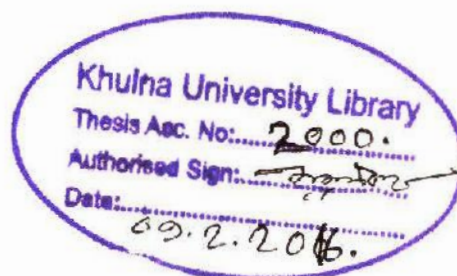


MARKETING STRATEGIES OF PL (*MACROBRACHIUM ROSENBERGII* AND *PENAEUS MONODON*) IN DIFFERENT HATCHERIES IN SOUTH WEST REGION OF BANGLADESH



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**MARKETING STRATEGIES OF PL (*MACROBRACHIUM
ROSENBERGII* AND *PENAEUS MONODON*) IN
DIFFERENT HATCHERIES IN SOUTH WEST
REGION OF BANGLADESH**

A Project Thesis

By

Samir Kumar Biswas

Examination Roll No: MS 070608

Session: 2006-2007



This project thesis is submitted to the Fisheries and Marine Resource Technology
Discipline in partial fulfillment of the requirements for the Degree of
Masters of Science in Fisheries and Marine Resource Technology

January, 2009

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Approved as to style and content
By



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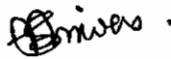
Life Science School, Khulna University

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STATEMENT OF ORIGINALITY

Marketing Strategies Of PL (*Macrobrachium rosenbergii* and *Penaeus monodon*) In Different Hatcheries In South West Region Of Bangladesh

The results presented in the project thesis with the above mentioned title are entirely of the candidate's own investigations and no part of the results has been accepted for any degree nor is it being concurrently submitted for any degree.



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(Signature of the candidate)

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January, 2009.

Dedicated

To

***The Underprivileged & Neglected People of the World who
are Struggling Every Moment Just to Uphold Their
Lives....***



Acknowledgement

It is my pleasure for being able to complete this project thesis; so first of all, all my appreciation and indebtedness go for the creator of the universe, the Almighty God.

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January, 2009

Samir Kumar Biswas

Abstract

An investigation was carried out on the marketing strategy of PL (*Macrobrachium rosenbergii* and *Penaeus monodon*) in different hatcheries in August to November 2008. Data was collected from 25 hatcheries including 5 hatcheries in Bagerhat, 5 hatcheries in Khulna, 1 hatchery in Jessore and 14 hatcheries in Satkhira region. Among the hatcheries 15 hatcheries produced only galda PL, 10 hatcheries produced both galda and bagda PL. At first, they selected their marketing area. Most of the hatcheries collected mother shrimp from Sundarban, Jaimuni, Sharonkhola and Poshur River. Hatchery produced seed were available between March to September. Among the surveyed hatcheries, 4 hatcheries used marketing officer for publicity, 6 hatcheries organized public meeting in marketing area, 6 hatcheries organized miking system before production, 16 hatcheries advertised in newspapers. All of them used Posters and three hatcheries supplied leaflets in the marketing area. 2 hatcheries gave technical support to the farmers who had bought PL from them. The price of PL was varied time to time. They sold PL to the depots or farmers through commission agent by giving them 4-5% commission. 6 hatcheries of Satkhira had sub-offices also for marketing. 5 hatcheries stocked PL in nursery, which were not sold in PL stage. 3 hatcheries recently started 5-10% direct commissioning system to the farmers. They also cheated with the farmers by selling through *farias* as natural fry. New hatcheries started sell on credit system for marketing. The strong belief in the farmers that the mortality rate was high in hatchery PL and growth rate was low in hatchery PL were the main problems for hatchery marketing. Moreover, imbalance between production and demand, entrance of Indian PL through black market, natural disaster such as- droughts, lack of skilled manpower, lack of credit facilities, lack of transportation systems were also the problems for PL marketing. So, to improve the marketing system these problems should be overcome.

