management (76.66%). Impersonal cosmopolite channels were utilized less, with 24.16 per cent for marketing and branding. Regarding information-processing behaviour, most respondents evaluated information through discussions with fellow farmers (67.5%) and deliberation based on previous experiences (34.16%). Information storage was accomplished through memorization (75.83%). Most respondents transferred information by sharing with their fellow members for localized awareness (27.5%). Implementing strategies like regular training, promoting information exchange, and utilizing extension services can improve the communication behaviour of fish farmers within FFPO.

INTRODUCTION

Communication facilitates the dissemination of technical expertise to enhance understanding of various aspects of agribusiness and allied sectors, such as production, processing, management, and marketing (Okwu & Iorkaa, 2011). Communication in the context of fish farming refers to the exchange of information, knowledge, and ideas between fish farmers, researchers, extension agents, policymakers, and other stakeholders involved in this sector. In the realm of farming, information is deemed essential and serves as the foundation for the delivery of extension services (Mtega, 2012; Okwoche et al., 2012). A communication channel is traditionally described as the technical or formal aspect of the communication process, facilitating the exchange of information between a sender and a receiver in both directions (Reinsch & Lewis, 1984; Sanina et al., 2017). Various channels exist in contemporary communication, encompassing research institutions, government extension agencies, other governmental entities, input dealers, mass media, and more (Malik et al., 2006). Channels can be used separately or combined for farmers to embrace and utilize new technologies (Sanina et al., 2017). Innovative concepts must be effectively communicated to their farms and households through efficient extension communication methods (Abubakar et al., 2009). Effective

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communication plays a vital role in advancing scientific fish farming practices by facilitating knowledge exchange, problem-solving, market awareness, and collaboration among stakeholders. This includes sharing information about improved breeding techniques, disease management strategies, water quality management, feed formulation, and other aspects of sustainable fish farming. The essence of extension education lies in effective two-way communication (Vimala et al., 2006). Typically, addressing effectiveness involves optimizing or seeking the most optimal solution (March, 1997). Communication channels vary along two important dimensions: the degree to which they are personal or impersonal, and whether they are cosmopolitan or local (Dubey & Choldin, 1967). Moreover, communication facilitates the dissemination of research findings and best practices among fish farmers. The productivity of fish farming hinges on the effective use of communication tools to disseminate accurate information to the right target audiences (Opara, 2008; Musa et al., 2013), emphasizing the critical importance of access to information for enhancing productivity among fish farmers (Ogboma, 2010). So, it is important to study communication behaviour to understand the present scenario of the farming community, their innovativeness, and the potentiality for sustainable livelihood. Farmers perceive that producer organizations demonstrate impartial managerial and governance characteristics, fostering effective group communication (Amitha et al., 2021). Scholarly research suggests that FPOs enhance farmers' information assimilation capacities, leading to increased earnings through benefits such as access to credit, informed decision-making, improved input quality, operational efficiency, and better marketing opportunities (Sharma et al., 2019). Communication patterns within Fish Farmers Producer Organizations (FFPOs) can vary but generally involve both formal and informal channels among members, leaders, and external stakeholders (Kundu et al., 2023). There is a need to identify existing communication behaviours to enhance production through effective dissemination of scientific procedures to fish farmers. So, the study aimed to achieve two main objectives: i) to examine the communication channels utilized by fish farmers, and ii) to study the information processing behaviour exhibited by the fish farmers.

METHODOLOGY

The study was conducted in the Purba Medinipur District of West Bengal. A total of fourteen Fish Farmers Producer Organizations (FFPO) were operating in the district (District Controller, Food & Supply, Purba Medinipur, 2022), of which four FFPOs were selected for the study based on criteria such as having been in operation for more than 3 years successfully, having a sizeable membership (more than 400 members), having a turnover of more than Rs. 1 crore (FY 2021–2022), as indicated by their audit report. The selected FFPOs were Tamralipta Fish Producer Company Limited, Global Moyna Farmers Producer Company Limited, Divinius Farmers Producer Company Limited, and Patashpur-II Farmers Producer Company Limited. For the study, 30 respondents were selected from each FFPO, totalling 120 respondents, using a simple random sampling without replacement technique. A descriptive research design was employed, and primary data were gathered through a pre-tested structured interview schedule. The respondents' data were directly collected and analysed using frequency and percentage calculations.

A pilot survey and review of existing literature on fish farming practices identified multiple communication channels and approaches used by respondents. The extent of use of information sources was measured by considering the different sources listed in the schedule. Each respondent was asked how often he/she got needed information from each of the listed sources. The scoring procedure followed by Saha & Devi (2016) was used where the frequency of contact with different information sources was measured on a 3-point scale of 'regular', 'occasional' and 'never' with a scoring of 2,1 and 0 respectively. The information processing behaviour of the respondents was examined using the procedure followed by Vimala et al., (2006) with necessary modifications.

