Attitude of Young Pangas Growers toward Pangas Farming for Improving their Livelihood

S. Sheheli[1] and K. Fatima[2]

Abstract

The study was conducted to (i) determine young Pangas growers' attitude towards Pangas farming for improving their livelihood; (ii) explore the relationships between selected characteristics of the young Pangas growers and their attitude; and (iii) determine the problems faced by the young in Pangas farming. A total of 100 youth Pangas growers (35 percent of population) were interviewed by using a structured interview schedule from two villages (Luxmipur and Malotipur) of Muktagacha upazila of Mymensingh district during April to June 2013. Nine selected characteristics of youth *viz.*: age, level of education, year of Pangas farm establishment, area under Pangas farming, training experience, annual income, credit received, organizational participation and extension media contact were considered as the explanatory variables, while the attitude of the young Pangas growers towards Pangas farming was the focus variable of the study. It was measured with a 5 point likert scale such as "strongly agree", "agree", "undecided", "disagree" and "strongly disagree" in Pangas farming and the corresponding scores were 5,4,3,2, and 1, respectively. The findings indicated that the majority of the respondents (68%) had moderately favorable attitude towards Pangas farming. Most of the respondents (69%) had high problem followed by 15% had low problems. Thus, it can be concluded that the young Pangas growers confronted significant problems in Pangas farming. Institutional supports from Department of Fisheries (DoF), the sole government extension service provider and other non-government organizations may be helpful to minimize their problems. In addition, mass campaign, special training program on Pangas farming is needed to increase the income of Pangas growers as well as improving their livelihood. Among the nine selected characteristics of young Pangas growers five explanatory variables such as age, level of education, area under Pangas farming, annual income, credit received were positively correlated to attitude of the youth, while two other variables such as year of Pangas farm establishment and training experience were negatively correlated. The remaining two variables, namely organizational participation and extension media contact, had no correlation with attitude of the young Pangas growers.

Key words: Attitude, fish farmer, production constraints, livelihood, Bangladesh

Introduction

In Bangladesh, aquaculture especially fish farming is a sunrise sector. Its role in food supply, nutrition, employment generation, poverty reduction, providing animal protein and foreign exchange earning has been reported (Dey *et al.,* 2010; Jahan *et al,.* 2010). Actually, it is a quick-yielding sector which augments income and improving livelihood of rural people (Wiggins, *et al.*, 2010). The fisheries sector is considered to be a thrust sector for sustainable development and socio-economic

[1&2]Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh, Bangladesh.

advancement of rural fisherman (Monir, *et al.* 2011). About 11% of total population of Bangladesh is either directly or indirectly involved in the fisheries sector for their livelihood (DoF, 2012). It is estimated that aquaculture especially Pangas farming in Mymensingh has been expanding rapidly at a rate of 11% per annum. Increased production of Pangas and its year-round supply is contributing to the livelihood of low-income people. Local market demand of Pangas is very high because of low price and it appears as pro-poor fish. According to the Fish Culturists Association of Bangladesh, there are about 3,500 commercial farms exceeding 1.2 ha in Mymensingh. About 70% of the commercial farms are less than 5 ha in area, 20% cover 5 to 10 ha, and only 10% are large than 10 ha. Thus, the industry is dominated by relatively small-scale farms, but only about 30% of the total production is of sufficiently high quality for export. Most of the production is marked locally at a relatively low price. Total production of Pangas reached 3000,000 MT in 2010 (DoF 2012).

In Bangladesh, Pangas is being successfully cultured in ponds in many parts of the country. Over the few years viewable development in farming of this species in Muktagacha upazila under Mymensingh district. There are an increasing number of people coming to Pangas farming. Islam (2009) reported that Pangas is one of the most suitable fish for rearing in ponds and cages. Now-a-days beside their other work, Pangas farming becomes their main occupation. Pangas is particularly prefer for their fast growth, lucrative size, good taste, high market demand and can be stocked at a much higher density in ponds compared to other cultivable species. Akter, (2010) reported that Pangas farming is profitable but lack of sufficient fund, high price of input, lack of marketing facilities, water shortage in dry season, disease outbreak (Faruk *et al,.* 2004), shortage of land and socio-economic constraints are accountable to decrease the contribution of Pangas farming in national economy. Result from the study (Edward and Hossain, 2010) revealed that Pangas farming is being depleted partly due to increasing feed cost, lack of proper management, unavailability of low cost supplementary feeds. As a result, it was reported that pangasius farmers are gradually loosing their interest to invest in pangasius farming in Mymensingh region (Wahab *et al.,* 2008; and Ahmed *et al.,* 2010).