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Chapter 1

Introduction

1.1 Background of the study

In Bangladesh, fish farming is currently one of the most important sectors of the national economy. Within the overall agro-based economy of the country, the contribution of fisheries sector has been considered to hold good promise for creating jobs, earning foreign currency and supplying protein. A large number of people, many of whom living below the poverty line, find employment in the domestic fish marketing chain in the form of farmers, traders, intermediaries, day laborers and transporters (Ahmed, 2001 and Islam, 1996)

The fisheries resources play a vital role in the socio-economic development of the country. Bangladesh possesses 716-Km coastlines with 310 km EEZ that is highly prospective for fisheries. At present, the total shrimp production of our country is 110990 metric tons where inland water provides 49568 metric tons of shrimp (DOF, 2002).

Shrimp farming is key to the country of Bangladesh. The shrimp sector is the second largest export earning. Other fishes contributed about 5% of the total where shrimp alone contributes about 95%. Although the present contribution of shrimp is already huge, it is nothing more than a small part of its full potential. Also the present production level of shrimp is the lowest in the world and immensely lowers than Thailand, India, Vietnam, China and Indonesia. So Bangladesh has tremendous potential for both vertical and horizontal expansion of shrimp farming. We have a processing capacity of 256000 metric tones of shrimp in our 127 plants. Starting with a merge export earning of US\$ 3.17 millions in the year 1972-73 the country has earned 363 million US\$ in 2000-2001 and 276.11 millions US\$ in 2001-2002 (DOF, 2002).

Bangladesh currently accounts for 2.5% of the global shrimp production. The shrimp sector has a share of 14% in pisciculture farms and 4% in the total agricultural employment in the coastal zone (BBS, 1999). The sector generates 16 millions person days of wage labor (BCAS, 2001)

The sources of Galda and Bagda PL are of two types 1. Natural 2. Hatcheries. In case of natural sources PL are collected from coastal tidal rivers, estuaries, Bay of Bengal and Sundarban mangrove swamps. Overexploitation of open water to collect shrimp PL destroys the biodiversity and the availability of PL is not enough according to demand. So, many private and govt. hatcheries are established to produce shrimp seed. There are 44 private Bagda hatcheries in our country and its production is 3050 million PL/year (Anon, 2003).

The total number of private Galda hatcheries is 28 (DOF, 2003) and its production is not counted accurately. The total amount of natural post larvae of shrimp is 450 million (Anon, 2003). So there is a desire need of Galda PL to fulfill the demand.

The profit of Galda and Bagda PL depends on the marketing strategy of PL. Farmers believe that the quality of PL from natural sources is better than hatchery PL. There is an internal conflict among the hatcheries about their marketing strategy. The present study was undertaken on the marketing strategy of PL (*Penaeus monodon* and *Machrobrachium rosenbergii*).

1.2 Problem statement

The principle source of PL is nature. The seed is collected at the advanced post larval stages. To collect a shrimp seed about 8 other species are destroyed which directly hampers the biodiversity. The availability of PL are depleting day by day. The numbers of PL are increasing day by day for better profit. As a result, many hatcheries are established to fulfill the demand of PL. PL marketing starts in the months of March-April. The demand of fry rises from April to mid May. The peak period of the fry marketing is May to June/ July. Hatchery produced seed are available between March to September. Every year these hatcheries accomplish two/three cycles of PL production and these hatcheries ensure the availability of PL almost all the year. There is a strong belief among the farmers that the mortality rate of hatchery PL is higher than the PL of natural sources and the growing rate is lower in hatchery PL. There is an internal conflict among the hatcheries. So, marketing strategy plays a vital role to make the hatchery to be profitable. Many hatchery owners face great loss in hatchery business due to lack of perfect marketing system. Marketing strategy depends on production, communication,

staff and intermediaries. If the quality of mother shrimp and hatchery management system and other infrastructure are good then the quality of the fry will be good. To change the belief of the farmers, to enhance the selling rate of the hatchery and to get more profit suitable marketing strategy is very important. The present study was undertaken to know about marketing system to save and develop the hatchery business.

