

## **Chapter I Introduction**

### **1.1 Background of the study**

A biological ornament is a structure of an animal that appears to serve a decorative function rather than an ostensible, utilitarian function. Ornaments are used in displays to attract mates. An animal may shake, lengthen, or spread out its ornament in order to get the attention of the opposite sex, which will in turn choose the most attractive one. In case of ornamental birds due to their natural beauty, intelligence and attractiveness they attract human also to raise up as a pet.

In past, most "ornamental" species are raised by hobby aviculturists which do not have "profits" as a motive. These dedicated men and women usually do not even make enough "profit" to pay for the feed each year much less the cost of the pens, equipment, and labor. They are glad to donate their time and other costs of raising their favorite species. It can safely be said that few, if any, hobby aviculturists make any profit. But now a days thought has been changed day by day. Because of a huge population which is 162,951,560 and out of total population male is 7,63,50,518 (50%) and female 7,61,67,497 (49.9%) (UN, 2016). A major portion (35%) of the population of Bangladesh lives below upper poverty line UN, 2016). To gain a profit is a real accomplishment during these days of economic uncertainty. Unemployed youth (7.2%) (BBS, 2015). and house wives can play a vital role in this regard.

There are some considerations which should be taken seriously by the prospective commercial ornamental bird breeders. The money investment that is required for commercial production of ornamental birds and their products is probably the first consideration one should make. In a commercial ornamental bird project there will be considerable investment required. There must be the cost of land. If one goes out and buys land for the enterprise the costs could be as high for an acre of suitable land.

The land should be in an area where it is legal to raise birds. Besides land, there is the investment of pens and equipment which will be high at first, but can be spread over several years. Finally, an up-front investment will be for the birds whether one starts with hatching eggs, started chicks, or breeders. It has been suggested by those with experience that to be

assured of an income the person starting off in the ornamental bird business should not have enough money.

**Elise V. Pearlstine and Juan Sebastian Ortiz (2009)** reported about habits, habitat, food, nesting and reproduction, potential ecological impacts of purple swamp hen. In their native range they are found in a variety of wetlands and wetland associated habitats .purple swamphen construct nest in shallow water (30-120)cm deep. Breeding females typically lay a clutch of 2-7 eggs and purple swamp hens may compete

The local climate is a important factor for ornamental birds rearing. Most of the commercial species of birds are tough enough to survive in any climate. Generally in Bangladesh Parrot, Mayna, Lovebird, Pigeon, Dove, purples swamp hen (Kalim), Finch, Cockatiels are suitable for farming,

The available market should be considered very carefully. Who will buy the product? Will the sale price be enough to make a decent profit? Should eggs, chicks, young birds, or breeders be produced for the market? This should be carefully thought through and analyzed by the prospective ornamental bird breeder. The market will determine to a great extent the type of birds that are raised.

Checking the law is very first thing for a prospective commercial ornamental bird producer. Most states have laws governing the keeping of native (and some foreign) ornamental birds in captivity. The regulations vary with each state so be sure and check before ordering eggs, chicks, or stock. All aviculturists should operate within the law. For the sake of the whole fancy, we should not only obey the law ourselves, but encourage others to do the same. When only a few violations occur then broad regulations are imposed on us.

## **1.2. Reason of the study:**

Now days, rearing of ornamental birds has become a trend. As a result, Farming of ornamental birds has also been increased which have an important role in our economy. Besides, Most of the farmers does not have enough knowledge about management, disease control of ornamental birds. Moreover no study has yet been undertaken about ornamental bird rearing in this area, hence the reason for this study.

### **1.3 Objectives**

**The specific objectives of the study are as follows:**

- i.** To know the overall husbandry practices of ornamental bird farming practices.
- ii.** To assess the average farm profitability of ornamental bird farming.
- iii.** To identify the problems faced by the farm owners both in production and marketing.
- iv.** To identify the prospect of ornamental farming in Bangladesh.

## CHAPTER II

### MATERIALS AND METHODS

#### 2.1 Study area and period of study:

The present study was conducted in Agrabad, Boddarhat, Haliashahar area under Chittagong district, during my intern period.

#### 2.2 Selection of farm:

The farms was selected for study purpose considering the easy communication, interest of the farmer for giving excess to the farm, research scope and infrastructure of the farm.



**Figure 1: Overview of farm**

#### 2.3 Preparation of the questionnaire:

The questionnaire was developed in accordance with the objective of study. It was prepared to get the desired information from the ornamental farm owner and caretaker.