It is expected that technical and more involvement in Pangas farming can contribute to enabling households to cope with income shocks, to ensure food security, to avoid an increase in poverty. In addition, young are much effective, industrial, and interested to take challenge in their life as well as their working place. Solitarily, the income is important for achieving economic growth and sustainable development thus, their economic contributions should be given importance in policy design. Unfortunately, existing societal opportunities and structures have hindered young Pangas growers from fully participating in Pangas farming. To eliminate the distressed condition of young Pangas growers and bring them to the main stream of development for achieving a sustainable annual income, they need to be involved in Pangas farming much more actively. This requires massive awareness campaigns/training at different levels to attract and encourage young Pangas growers. Furthermore, young Pangas growers need to improve in all sorts of areas such as income, information, knowledge and skills, education, and access to capital through the services of the intervening

agencies like GOs and NGOs. So, in order to determine the attitude of young Pangas growers towards Pangas farming and find out constraints of young to continuing Pangas farming along with possible measures to revive the Pangas farming in the study area, the researcher carried out a study on "Attitude of young Pangas growers toward Pangas farming for improving their livelihood". Therefore, the study was conducted with the following specific objectives: (i) to determine the attitude of young Pangas growers towards Pangas farming for improving their livelihood; (ii) to explore the relationships between the selected characteristics of the young Pangas growers and their attitude; and (iii) to identify the problems which hindering Pangas farming of the young Pangas growers.

Methodology

The study was conducted at Rambhadrapur and Kumarghata unions under Muktagacha upazila of Mymensingh. Two villages namely, Luxmipur from Rambhadrapur union and Malotipur from Kumarghata union were selected as a study area. Muktagacha upazila under Mymensingh district was purposively selected because it is one of the important Pangas growing area. Here, Pangas farming is higher than other areas of Mymensingh, currently most of the farmers (60%) are involved in Pangas farming, young Pangas growers are available and they are familiar with the Pangas farming. In addition, the selection of the study areas was made by the suggestions of Upazila Fisheries Officer (UFO) of Muktagacha upazila, members of Union Parishad, NGO workers and upazila level officials who used to deal with Pangas farming. An up to date list of the young Pangas growers were prepared with the help of UFO and members of Union Parishad. A total of 288 youth Pangas growers were selected from two villages (namely, Luxmipur and Malotipur) and constituted the population of the study. Both qualitative and quantitative data collection procedures were used in the study. A sample of 100 young Pangas growers (35% of the population) was randomly selected from the population and interviewed at their houses and/or farm sites. Data were collected through the pre-tested interview schedule by face-to-face interview procedure during April to June 2013. The interviews focused on attitude of respondents towards Pangas farming, their existing Pangas farming techniques, and Pangas farming constraint. Two FGDs were carried out with young Pangas growers in these two areas in order to capture the overall production scenario. Cross-check interviews were conducted with UFO, researchers and relevant NGO workers. A total of 4 key informants were interviewed.

The explanatory variables of the study were nine (9) selected characteristics of young Pangas growers. These are age, level of education, year of Pangas farm establishment, area under Pangas farming, training experience, annual income, credit received, organizational participation and extension media contact. Most of the explanatory variables were measured by developing scales based on the field scores. Attitude of young Pangas grower towards pangas farming for improving their livelihood was the focus variable. It was operationalized through a 5 point Likert scale. Twenty (20) statements on various aspects of pangas farming were asked to young Pangas growers. They were asked to indicate for each of the statements, where

"strongly agree", "agree", "undecided", "disagree" and "strongly disagree" with a corresponding scores of 5,4,3,2, and 1, respectively for the positive statements and vice versa for the negative statements. The attitude score of a young was computed by summing the scores for his responses to all the statements. Hence, scores of a young Pangas grower could range from 20 to 100; 20 indicate highly unfavorable attitude and 100 indicate highly favorable attitude towards Pangas farming.