1.3. Objective

1. To observe the marketing strategy of different hatcheries.
2. To find out the problems related to seed marketing.
3. To provide possible information for improvement of the marketing channel.



Chapter 2

Literature review

In Bangladesh, few hatcheries have been developed for the seed production of freshwater prawn and brackish water shrimp. To overcome these Cruces more hatcheries should be established through the country. Considering the importance of seed production both in the coastal and inland areas a pilot scale of research program has been undertaken at the riverine station, BFRI, Chandpur during July 1994-June 1997.

Various efforts were made regarding seed production and marketing of *M. rosenbergii* in Bangladesh Ahmed and Mahmmod(1978a and 1978b).

Shah (2006) carried out a study on the value chain analysis of galda production and marketing in the area of Khulna.

Ahmed, 2001; Ahmed, 2003; Shah, 2006 found a new marketing chain based on the extreme exploitation of the prawn production communities by setting up an artificial pricing policy through intermediaries at different level.

Ruckes (1980) provides a checklist of possible sources of constraints in the domestic marketing system, considering these as arising not only from producers and traders but also from administrators and policy makers.

Khan (2006) surveyed on galda seed production and marketing in the southwest of Bangladesh.

Chowdhury (2005) surveyed on shrimp PL marketing and trading in Bagerhat region.

Chapter 3

Materials and methods

3.1 Site selection

Greater Khulna areas, by far, has come out as the most important galda and bagda farming area. Satkhira, Khulna, Bagerhat and Jessore were the principal shrimp farming areas, thus these districts were purposively selected to collect data on seed marketing.

In Bagerhat district BRAC galda hatchery, JK hatchery, Bagerhat hatchery, Fakirhat hatchery, Sufola hatchery were selected randomly.

In Khulna district BRAC galda hatchery, Rupsha hatchery, Khulna hatchery, Proshika hatchery were chosen randomly.

In Satkhira district Anamika hatchery, Jalil hatchery, Allardan hatchery, Swadesh hatchery, Chistia hatchery, Aquatec hatchery, United hatchery, Chingri-Bangla hatchery, Sonarga hatchery, Bismillah hatchery, Bandhu hatchery and Jessore BRAC hatchery were selected randomly.

3.2 Data collection

Information on marketing strategies was collected from 25 hatcheries. Data were collected by personal interview method from the respondents. For collection of data a semi-structured questionnaire was used. Verbal information was also collected.

3.3 Data analysis

The collected data were carefully edited to eliminate errors and inconsistencies. Any kind of inconsistencies in the data were searched and avoided out from the relevant data. The data were then transferred to narrative and tabular forms after careful examination and calculation. Data were processed and analyzed using Microsoft Word and Microsoft Excel.

Chapter 4

Results

Different hatcheries followed different marketing strategy for PL selling. Hatchery production and sale depend on number of staffs engaged in hatchery management and marketing, their quality and educational status.

4.1 Types of PL production

Among the surveyed hatcheries all hatcheries in Bagerhat district produced galda PL because the water quality of Mollarhat, Fakirhat, Bagerhat, Kochua was suitable for galda culture. Bagda was cultured in Morelgonj, Rampal and Mongla thana.

In Khulna district the surveyed hatcheries also produced galda PL because galda was cultured in most of the areas.

In Satkhira, 10 hatcheries out of 14 hatcheries produced both galda and bagda PL and sold these PL to farmers directly and depot proprietors. Rest of the hatcheries produced only galda PL. The types of the PL production in the surveyed hatcheries are given in table 1:

Table1. Types of PL production in different hatcheries

Galda	Bagda	Galda + Bagda
BRAC hatchery, Bagerhat	—	Bandhu hatchery
BRAC hatchery, Khulna	—	Anamika hatchery
BRAC hatchery, Jessore	—	Jalil hatchery
Bagerhat hatchery	—	Allardan hatchery
Khulna hatchery	—	Swadesh hatchery
JK hatchery	—	Sonarga hatchery
Fakirhat hatchery	—	Bismillah hatchery
Sufola hatchery	—	Chingri-bangla hatchery
Proshika hatchery	—	Shaon hatchery

Rupsha hatchery	—	Aquatec hatchery
Chistia hatchery	—	
United hatchery	—	
Jalalabad hatchery	—	
Dumuria hatchery	—	
Kulia hatchery	—	

Most of the hatcheries produced galda fry because huge amount of bagda fry came from Cox'sbazar hatcheries.