RESULTS

Different communication channels utilized by the fish farmers

The data presented in Figure 1, highlights the utilization of personal localite, personal cosmopolite and impersonal cosmopolite communication channels among the respondents. Regarding the utilization of personal localite channel, respondents were particularly focused on interactions with progressive farmers, family members, friends, relatives, neighbours, and fellow members of FFPO. It was found that respondents were regularly contacted with fellow members (62.5%), progressive farmers (31.66%), and friends, relatives, and neighbours (30.83%). 60 per cent and 58.33 per cent of respondents also reported occasional communication with friends, relatives, or neighbours and progressive farmers. About the utilization of personal cosmopolite communication channels among respondents, it was revealed that respondents were regularly contacted by private company consultants and input dealers (57.5%), followed by government officials, fishery extension officers (23.33%), and NGOs (15.83%). It also was seen that 76.66 per cent of the respondents were infrequently contacted by government officials followed by subject matter specialists (72.5%), NGOs (62.5%), and the Fisheries Institute (60.83%). In the realm of the utilization of impersonal cosmopolite communication channels among respondents, it was revealed that respondents were regularly used mobile apps and internet (95%), and television (85.83%) as the source of information. A very small percentage of respondents regularly used newspaper/magazines/ leaflet (11.67%). 32.5 per cent of respondents occasionally used radio as their medium of source of information.

Communication channels approach for fish farming practices

Table 1 provides an overview of communication channels utilized in fish farming practices, categorized into Personal localite, Personal cosmopolite, and Impersonal cosmopolite channels. The varied responses recorded for each approach indicate a need for tailored communication strategies within the diverse domains of fish farming. About the use of personal localite channels as an option for mitigating various issues concerning scientific fish farming practices and sources of information, respondents communicated that various approaches were: purchasing improved