#### 2.4 Method of data Collection:

Information related to the study was collected by using an interview schedule through face to face interviewing the farmer/caretaker and physical observation of farm. Before interviewing, the aims and objectives of the study were explained to the owner and caretaker of the farm. They were convinced that the study was purely an academic one and was not likely to have any adverse effect on their business. Thus the primary data were collected. The secondary data were collected from different records kept by the farmer.

The primary data were collected about planning of ornamental bird farm, longevity housing pattern ,cost of housing, nesting pattern and costs, feeding behavior, cost of feed,

bird collection, flock size, purchase cost, their production, mortality, disease prevalence, selling price of birds, daily activities in farm etc.

### **2.5 Data analytical Techniques:**

The collected data were kept in Microsoft Excel and SPSS. Descriptive analysis like percentage, graph etc. are used for analysis the data.

### Chapter III

## RESULT AND DICUSSION

### 3.1 MANAGEMENT PRACTICES OF THE FARM

#### 3.1.1 Collection of birds:

Collection of birds is an important factor for ornamental bird farming. The farm owners collect the birds of different species from zoos, different shops of katabon, Dhaka. The purchase cost per bird is given below:

**Table 1: Species wise cost of collecting bird by the farmer**

Species	Price per bird	No. of bird	Cost
Love bird	250	20	5000
Parrot	900	20	18000
Purple swamp hen	500	10	5000/-
Dove	700	20	14000/-
<b>Total cost</b>			<b>42,000/-</b>

Table 1 indicate the price per bird, total number of bird purchased and cost for birds of every species. The price is varies species to species. For example, price of parrot is the highest of all due to its nice look and big size. Similarly the amount of birds purchased is varies from species to species. It also depends on the demand of birds in market. Purple swamp hen has comparatively lower demand than other 2 species in market and it is also easy to breed. That's the reason why it is purchased in a smaller number. The total cost of collecting 4 species of birds is calculated

#### 3.1.2 Flock size:

Different flock size are observed in different farms. The average flock sizes were found in the farms which is given below:



**Figure: Cockatiel cage**



**Figure :Dove bird cag**

Different flock size are observed in different farms. The average flock sizes were found in the farms which is given below:

**Table 2 : Flock Size of birds**

Species	Flock size	No. of Female	No. of Male
Love bird	20	15	5
Parrot	20	15	5
Purple swamp hen	10	5	5
Dove	20	10	10
<b>Total</b>	<b>70</b>	<b>45</b>	<b>25</b>

### **3.1.3 Housing**

A suitable house is the prime need for the rearing of ornamental birds in the intensive method. The farm owner built houses with bricks, nets with colored potteries for beautification and birds sitting & adequate nesting spaces also provided for breeding purpose of the farm. In winter, farmer use rubber sheet around the nets for protection of birds.

### 3.1.4 Floor, feeder, waterer spaces:

The average floor, feeder and waterer spaces provided in the farm are mentioned below

**Table 3. Floor, Feeder and Waterer spaces of birds:**

Species	Floor space	Feeder	waterer
Love bird	0.5 sq. ft.	1 inch	0.5 inch
Parrot	0.5 sq. ft.	1inch	0.5 inch
Purple swamp hen	1.0 sq. ft.	2 inch	1.0 inch
Dove	1.0 sq. ft.	1.5 inch	1.0 inch

Average floor space is given in the following table. Floor space, Feeder space and waterer space depends on species and varies from species to species. The table indicates purple swamp hen and dove requires the maximum 1 sq. ft. floor space, where love bird and parrot needs 0.5 sq. ft. floor space. Purple swamp hen also requires comparatively larger Size feeder and waterer than love bird and parrot.

### 3.1.5 Nesting space:

**Table 4: Average available nesting space for different species of ornamental birds.**

Species	Length(inches)	Width(inches)	Height(inches)
Love bird	12	12	12
Parrot	12	12	12
Purples swamp hen	12	6-8	8-12
Dove	12	18	12

Average available nesting space for birds are given in the table 4. Different species of birds require different size of nesting space for their breeding. Love bird and parrot require equal amount of nesting space, whereas dove needs larger size of nest box than other 3 species of birds for their breeding. The length of the nesting space is same for every species of bird but the width and height is varies with the size and nature of every species of bird.