4.2 Selection of marketing area

Selection of marketing area is the main factor of marketing. Many factors are to be considered to select this area. Total marketing process depends on this. The area should have many ghers and depot.

The hatcheries of Bagerhat region targeted especially Faltita, Mollahat, Kochua, Faila and Bagerhat for PL selling.

The hatcheries of Khulna region targeted Dumuria, Batiaghata, Satkhira and those areas of Bagerhat as marketing area.

The hatcheries of Satkhira region targeted mainly in Satkhira area and little area of Khulna.

4.3 Collection of mother shrimp

Continuous supply of broods is one of the prerequisites for the successful operation of a hatchery. Most of the hatcheries obtain berried female shrimp either by capturing them from nature or by collecting them from grow out farm pond. The success of hatchery mainly depends on good quality of mother shrimp that can produce good quality of fry. Out of 25 hatcheries, 14 hatcheries collected mother shrimp from Jaimuni, Sharankhola and Poshur River, 9 hatcheries from Sundarban area in the peak season, from local ghers in dull season and 2 hatcheries collected mother shrimp from local ghers.

4.4 Best season for marketing

Seed marketing started in the month of March-April when the fry from natural sources were not available. Then the prices were varied from 2500-3500/1000 pcs. After this time the prices became lowered. Hatchery produced PL were available between March to September.

4.5 Publicity through marketing officer

Out of 25 hatcheries only in 4 hatcheries marketing officer was employed for PL marketing. They went to the farmers, farias or commission agent and depot proprietors and made a regular communication with them. The main targets of the marketing officers were the farmers. Their main duty was to deliberate the information about the good quality of hatchery PL to farmers. BRAC and Proshika hatchery engaged fisheries graduate as marketing officer. Chistia and Chingri Bangla hatcheries engaged non-technical person as marketing officer.

4.6 Public meeting

Among the surveyed hatcheries, 6 hatcheries organized public meeting in the selected marketing area at the beginning of the production. It was done by the marketing officers or other staffs of the hatchery. Anamika hatchery, Bagerhat galda hatchery, Chistia hatchery organized meeting where the main speaker was the hatchery owner himself. Because these hatcheries were established recently. They introduced with the public about the production, quality, price transportation system etc. They also organized public meeting during dull season. Among the 25 surveyed hatcheries the following 6 hatcheries organized public meeting:

1. BRAC hatchery, Khulna
2. BRAC hatchery, Bagerhat
3. BRAC hatchery, Jessore
4. Anamika hatchery
5. Chistia hatchery
6. Bagerhat hatchery

4.7 Miking

New established hatcheries and 2 old hatcheries organized miking system in the selected region for their publicity during the beginning of the production. Farmers were directly come to know about them and motivated by this system. Among the 25 surveyed hatcheries the following 6 hatcheries organized miking system.

1. Anamika hatchery
2. Chistia hatchery
3. Swadesh hatchery
4. Shaon hatchery
5. Jalil hatchery
7. Allardan hatchery



4.8 Posturing

Most of the surveyed hatcheries used poster for their publicity. In these posters the place of hatchery, types of production, price, source of mother shrimp, quality of PL were presented. They used poster in the area where many ghers were available, in the depot, in the big fish market, in front of the fishery office, fish processing plant, fish feed industry.

