

## Study on fish hatchery and nurseries in Mymensingh, Bangladesh

A.H.A. Rashid\*, M.S. Rahman, M.M. Khan<sup>1</sup>, S. Mian<sup>2</sup> and T. Rahman<sup>1</sup>

Department of Fisheries Management, Bangladesh Agricultural University, Mymensingh 2202, Bangladesh

<sup>1</sup>Department of Aquaculture, Bangladesh Agricultural University, Mymensingh 2202

<sup>2</sup>Department of Fisheries Biology and Genetics, Bangladesh Agricultural University, Mymensingh 2202

\*Corresponding author and present address: Department of Aquatic Resource Management, Sylhet Agricultural University, Sylhet 3100. E.mail: russel.sau@gmail.com

### Abstract

In generally, fish hatchery and nursery owners having both hatchery and nursery facilities were financially stronger, well-educated and well-trained than only nursery ponds owners in Mymensingh aquaculture region. On the other hand, only nursery pond owners were more experienced in fish seed business than only hatchery owners. Most of the owners were satisfied with existing communication facilities. Lack of technical knowledge was one of the major constraints which could be solved by ensuring proper training. This business can be made more profitable providing loan to poor farmers and improving law and order situation.

**Key words:** Fish hatchery, Nursery

### Introduction

The fisheries sector of Bangladesh is a very important sector in respect to meet nutrition of the people and the export earnings of the country. Considering the importance of culture fisheries, the Government of Bangladesh has given a high priority on both freshwater and brackish water aquaculture development. The major input in culture fishery is quality fish seed, which mainly comes from Government and private hatcheries and nurseries. In the country, induced breeding of carps through hypophysation was initiated in 1967. Government of Bangladesh established a number of hatcheries in public sector in different parts of the country for supplying quality fish seeds to the farmers and also for transferring this seed production technology to the private entrepreneurs who were interested in establishing hatcheries on their own initiative to meet the increasing demand of quality fish seed. The induced breeding of carp has been so successful in Bangladesh that there is now an over capacity in the industry resulting a large drop in the price. So, many small or medium scale hatchery owners are not interested in maintaining quality brood stock to minimize this loss, resulting poor quality seed production.

The study was conducted to identify the existing physical facilities of the fish hatchery and nursery as well as experience and training status of manpower in fish seed farming and some other related matters. From this study the relevant officials of the Government, Semi-Government and private organizations will be aware of the various aspects of fish seed farms (fish hatchery and nursery).

## **Materials and methods**

### ***Study area and selection of fish farms***

The study was conducted in 12 upazillas of Mymensingh district from February to April months. Primary information of fish seed farms were collected from District Fishery Office and Upazilla Fisheries Officers. On the basis of fish seed production practices, fish farms may be categorized into three groups: (i) only hatchery, (ii) only nursery, and (iii) farms with both hatchery and nursery. Finally a total of 81 farms were selected for the study of which 11 farms were only hatchery, 47 fish farms were only nursery ponds and the rest 23 farms were of the last category.

### ***Preparation of survey schedule***

An interview schedule was carefully designed so that the manager or owner of the fish hatchery and nursery can answer easily. The schedule includes questions on physical facilities, experiences, education and training status, price of seeds, source of money for operation etc. related to fish seed farms.

### ***Data collection and analysis***

Two methods were used to collect data- interview and direct observation. Both individual and group interviews were conducted on farm managers or owners using the prepared interview schedule. All the collected information were accumulated analyzed and then presented in textual, tabular and graphical forms to understand the present status and trends in fish seed farming. In this study tabular technique of analyses were carried out which includes classification of data in the form of tables. It is generally used to find out the crude association or differences between two sets of variable. This technique is based on arithmetic mean, percentage, ratio etc. Finally recommendation and conclusion was made on the total obtained results.

## **Results and discussion**

### ***Size of fish farms***

On the basis of size, fish hatcheries and nurseries were divided into 3 categories: below 2 acres, 2 to 5 acres and more than 5 acres; and the selected farms were about 8.64%, 38.27% & 53.09% respectively (Table 1). It was observed that most of the farms were of large size (53.09%). The sizes were determined on the basis of total ponds and hatchery area used under the farms. Sarker (1995) found different sizes (average size 1.097 ha.) of fish hatchery in some selected areas of Bangladesh.