Ten potential constraints, related to economic, social and technical aspects were selected based on the results of the pre-test. Young Pangas growers were asked to indicate their response for each constraint on a four-point scale (Rahman *et al..* 2007) where 3 assigned for 'severe', 2 for 'significant', 1 for 'insignificant' and 0 for 'not at all'. As 10 constraints were considered, the possible score for constraint in Pangas farming of a young Pangas grower could vary from 0 to 30. Finally, a constraint index (CI) was calculated for ranking the constraint as follows:

Constraint Index (CI) = $C_3 \times 3 + C_2 \times 2 + C_1 \times 1 + C_0 \times 0$

Where,

C_3 = frequency of young faced 'severe' constraints to conduct Pangas farming;

C_2 = frequency of young faced 'significant' constraints to conduct Pangas farming;

C_1 = frequency of young faced 'insignificant' constraints to conduct Pangas farming; and

C_0 = frequency of young faced 'not at all' constraints to conduct Pangas farming.

Constraint index (CI) could range from 0 to 300 where '0' indicate lowest constraint and '300' indicate highest constraint faced by the young Pangas grower to conduct Pangas farming.

Results and Discussions

Socioeconomic background of the young Pangas growers

The nine selected characteristics of the young pangas grower related to socio-economic background of the study were considered. A summary profile of the young Pangas growers' characteristics has been presented in the Table 1.

Attitude of the young Pangas growers towards Pangas farming

Young Pangas growers' attitude towards Pangas farming was the main focus of the study. Attitude scores of the young Pangas growers varied from 56 to 85 against the possible range from 20 to 100, with an average of 74 and standard deviation 8.44. Based on the observed attitude scores, the respondents were classified into three categories as shown in Table 2.

The findings indicate that overwhelming majority (68%) of the young Pangas growers had moderately favorable attitude towards Pangas farming compared to 25% having highly favorable and only 7% had slightly favorable attitude.

Table 1 Salient features of the selected characteristics of the young Pangas grower (n = 100)

Characteristics	Key findings
Age	● 78% of the young belonged to the age group from 24 to 32 year. The number of young below 24 years of age and above 32 to 35 years of age was very low.
Level of education	● Among selected young, 76% had education up to secondary school, only 10% had higher secondary/college level education and 14% had elementary education up to the primary school level
Year of Pangas farm establishment and area under Pangas farming	● 50% young started their Pangas farming in or after 2010 ● A general belief of the young (89%), more profit will come from it than rice or other agriculture crop ● Average cultivated farming area was 0.44 ha ● 78% young had small sized area (upto 1 ha) under Pangas farming ● only 6% young had large sized area (above 3 ha) under Pangas farming ● A large number of rice fields is converted into Pangas farming
Experience of technical assistance and training in Pangas farming	● 40% young gain their knowledge from friends and neighbors ● 33% received formal training from GOs (such as DOF) ● 27% have no Pangas farming experience ● 70% farmers were expecting training
Annual income and credit	● The average annual income was Tk. 320000 from Pangas farming ● Average yield from Pangas farming was 6595 kg/ha ● 85% young used their received credit for Pangas farming ● The average amount of credit received by a young was Tk. 48800/year from all possible sources ● Saving mechanism is very poor in study area
Organizational participation and extension media contact	● Majority of the young (80%) had low to medium organizational participation ● Only 20% young had high organizational participation ● Majority (80%) of them had medium extension media contact ● None of the young had high extension media contact

Table 2 Distribution of young Pangas growers according to their attitude towards Pangas farming (n = 100)

Categories	Number of youth Pangas growers	Mean	Standard deviation
Slightly favorable attitude (56-70)	7		
Moderately favorable attitude (71-85)	68	74	8.44
Highly favorable attitude (above 85)	25		
Total	100		