4.9 Leaflet

BRAC hatchery, Proshika hatchery and Chistia hatchery supplied leaflets to the gher owners. They supplied leaflets all the marketing season round. Nursing technique, culturing method of shrimp was included in these leaflets. The hatchery supplied leaflets to the consumers who bought PL from the hatchery. These were very much helpful to create interest for the farmers on hatchery. These were also supplied in the market or public place.

4.10 Advertising on newspaper

Newspaper is an important media for advertising. Every year, among the 25 surveyed hatcheries, 16 hatcheries organized advertisement in newspaper. It was published in newspaper before the production. Especially, types of production, period of production, and quality of PL were included in the newspaper. The period of advertisement was February-April. The present status of advertisement in newspaper is given in table 2:

Table 2: Present status of advertisement in newspaper

Advertised in newspaper	Not advertised in newspaper
Bismillah hatchery	BRAC hatchery, Bagerhat
Dumuria hatchery	BRAC hatchery, Khulna
Anamika hatchery	BRAC hatchery, Jessore
Jalil hatchery	Bagerhat hatchery
Allardan hatchery	Khulna hatchery
JK hatchery	Fakirhat hatchery
Sonarga hatchery	Sufola hatchery
Swadesh hatchery	Kulia hatchery
Proshika hatchery	Bandhu hatchery
Rupsha hatchery	
Chistia hatchery	
United hatchery	
Aquatec hatchery	
Chingri-bangla hatchery	
Jalalabad hatchery	
Shaon hatcheryss	

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4.11 Technical support

BRAC galda hatchery and Proshika hatchery gave technical support to the farmers who bought PL from them all the year round. They suggested the farmers about the culture technique of shrimp and suggested them when they faced any problem during the culture period. It was helpful to attract the farmers to hatchery. It was also helpful to attract the farmers who did not buy PL from the hatcheries. It was a continuous process to increase number of buyer of PL. It was done by the marketing officers who were fisheries graduate or other skilled personnel.

4.12 Hatchery production

Among the surveyed hatcheries production of Bagerhat BRAC galda hatchery was higher than that of others. The production of galda PL was 66.24 lakh in 2008. 22.5 lakh from one cycle in 2007. Every year these hatcheries accomplished three cycles of PL production. The production of BRAC galda hatchery, Khulna in 2008 was 62 lac. The production of Bagerhat galda chingri hatchery was 28 lakh. The higher amount of fry production ensured the farmers the availability of PL all the season of culturing. The amount of PL produced in different hatcheries is given in table3.

Table 3: Amount of produced PL in different hatcheries

Name	Production (lakh)
BRAC hatchery, Bagerhat	66.24
BRAC hatchery, Khulna	62
BRAC hatchery, Jessore	25
Bagerhat hatchery	28.5
Khulna hatchery	22
Fakirhat hatchery	14.5
Sufola hatchery	3
Jalalabad hatchery	8.5
Bandhu hatchery	2
Bismillah hatchery	15
Dumuria hatchery	24

Anamika hatchery	10
Jalil hatchery	40
Allardan hatchery	6.5
JK hatchery	0
Sonarga hatchery	65
Swadesh hatchery	3
Proshika hatchery	45
Rupsha hatchery	12
Chistia hatchery	58
United hatchery	22
Aquatec hatchery	13
Chingri-bangla hatchery	60
Kulia hatchery	6.5
Shaon hatchery	25

4.13 Price fluctuation

Buying and selling are the functions of exchange. Both have their primary objectives of negotiating favorable terms of exchange. Buying generally includes the selection of kinds of goods, the determination of quality and quantities and the selection of sources of assisting and persuading service (Dewan, 1967).

In the surveyed area, the price of PL varies from time to time. Each thousand of PL were sold with a range of 1500-2500 taka which fluctuated on the basis of availability. For bagda PL the price was lessened to 300 to 500 taka/ thousand sometimes. All the hatcheries in the surveyed area followed that range of price according to availability of natural fry.