**Figure 3: Nest provided in the house.**

### 3.1.6 Feeding practices:

Feeding is the main function for rearing ornamental bird. “More feed consumption, more body weight gain” is the main concept of the experimental farm. The birds are given small quantity of feed frequently in the 1<sup>st</sup> week of age. Feeds are given two times (morning and afternoon) daily. In breeding season they are given proteinaceous feed such as boiled egg, calcium and vitamins such as cod liver oil, brewer yeast. Besides, readymade feeds leafy vegetables, apples, bananas, leeches, berries, peanut, butter, sunflower seeds are also given.

**Table 5: Feeding practices in the farm**

Species	Requirement/bird/day (gm)	Daily requirement for the farm (gm)	Yearly requirement(kg)
Love bird	20	400	146.0
Parrot	20	400	146.0
Purple swamphen	35	350	127.7
Dove	20	400	146.0
<b>Total</b>			<b>565.7</b>

The table shows that Love bird, Parrot and dove needs 20gm feed/bird/day. Purple swamphen requires 35gm feed/bird/day. In these farm besides readymade feeds birds are also given other feeds such as leafy vegetables, cutup apples, bananas, leeches, berries, peanut, butter, sunflower seeds. Generally ornamental birds are offered proteinaceous feed such as boiled egg, calcium and vitamins such as cod liver oils, brewer yeast during breeding season. Doves also like vegetables, cooked rice, leafy vegetables, peanut butter,

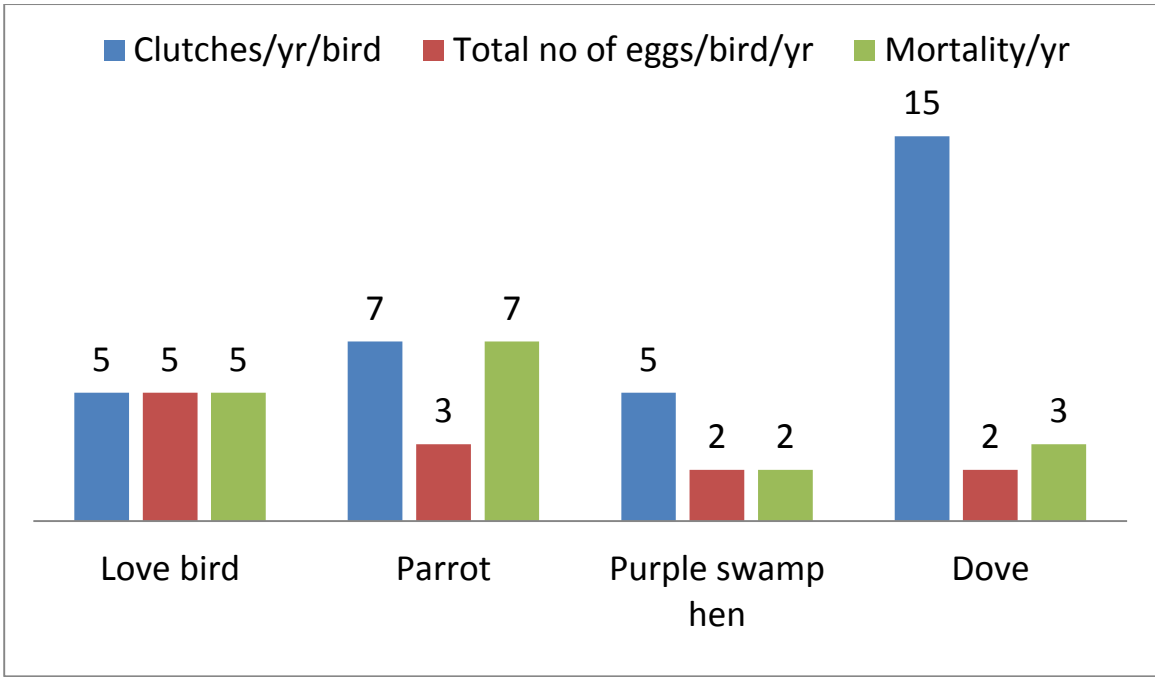
grated cheese, and mashed hard boiled eggs. Peach faced lovebirds should also be offered small amounts of fresh dark green leafy vegetables, tiny slices of apple, grapes, melons, sprouts, or other fresh foods(**Susanclubb**)

**Table 6: Production performances of ornamental birds:**

Species	Clutches per year per bird	Number of eggs per clutches per bird	Total Number of eggs per year per bird	Incubation period(days)	Mortality of birds per year	Number of bird sold per year
Love bird	<b>5</b>	<b>3-7</b>	<b>32-36</b>	<b>23</b>	5	475
Parrot	<b>7</b>	<b>3</b>	<b>21</b>	<b>21-30</b>	7	308
Purple swamp hen	<b>5</b>	<b>2</b>	<b>10</b>	<b>23-27</b>	2	48
Dove	<b>15</b>	<b>2</b>	<b>30</b>	<b>17</b>	3	297