Study revealed that Pangas farming may be a profitable income generating activities to the young Pangas growers. In addition, more return form Pangas farming makes

strong economic base of young Pangas growers. On the other hand, some important characteristics of Pangas (such as: fast growing characteristics, lucrative size, good taste, high market demand and can be stocked at a much higher density in ponds compared to other cultivable species of Pangas) may attract to the young Pangas growers for earning more income within short period of time with less management practices. As a result, high income from Pangas farming encourages them to invest for next year. Moreover, they have access to buy costly inputs, institutional support from DFO, and credit facilities for their Pangas farming. More return from Pangas farming also enriches the respondents' socioeconomic status. So, above mentioned all attributes are contributed to increase the attitude of young Pangas growers and finally, making highly favorable attitude towards Pangas farming. Ahmad (2013) found that 60% farmers had favorable attitude towards Thai koi farming.

Study reveled that the attitudinal statement related to Pangas farming such as 'market price of Pangas is relatively low' had the highest mean (4.95). Most of the youth (83%) said that market price of Pangas is relatively lower than that of its production cost. Around 82% of harvested Pangas are sold to the wholesalers or local agents, which transported to the district markets in Mymensingh, 35-45 km from the study area. The rest (18%) of the under-sized Pangas are sold to local markets in Muktagacha. The average prices of Pangas were Tk. 90 to Tk. 110 kg^{-1} in district town. Pangas prices depend on size, weight, quality, seasonality, supply and demand, and distance to markets. In almost all young Pangas growers bring Pangas of different grades in a lot and sell it to the middlemen

at an average price. Young Pangas growers do not have a position in determining the price of Pangas. Usually, the prices of the Pangas are higher in April to July but that time Pangas supply availability is less. These circumstance, many of the youth Pangas growers losing their hope due to low market price. Heavy rains often destroy the muddy roads in villages making them eventually inaccessible for the rickshaws, vans and motorised vehicles to carry fish to the markets. This leads to high transport costs and hence low profit margins. The second ranked statement is 'middlemen power is high' mean (4.90). A large number of young Pangas growers (43%) harvested their Pangas by the middlemen harvester team and 33% young hired a local harvester team but 24% young harvested themselves.

Relationship between the selected characteristics of young Pangas growers and their attitude towards Pangas farming

Pearson's Product Moment Correlation Co-efficient 'r' was used to ascertain the relationships between the selected characteristics of the youth Pangas grower and their attitude towards Pangas farming. The results of correlation have been shown in the Table 3.

Five explanatory variables i.e. age, level of education, area under Pangas farming, annual income, credit received were positively correlated to attitude of the young, while two other variables such as year of Pangas farm establishment and training experience were negatively correlated (Table 3). The remaining two variables, namely organizational participation and extension media contact, did not show any significant correlation with attitude of the young Pangas growers.

Table 3 Result of correlation analysis between explanatory variables and focus variable

Focus variable	Explanatory variables	'r' values with 98 d.f.
Attitude of the youth Pangas grower towards Pangas farming	Age	0.234**
	Level of education	0.287*
	Year of Pangas farm establishment	-0.119*
	Area under Pangas farming	0.144*
	Training experience	-0.274**
	Annual income	0.335*
	Credit received	0.393**
	Organizational participation	-0.172
	Extension media contact	0.169

* = Significant at 0.05 level of probability (2 tailed)
** = Significant at 0.01 level of probability (2 tailed)

Problems faced by young Pangas growers in Pangas farming

The young Pangas growers faced a variety of multi-dimensional problems (economic, social and technical) that affected the Pangas farming activities as well as their livelihood. The view of young Pangas growers has here been ranked according to their index values. The constraint index (CI) of the 10 pre-selected constraints ranged from 179 to 274. The most common constraint confronted by young Pangas grower is 'high production cost' (CI = 274). Costs of fish farming were reported to have increased significantly in recent years as a result of increased costs of high quality fingerlings, feed, land price, fertilizer, and wage rates. Inadequate and costly finance can, therefore, be a major constraint to expand the fish farming. Nesar (2009) identified the similar problems of pond fish culture in Bangladesh.