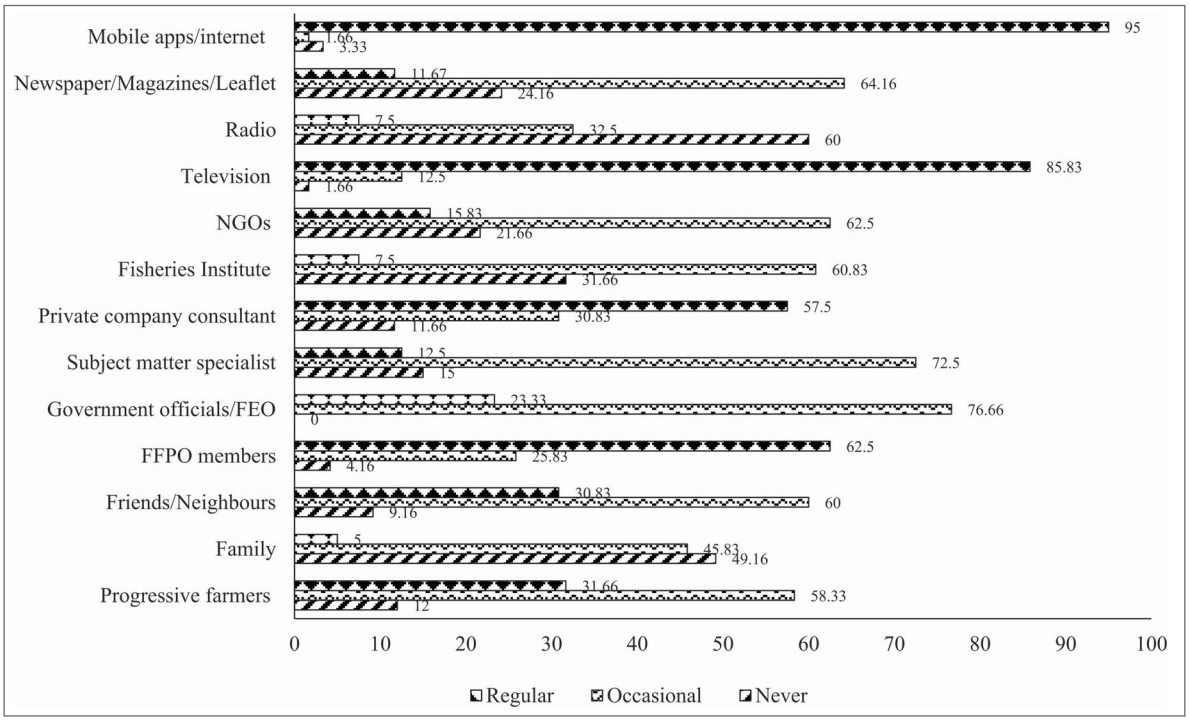

Figure 1. Information sources utilization by the fish farmers

Table 1. Approaches of communication channels for fish farming practices

Fish farming practices	Personal localite channels	Personal cosmopolite channels	Impersonal cosmopolite channels
Feeding practices	87 (72.5)	39 (32.5)	4 (3.33)
Water quality management practices	65 (54.16)	79 (65.83)	2 (1.66)
Fertilization practices	52 (43.33)	75 (62.5)	-
Soil management practices	58 (48.33)	68 (56.66)	-
Stocking density management	85 (70.73)	57 (47.5)	2 (1.66)
Disease diagnosis and management	71 (59.16)	92 (76.66)	-
Purchasing of improved seed variety	97 (80.83)	54 (45.00)	8 (6.6)
Availing custom hiring inputs	83 (69.16)	69 (57.5)	9 (7.5)
Availing financial benefits (subsidies, loans)	62 (51.66)	95 (79.16)	14 (11.66)
Make available services offering value-addition	43 (35.83)	84 (70.0)	-
Marketing, Branding and Facilitating market information	81 (67.5)	59 (49.16)	29 (24.16)
Practicing new farming techniques for better production and productivity	41 (34.16)	86 (71.6)	7 (5.83)

Multiple responses in numbers in parentheses indicate a percentage

seed varieties (80.83%), followed by feeding practices (72.5%), stocking density management (70.73%), availing custom hiring inputs (69.16%), marketing, branding, and facilitating market information (67.5%), disease diagnosis and management (59.16%), and water quality management practices (54.16%). In the realm of various approaches that were being communicated to various personal cosmopolite channels, it was evident that respondents mostly used these channels for approaches like availing financial benefits (subsidies, loans) (79.16%), disease diagnosis and management (76.66%). Other approaches like practising new farming techniques for better production and productivity (71.6%), making available services offering value addition (70%), water quality management practices (65.83%), fertilization practices (62.5%), and availing custom hiring inputs (57.5%) were also responded by the fish farmers in light of personal cosmopolite channels. In the case of impersonal cosmopolite channels, respondents mostly used this channel as a source of information for various approaches like marketing, branding, and facilitating market information (24.16%), obtaining financial benefits (subsidies, loans) (11.66%), and obtaining custom hiring inputs (7.5%).

Information processing behaviour of the respondents

Table 2 provides insights into the information processing behaviour of individuals engaged in fish farming practices, based on responses from the respondents. The methods are categorized into three main sections: Information Evaluation, Information Storage, and Information Transfer. Under the realm of Information Evaluation, 67.5 per cent of respondents were engaged in

Table 2. Information processing behaviour

Information processing methods	Responses (%)
Information Evaluation	
Consultation with officials at the departmental experts	21.66
Evaluating, considering the prevailing climatic conditions	2.50
Evaluating, considering the socio-economic circumstances	6.66
Engaging in discussions with fellow farmers for insights	67.50
Approval without any hesitations	-
Deliberation based on previous experiences	34.16
Information Storage	
Maintaining notebooks	19.16
Memorizing	75.83
Sharing information with family members and requesting that they retain it	-
Utilizing digital tools and applications for efficient storage and retrieval	39.16
Incorporating visual aids such as charts or diagrams to enhance memory retention	-
Information Transfer	
Delivering radio or TV presentations to share information with a broad audience	4.16
Addressing local gatherings to engage with the community on a personal level	7.50
Sharing information with fellow members at the farm or home for localized awareness	27.50
Demonstrating practices to provide practical learning and understanding	11.66
Loaning aquaculture magazines to others for knowledge dissemination	1.67

discussions with fellow farmers to gain insights. Deliberation based on previous experiences (34.16%) of the respondents, followed by consultation with officials and departmental experts (21.66%), evaluating and considering socio-economic circumstances (6.66%), and prevailing climatic conditions (2.5%), were the Information Evaluation points for the respondents, respectively. Participants used different methods to store valuable information. Memorization was the most common, with 75.83 per cent relying on it. Utilizing digital tools ranked second, with 39.16 per cent using technology for information management. Notebooks were used by 19.16 per cent of respondents. Regarding Information Transfer, it was found that, mostly, they shared information with fellow members at the farm or home (27.5%) followed by, demonstrating practices to provide practical learning and understanding (11.66%), addressing local gatherings, and delivering radio or TV presentations, which were less frequently employed, with 7.5 per cent and 4.16 per cent of respondents, respectively. Loaning aquaculture magazines to others for knowledge dissemination was utilized by 1.67 per cent of the respondents.