Table 06 represents that, clutches per bird per year are higher in case of Dove which is 15 in number. In second highest position, Parrot which give seven clutches per bird per year. Then in 3<sup>rd</sup> position both Purple Swamp hen and Love bird which gives five clutches per bird per year. Where a single clutch was raised by most pairs per breeding cycle. (LOUIS ...WARBURTON, et al)

In case of egg production, love bird has highest egg production which is 32-36 yearly/bird. According to the study of **Susan et al, 2009** peach faced love birds produced 4-8 eggs per clutches which is nearly similar to the performance of farms which indicates that farm maintaining good nutrition and husbandry practices. Average 30 eggs were produced per year per dove. The purple swamphen produced 10 eggs per year per bird which is very lower, naturally 35 eggs per year per birds are recorded by **Elise & Juan et al., 2012**. Egg production is lower because purple swamp hen prefers to nesting in swallow water and they may also build floating nests (**Elise & Juan et al., 2012**) but there is no scope of this type of nesting in the farm.



**Fig:** Graphical representation of clutches, total no. of eggs, mortality per year per bird.

Table 06 and figure also shows that the mortality rate of parrot was highest followed by lovebird, dove, purple swamp hen.

**3.1.8. Disease prevalence:**

Disease prevalence which is recorded by the farm owner are given bellow:

**Table no: 7. Occurrence of diseases in ornamental bird farming**

Species	Diseases
Love bird	Psittacosis, liver disease, budgie fledging disease, psittacine beak & feather disease, yeast infections.
Parrot	Psittacine black & feather disease, feather flucking disease, avian salmonella, avian T.B.
Purple swamp hen	Yeast infection, avian salmonella, avian T.B.
Dove	Fowl cholera, coryza, ornithosis, paratyphoid.

Table no 7 shows the occurrence of diseases. Love birds are generally susceptible to psittacosis and salmonellosis. Avian TB and salmonellosis are also very common in parrot. In case of dove, Fowl cholera, infectious coryza, ornithosis and para typhoid are mostly recorded diseases in these farms.

### **3.1.9 Vaccination and Biosecurity:**

Vaccination status is found poor in the farms. Most of the farmers are not so interested in vaccination of birds. All the farms is located remote place from the highway and in surrounded by high walls. The cages are protected by net. As maintaining biosecurity is one of the most important things, biosecurity status should be improved.

### 3.2 Profitability of ornamental bird farming:

The formula for measuring profitability of a firm is:

$$\text{Net Profitability: } \pi = \text{TR} - \text{TC}$$

Where, TR = Selling of total produced bird per year

TC = Cost for all factors

**Table 8: Average yearly cost of a farm:**

Item	Amount(Tk.)
<b>Variable cost</b>	
Veterinary care +sanitation	80,000
Labour	1,44,000
Electricity	24,000
Water supply	3,600
Transportation cost	15,000
Miscellaneous cost	25,000
Bird purchase cost	42000
Feed cost	53287.50
<b>Fixed cost</b>	
Housing	2,40,000
Nesting, cage, wire	5,00,00
Land rent	2,00,000
Depreciation cost of housing	1,20,000
Depreciation cost of nesting	50,000
Total cost/year	8,26,887.50

The cost and return is very important component of ornamental bird farming. The cost and return was estimated from the collected data from 3 bird farms under Chittagong district. The estimated yearly approximate costs of study were discussed as follows:

The total cost was measured 8,26,887.50 taka/year. The total cost was divided into variable cost and fixed cost. Fixed cost includes costs like veterinary care and sanitation, labor. 2 labour is working in permanent basis with a salary of 6000taka per month. Electricity, water supply, transportation cost and miscellaneous cost was included in variable cost. Both readymade and other food like leafy vegetable, apple, banana, sunflower feed etc. are used to feed the birds. Which leads to a total cost of 53287.50 taka/year. Fixed cost include housing cost, nesting cost, land rent, depreciation cost. The depreciation cost is calculated @5% in case of housing and 10% in case of nesting.