Table 1. Different size categories of fish hatcheries and nurseries in Mymensingh district

Size of fish hatcheries and nurseries (acre)	Farm's size category (%)			Total (%)
	Only hatchery	Only nursery	Hatchery + nursery	
<2	1.235	7.407	0	8.642
2-5	3.704	20.988	13.580	38.272
>5	8.642	29.630	14.815	53.087
Total (%)	13.581	58.025	28.395	100

### Communication facilities

Well-developed communication system is helpful for the farm owners to ensure better economic returns through easy transportation of inputs and farm produced seeds. About 67.9% of fish hatchery and nursery owners mentioned the road communication facilities as excellent and only 2.48% as not good, i.e. unsatisfactory (Fig. 1). These results slightly differ from those of Alauddin (2001) who surveyed fish seed farms in three districts of Bangladesh, reported that about 45.24%, 38.09% and 16.67% of fish seed farm owners mentioned the facility as excellent, well and not good respectively.

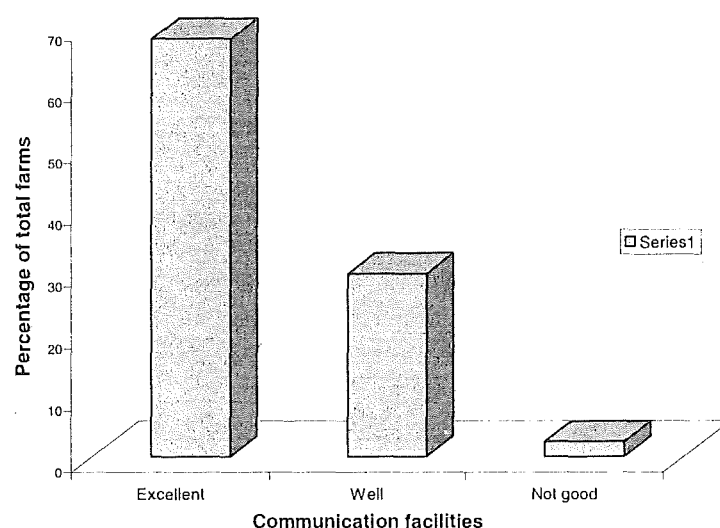


Fig. 1. Communication facilities of fish hatcheries and nurseries in Mymensingh district

### Educational and training status

According to survey, only 6.18 % owners or managers had graduation or post graduation level education and 3.7% had professional degree i.e. graduation in Fisheries discipline (Fig. 2). About 13.59%, 11.12%, 33.34% and 16.05% of farm owners had primary and high school, SSC and HSC level education respectively and 16.05 % were illiterate. The result of present study was similar to that of Sarker (1995). But dissimilar results are reported by Malek (1997) and Zaman *et al.* (2006) that 46.67% and 23.3%

fish farmers were illiterate respectively. But Quddus *et al.* (1998) reported fully dissimilar result that there were no illiterate pond owners in Demra area in Dhaka. Alauddin (2001) also reported different result that no farm owner had professional degree.

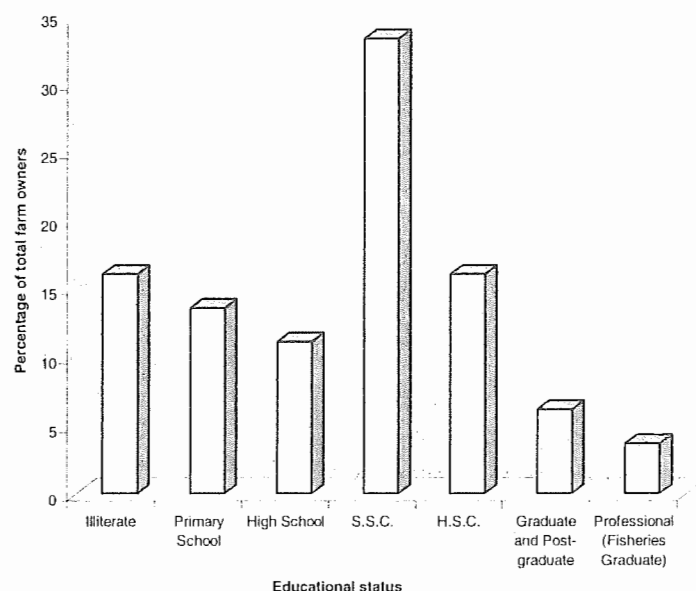


Fig. 2. Educational status of fish hatchery and nursery owners in Mymensingh District

Training on fish hatchery management and fingerling production is helpful for better management and economic returns. Training status of fish hatchery and nursery owners is shown in Table 2. About 43.21% fish hatchery and nursery owners had no training while about 49.38% fish hatchery and nursery owners received short-term training from Department of Fisheries (DoF) and/or from Bangladesh Fisheries Research Institute (BFRI). Similar results were also observed by Aladdin (2001).