DISCUSSION

Regarding personal localite channels, the majority of respondents communicated with fellow farmers of FFPOs and progressive farmers, which is similar to the findings of Bhagat et al., (2004); Raina et al., (2011); Nain et al., (2015); Vimala et al., (2006); Haque (2014); Saha & Devi (2016); Miah et al., (2016); Superio et al., (2019). FFPO members and progressive farmers were likely viewed as experts or experienced individuals in the field of fish farming and accessible within the local community. Therefore, fish farmers regularly seek their advice and guidance for practical insights, problem-solving, and updates on best practices. Personal localite channels allow for the exchange of customized, context-specific information that may not be readily available through formal channels (Talja, 2002; Ijatuyi et al., 2016). Still, there is a need for such social and cultural intervention and education to fill out the existing gaps still there were, so that fish farmers become cooperative and self-reliant. Considering the personal cosmopolite source of information, private company consultants, extension workers, and input dealers were often physically closer to the farmers and had more direct access to the farming communities. Similar findings were also reported by Pandey et al., (2012) & Miah et al., (2016). Input suppliers must undergo training to develop their skills, ensuring accurate transmission of information to fish farmers. Extension agencies should consistently identify the preferred or most utilized sources of information by the fish farmers. Enhancing connections between farmers and extension agents could accelerate technology adoption and enhance farming community development (Singh & Singh, 2012; Acharya et al., 2023). This proximity makes it easier for them to establish regular communication and provide more immediately relevant and practical information for their day-to-day farming activities compared to government officials or the fisheries institute (Miah et al., 2016). Concerning the mass communication behaviour of respondents, major communicational sources utilized were mobile apps, the internet, and television. Cukur (2013); Ijatuyi et al., (2016); Omotesho et al., (2019); Maity et al., (2020); Mukherjee & Jha (2024) found the same result. Use of newspaper/magazines/ leaflet was very less, which is similar to the findings of Haque (2014); Ronald et al., (2015); Superio et al., (2019). Saha & Devi (2016) also revealed the same result of the use of radio, which is occasionally utilized by the respondents in the study area, as some FFPOs had their radio station for deliberation of information regarding scientific practices. The rise of digital technologies, such as smartphones and smart TVs, has shifted media consumption towards online platforms.

Personal local channels facilitate discussions on seed variety performance, enabling farmers to share experiences and recommendations. The results conform with the findings of Vimala

et al., (2006); Miah et al., (2016) & Niranjan et al., (2023). Farmers predominantly used personal cosmopolite channels for communication, focusing on financial benefits and disease management, aligning with the findings of Vimala et al., (2006). These channels offer direct access to information on subsidies, loans, and government schemes and facilitate the timely dissemination of disease-related information. Additionally, fish farmers also accessed custom hiring services, proper water and soil management, and value addition through the platform FFPO by utilizing this channel. The utilization of impersonal cosmopolite channels for marketing, branding, obtaining financial benefits, and accessing custom hiring inputs is driven by factors such as global reach, convenience, efficiency, and cost-effectiveness.

The majority of respondents evaluated information through discussions with fellow farmers, which is in conformity with the findings of Vimala et al., (2006); Saha & Devi (2016); Maity et al., (2020). These exchanges allow for the sharing of practical knowledge and experiences tailored to local contexts, enhancing credibility. Farmers also rely on past experiences for decision-making. Vimala et al., (2006) also reported the same findings. To improve information evaluation, strategies like peer-reviewed platforms, farmer-led experimentation, and participatory monitoring are recommended. In terms of information storage, most respondents relied on memorization, which facilitates quick access to information without external resources. The result is similar to the findings of Saha et al., (2011); Saha & Devi (2016); Maity et al., (2020), highlighting its importance for rapid decision-making in the field. Additionally, technological advancements have made digital tools and applications increasingly accessible, providing efficient information management solutions. Maintaining notebooks was the least preferred method, echoing findings from Vimala et al., (2006) & Maity et al., (2020). Training programs could enhance digital literacy among farmers and promote the use of digital tools for information storage. Respondents employed different strategies to disseminate knowledge and experiences within their communities. Sharing information with fellow members was the most prevalent method. The result is conformity with the findings of Vimala et al., (2006). This ensures that information is tailored to the specific needs, challenges, and opportunities of the local community, enhancing its relevance and applicability.

CONCLUSION

The study of communication behaviours of fish farmers in Purba Medinipur District, West Bengal, highlights their emphasizing diverse channels such as personal localites, personal cosmopolites, and impersonal cosmopolites to access farming information. Fish Farmers Producer Organizations (FFPOs) and government officials are crucial sources, indicating the effectiveness of collectivization, which also reveals that fish farmers rely on discussions with fellow farmers and past experiences for information evaluation and storage, thus encouraging training in digital tools and promoting peer learning. The findings also suggest that efficient use of communication media can play a crucial role in reducing the gap between farmers and technological information, that policymakers should prioritize fisheries programs on radio and television, and that collaboration with research institutes and extension personnel is advised for effective technique dissemination. Localized awareness of FFPOs can enhance collective learning. Efficient communication media usage can bridge this gap in technological information. Policymakers must prioritize extension channels and resource provision to enhance communication among fish farmers and ultimately improve productivity and sustainability in the fisheries sector.

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