4.14 Transportation

Way of transport is badly essential for highly perishable commodity like galda and bagda fry. So, perishable goods must be transported as early as possible from the producing centre to the consuming centre. The fry must be transported as early as possible from collection area to the stocking pond, even in the long distance. Only Bandhu hatchery at Satkhira used indigenous technique for transportation. Seed were transported in plastic tank or other metal tanks with agitation of water by hand. All other hatcheries in the surveyed areas supplied seed by using polythene bag filled with oxygen. The way of transporting media of the hatchery played an important role in PL marketing.

4.15 Farias/Commission agent

The *farias* acted as middleman between the hatchery and the farmers or local depots. The *farias* were actually the commission agents who did the function of negotiating transaction between hatcheries and local depots of fry. They got 4% to 5% commission from the hatchery. Few *farias* bought PL from the hatchery of Satkhira at a lower rate than the farmers and supplied these PL to Khulna or Jessore region. It was an way of PL marketing.

4.16 Production according to demand of depot proprietor

Chingri- Bangla hatchery, Bismillah hatchery, Allaher-dan hatchery produced PL according to demand of depot proprietors. Though the mortality rate of fry was 40% they considered this before production. As a result, these hatcheries have not been losing their business for last 3 to 4 years. But their amount of profit was limited.

4.17 Marketing through sub-office

Chistia, Jalil, Sonarga, Anamika, Aquatec and United hatchery of Satkhira had sub-office in Foyla bazar, Rampal, Mollarhat bazar, Kopilmuni bazar, Kaligonj bazar and Satkhira main town from where they sold PL to the farmers or commission agent. It was easier for the farmers for buying and transportation of PL. Different hatcheries that have sub-offices are given below:

1. Chistia hatchery
2. Jalil hatchery
3. Sonarga hatchery
4. Anamika hatchery
5. United hatchery
6. Aquatec hatchery



4.18 Marketing through same type of organization or different NGO

BRAC hatchery supplied their PL to the farmers through the staff of credit program or BRAC bank. As, these organizations were related with the rural poor farmers, they could easily motivate them to buy the PL. After natural disaster or other reasons different NGOs bought PL from the hatcheries to supply these to the poor people so that they can enhance their economic condition by culturing these.

4.19 Nursery system

Nursery is the technique of storing fry in a tank or pond for nursing. It enhances the acclimatization process of the fry. Few farmers prefer these fry in late season so that they can sell it with a marketable size within 2-3 months. This reduces the risk of losses of the hatchery owners and the farmers also. BRAC, Proshika, Jalil, Anamika hatchery had nursery system. It was a profitable business. The hatchery stocked PL, which were not sold and cultured these in the nursery pond for 2-6 months. After getting a fingerling size fry were sold to the farmers or commission agent. As a result, the possibility of losses was diminished. Jalil hatchery established their bagda hatchery in Cox's bazaar and transported fry from there to Satkhira nursery.

There were nursery ponds in the following hatcheries:

1. BRAC hatchery, Bagerhat
2. BRAC hatchery, Khulna
3. Jalil hatchery
4. Shaon hatchery
5. Allardan hatchery

4.20 Direct commission

BRAC galda hatchery, Bagerhat galda hatchery, Anamika hatchery recently started direct commissioning system to the farmers with a range of 5% to 10% commission on the basis of total amount of selling. The farmers got more benefit if they would buy fry from the hatchery than from the depot owners because farmers bought fry from the hatchery at a cheaper rate. BRAC gave this opportunity to farmers if they bought more than 10 thousand fingerlings or 20 thousand fry. As a result, the hatchery could sell higher amount of fry. Table 4 shows the average rate of commission to the commission agent or farmers:

Table 4: Average rate of commission to the commission agent

Name	Rate of commission %
BRAC hatchery, Bagerhat	5
BRAC hatchery, Khulna	5
BRAC hatchery, Jessore	5
Bagerhat hatchery	5-10
Khulna hatchery	0
Fakirhat hatchery	0
Sufola hatchery	10
Jalalabad hatchery	5-10
Bandhu hatchery	10
Bismillah hatchery	5-10
Dumuria hatchery	5
Anamika hatchery	10
Jalil hatchery	5-10
Allardan hatchery	10