Table 2. Training status of fish hatchery and nursery owners on fish seed production in Mymensingh district

Training status	Farm's size category (%)			Total (%)
	Only hatchery	Only hatchery	Hatchery + nursery	
No training	1.235	39.506	2.469	43.210
Short-term training	9.877	18.519	20.988	49.383
Consultation with UFO	2.469	0	1.235	3.704
Professional	0	0	3.704	3.704
Total (%)	13.581	58.025	28.396	100

*Experience in fish seed production*

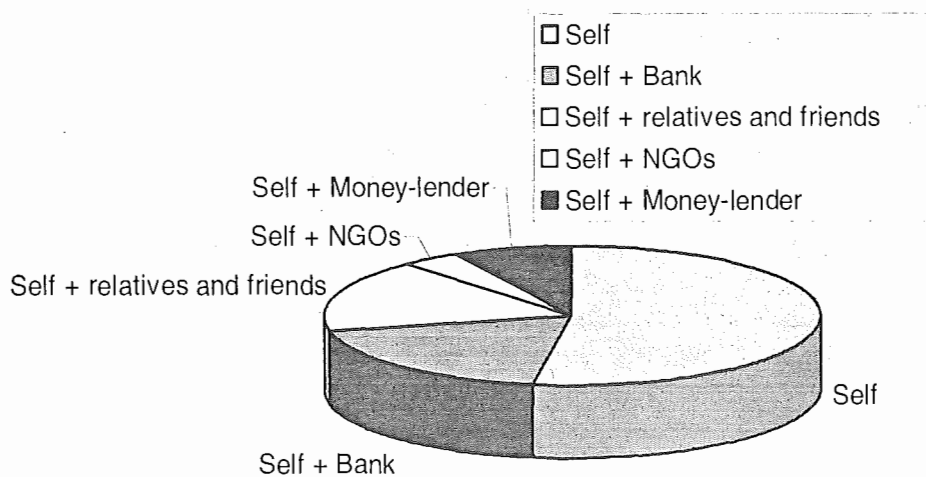
Experience in fish seed production indicates the stability in fish seed production business. Experience in fish seed production was categorized into three types: (i) less than 6 years, (ii) 6-10 years and (iii) more than 10 years. About 29.63%, 43.21% and 27.16% owners had experiences for less than 6 years, 6-10 years and more than 10 years respectively (Table 3). So it is evident that fish hatchery and nursery owners were experienced enough in their business of fish seed production. Malek (1997) and Alauddin (2001) mentioned that 11.11% and 42.85% farm had experience in fish seed production of more than 10 years. This dissimilarity might be due to location wise variation in educational condition.

**Table 3.** Experience of fish hatchery and nursery owners on fish seed production in Mymensingh

Experience (years)	Farm's size category (%)			Total (%)
	Only hatchery	Only hatchery	Hatchery + Nursery	
<6	4.938	16.049	8.642	29.629
6-10	6.173	27.160	9.877	43.210
>10	2.469	14.815	9.877	27.161
Total (%)	13.580	58.024	28.396	100

*Sources of fund for operation*

Sources of fund for operation is shown in a pie chart in Fig. 3. It was observed that most of the farm owners (52.56%) use their own fund for farm installation and operation. Only 19.23%, 3.85%, 16.67% and 7.69% farm owners got their fund from banks, NGOs, Friends & relatives and moneylenders. CPP (1996) reported that 70% fish farmers took loan from money lender in Tangail district.



**Fig. 3.** Sources of fund of fish seed farms in Mymensingh

### *Price of outputs*

Sale price of fish seeds determines the profitability of fish seed production. Maximum sale price of spawn of pangas and catla was highest (Tk. 5,000/kg) followed by carpio, grass carp, rui, mrigal, silver carp and sharpunti. Sarker (1995) reported dissimilar results that the price of spawn of catla (Tk. 7,000/kg). These results also differs from findings of Alauddin (2001) that maximum sale price of spawn of pangas was 6,000 Tk. per kg. Sale price of fingerlings of magur was highest (Tk. 4,500/1000 fish) followed by catla, carpio, Thai rupchanda, pangas, pabda, monosex tilapia, rui, grass carp, mrigal, sharpunti, silver carp and koi. These results are dissimilar to those of Siddique (1999) who reported market price of mirror carp (Tk. 300/1000 fish) was highest. Alauddin (2001) also reported different result that sale price of pangas fingerlings was highest (Tk. 1000/1000 fish) and lowest for silver carp, sharpunti and gonia (Tk. 200/1000 fish).

Considering the different observations during the study, Mymensingh was found to be potential area for fish seed production and Trishal and Bhaluka was considered to be very important upazillas in this regard. Lack of technical knowledge was an important constraint.

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