'Unavailability of good quality Pangas feed' was the second most important constraint. At present there are many feed company in Bangladesh but majority of them are not producing good quality Pangas feed. The third priority important constraint was 'lack of technical knowledge'. Young Pangas growers indicated that they have less formal training in technical matters regarding Pangas farming, which keeps them away from using technology and up-to-date information. 'Inadequate supply of good quality fry' was the 4th most commonly encountered problem for the young Pangas growers. According to the report of young Pangas growers, the increase in fish hatchery and demand for fry decreased the quality of fry over time. Furthermore, poor infrastructure facilities such as earthen roads and lack of bridges created a marketing problem, and there was a lack of marketing channels. During monsoon, they faced difficulties to travel on the muddy roads. Often, they could not reach market sites easily and in a timely manner. Young Pangas growers also reported that poor health status was a barrier to conducting Pangas farming. They often suffered from diarrhea, cholera, dysentery, skin diseases, malnutrition, night blindness, and mosquito-borne diseases such as dengue fever and malaria. In addition, they reported that social insecurity and natural calamities hindered their Pangas farming. Young Pangas growers did not have enough leaflets, booklets and other information materials on Pangas farming. Therefore, supply of adequate finance though credit program, establishing good quality hatcheries to supply adequate fry on time,

extension of technical knowledge by training program, selecting appropriate site for Pangas farming, taking appropriate preventive and controlling measures and extension of different facilities in the study area are essential.

Overall constraints of Young Pangas growers

The observed constraint score ranged from 5 to 25 against a possible range score of 0 to 30. From these constraint scores, young Pangas growers have been classified into three categories, namely low constraints (≤8), medium constraints (9-16) and high constraints (>16). Survey data shows that 69% of youth Pangas growers faced high constraints to conduct Pangas farming, while 16% faced medium and 15% faced low constraints. In spite of greater potentially of Pangas farming in Mymensingh region, the young Pangas growers are not free from problems in Pangas farming. They usually faced various problems in Pangas farming.

Suggestions of young Pangas growers

Young Pangas growers suggested five major areas in order to improve livelihood situations. It is noteworthy that adequate supply of quality fry on time was most important to the Pangas farmers for improving their livelihood. In addition, they gave priority to credit facilities, low-cost quality feed, training, and marketing channel to improve their existing livelihood status.

Participants were asked to give their opinion on possible solutions to overcome problems that hindered the Pangas farming. In response to financial, social and technical problems, they suggested a number of initiatives that might be taken by development organizations (such as GOs, NGOs, and private organizations) to remove problems and to improve Pangas farming. After a lively discussion with each other, they put forward the following suggestions which have been arranged in table 4. Here, lower rank indicates the need first priority and higher rank indicate least priority to overcome the constraints.

Table 4 Possible solutions to overcome the problems of Pangas farming as perceived by young Pangas growers (n = 100)

Solutions	Percent of citations	Rank order
Providing sufficient credit at low interest rate in time	77	1
Adequate supply of inputs (fry, fertilizer, hormone, vaccine) in time	65	2
Developing a cooperative society to resolve the marketing problems	61	3
Providing sufficient need-based training facilities on Pangas farming from GOs & NGOs	58	4
Providing sufficient extension services from DAE, DLS, DOF, etc.	47	5
Adequate supply of technologies and information by skilled personnel	38	6
Providing sufficient government support	29	7

Conclusion

Muktagacha upazila is very rich with Pangas farming. A large number of cultivable rice fields are converted into Pangas farming and majority young Pangas growers believe that Pangas farming is more profitable than rice or other agricultural crops. Majority (68%) of the young Pangas growers had moderately favorable attitude towards Pangas farming. Access to micro-credit, availability of quality input such as seed, feed, fertilizer, etc., marketing facilities, improve technologies, and training all lead to increase Pangas production. The annual income from Pangas farming is relatively sound as of Pangas an economic perspective. In the study area, the major constraints of Pangas farming are lack of quality seed, high cost of production, training facilities, inadequate credit etc. Institutional supports from Government and NGOs for credit, input and technology may be helpful to increase Pangas production as well as income of young Pangas growers. Therefore, more income from Pangas farming will be act as a motivational tool to the young Pangas growers for improving their livelihood by making their highly favorable attitude towards Pangas farming.

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