4.22 Sell on credit

New hatcheries are established day by day. So, competition between the hatcheries is also increasing. To increase the amount of selling new hatcheries adopted sell on credit system. Through this system the hatcheries sold PL to the farmers without receiving any money at that moment and the farmers ensured to pay money within a few months. So the farmers and *farias* went to the hatcheries to take this opportunity. Very often they did not pay their money to the hatchery. It is a very risky system. Last year Anamika hatchery faced a great loss by adopting this system. Jalil, Allaher dan, Khulna galda hatchery were continuously adopting this system also. According to their speech, this system enabled them to sell more fry and they got back their money within 6 months. They increased their familiarity among the *farias* and farmers through this system.

4.23 Marketing channel of PL from hatchery to farmers

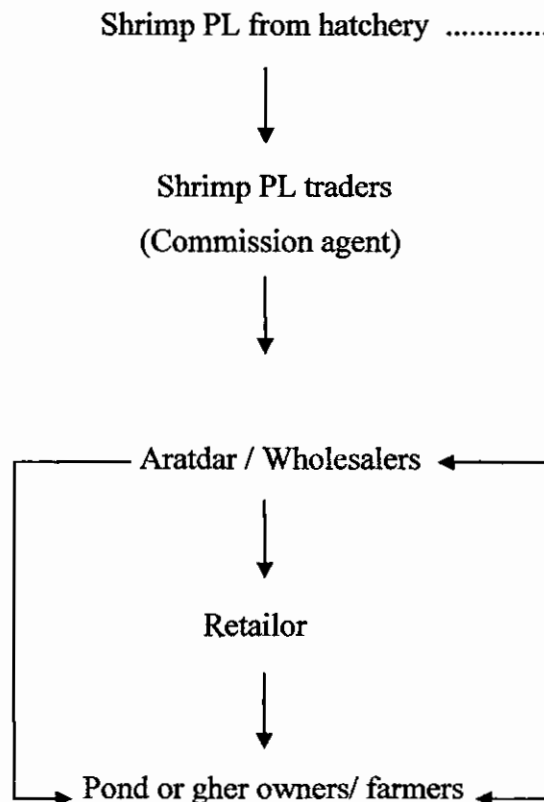


Figure 1. Marketing channel of PL from hatchery to farmers

4.24 Problems in PL marketing

The hatchery owners during PL marketing face various problems. In the surveyed hatcheries the following problems were observed:

1. The farmers believed that the quality and growth rate of natural PL was better than hatchery produced PL.
2. The commission agent of hatchery played a vital role in PL marketing and they changed the actual rate of PL and the farmers could not buy at the same rate in different location.
3. During March- April when the natural PL were not available then the hatcheries could not supply necessary PL according to demand of farmers. On the other hand, from May to August when the natural PL were available then the hatcheries could not sell their entire produced PL.
4. PL those came from India through black market were the threat for the hatchery PL marketing. Because these PL were sold at very low rate. These PL caused genetic depression of our native PL. These PL often carried harmful viruses.
5. Natural calamities such as – droughts reduced the demand of hatchery PL because farmers could not culture these at that period.
6. Due to lack of available manpower they could not contact with the farmers directly.
7. Due to lack of skilled technician the hatchery could not produce good quality of fry.
8. Because of higher mortality rate the hatchery could not produce higher amount of fry.
9. Due to lack of financial support the hatchery could not increase the production of PL.
10. Due to lack of available land the hatchery could not make nursery pond to stock the unsold PL and to reduce the losses.
11. Shortage of electricity was a common objection of hatchery owners for PL production.

12. Most of the hatcheries were situated in those areas where the communication and transportation system were not good. So, the farmers did not show any interest to buy PL from the hatchery.

4.25 Possible information for improvement of marketing system

1. The hatchery owners have to change the belief of the farmers about the quality of hatchery PL and have to ensure the good quality of PL.
2. Good quality of mother shrimp should be collected for PL production and these shrimp should be preserved for showing the farmers to convince them.
3. Proper marketing area should be selected.
4. Trained personnel and fisheries graduate should be employed as hatchery manager and marketing officer in each hatchery.
5. Public meeting should be organized several times in a production cycle in the depot or fish marketing area.
6. Posters should be informative to draw the attention of the farmers.
7. Leaflets should be distributed to the buyer of PL and farmers during public meeting. Rearing technique should be included and that should be scientific.
8. The marketing officers have to contact with the farmers directly.
9. Technical support should be given during the culture period to the farmers who will buy PL from the hatchery.
10. There should have an average price of the PL in all hatcheries at the same area according to season.
11. Sell on credit system should be banned
12. Commission system should be limited and the amount of commission should be same in all hatcheries of same area.
13. The hatchery should be situated at the roadside so that the transportation system will be good.
14. Counting system of PL should be improved.
15. Every hatchery should have sub-offices in different marketing area from where they can distribute PL to the local farmers.
16. Each hatchery should have nursery to stock unsold PL to reduce the possibility of losses.

Chapter 5

Discussion

Most of the surveyed hatcheries produced more galda PL because huge amount of bagda PL came from Cox'sbazar hatcheries. The hatcheries selected marketing area according to number of ghers and depot. Total amount of PL sold is higher in BRAC and Proshika hatchery than other hatcheries because they used marketing officers.

The commission agents played a vital role in fry marketing of hatcheries. Similar findings were noted by Shah (2006) and Ahmed (2003).

Proper way of transportation and communication system helped the surveyed hatcheries for better marketing of fry, which was supported by Khan (2006).

During the time of survey most of the hatcheries had stopped their production. It was not possible to contact with all the hatchery owners. So, actual information was not collected perfectly. In few hatcheries information was collected from temporary staffs through oral interview only. It was not possible to observe the public meeting or sub-offices directly. Leaflets and posters of the hatcheries were seen. The temporary staffs could not give all the required information. Some new hatcheries gave information about the production and selling on the basis of their assumption. Few hatchery owners did not want to say all of their marketing strategy. Information about cheating with the farmers and amount of commission were collected from the temporary staffs or guards of some hatcheries.

Chapter 6

Conclusion

Shrimp PL is collected from the natural source and hatchery. Collection from natural source destroys the natural bio diversity. It destroys about 88 other species for collection of one shrimp PL. So government is trying to stop the collection of PL from natural sources. As a result, the farmers will be completely depending on hatchery for PL. There are 44 bagda hatcheries and 28 galda hatcheries are in Bangladesh. The number of hatcheries is increasing day by day. There is a strong competition among the hatcheries for PL selling. They follow different types of marketing strategy. High mortality, lack of transport facilities, shortage of capital, price fluctuation are the principal problems of the hatchery. Government should give proper attention to overcome these problems. Proper marketing facilities, credit supply to the hatcheries and integrated marketing strategy of the hatcheries should be provided also for better marketing.



Chapter 7

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Appendix

Questionnaire

1. Name of the hatchery.....
2. Name of the owner.....
3. Types of production.....
4. Source of mother shrimp.....
5. The main marketing area of the hatchery:
6. Number of staffs.....
7. Number of trained staffs.....
8. Some medium of marketing.....
9. Number of sub-offices.....
10. Amount of production of PL in last year.....
11. Amount of sold PL.....
12. Amount of PL stock.....
13. Price of PL (galda) in different season.....
14. Price of PL (bagda) in different season.....
15. Counting technique of PL.....
16. Medium of transportation.....
17. Number of commission agent.....
18. Amount of commission.....
19. Number of nursery.....
20. Is there sell on credit system?.....
21. Existing problems of the hatchery marketing.....
22. Way to overcome these problems.....
23. Kind of facilities expect from government.....