**Table 9: Yearly income from selling birds**

Species	No. of birds	Average selling price per bird (in taka)	Income(in taka)
Love bird	464	400	2,32,000
Parrot	300	600	1,80,000
Purple swamp hen	48	1000	48,000
Dove	299	2700	8,10,000
<b>Total</b>	<b>1111</b>		<b>12,70,000</b>

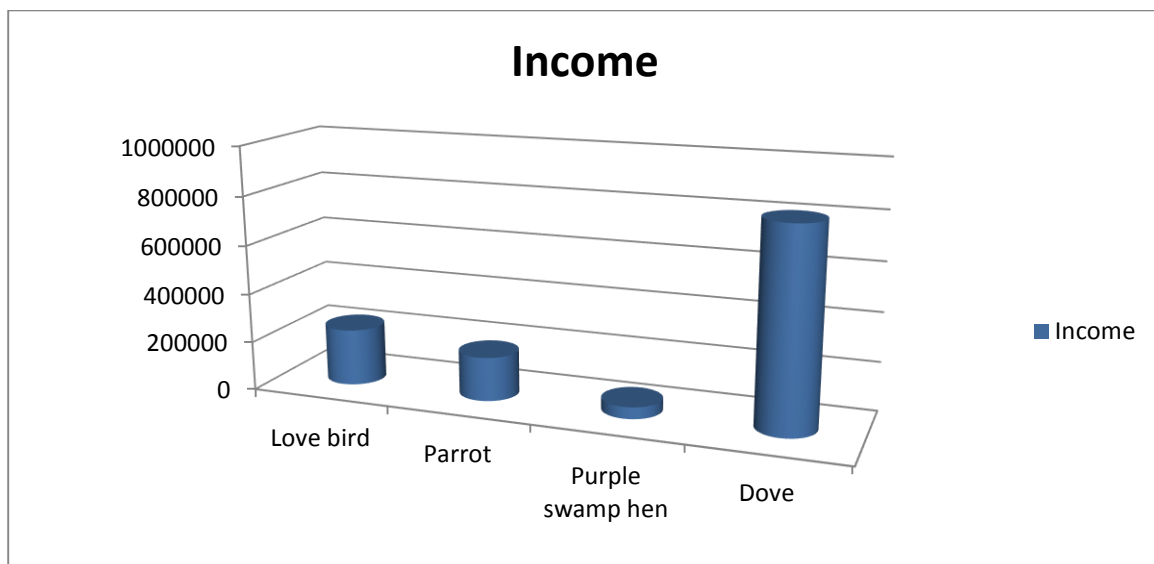


Fig: Graphical representation of income from different species.

The data shows that, profitability is more in case of dove because their number, price per bird and market demand.

**Table10:** Average yearly profitability of a firm

Item	Taka
Return from bird sell	12,70,000
Total cost	8,26,887.50
Net profit	4,43,112.50
Gross margin	81,512.50
BCR	1.54

Profit per month of the farm is 36926.04 taka indicates that it is a profitable business.

Table shows that, the net profit of the farm is 4, 43, 112, 50 taka/year and the gross margin is 81,512.50 taka/year.

**BCR:**

The benefit cost ratio (BCR) on full cost basis is 1.54 means if a farmer invest 1 taka for rearing of ornamental birds, he will get return of taka 1.54. So, the benefit will be Tk.0.54.

## CHAPTER-IV

### PROBLEMS AND PROSPECT OF ORNAMENTAL BIRD REARING:

#### 4.1 problems of bird rearing in Bangladesh:

##### 4.1.1 Lack of knowledge:

In Bangladesh very few people knows about ornamental birds, their varieties, nutrition, breeding, demand in market. So, most of the entrepreneurs can't take an initiative to establish ornamental bird farming.

##### 4.1.2 Lack of nutritious feed:

In case of ornamental bird, besides readymade feed they also take other type of feeds ,such as lovebird and budgies take sunflower seeds, hemp seeds, kushum ful, tishi etc. which needs to be cultivated. There is no enough land for feed cultivation. As a result, the farm owner faces the crisis of feed. 40% farmers face this problem.

Name of the problem	Faced by (%) of people
Lack of nutritious feed	40
Lack of electricity	60
Lack of expert opinion	100
Low quality chick	55
High mortality rate of chicks	45
Lack of well-established diagnostic lab	100
Lack of post mortem facilities	90
Lack of bio-security knowledge	85
Unavailability of drugs	70
High cost of drug	100
Absence of proper disease control model	100
Acute shortage of veterinary support staff	30



#### **4.1.3 Lack of electricity:**

Electricity is the prerequisite for ornamental bird farming because without electricity birds got frightened in captive condition. But it here is a huge problem of load shedding of electricity. This problem is faced by 60% of farmers.

#### **4.1.4 Lack of expert opinion:**

People of remote area do not get good & expert consultants. So many bird die because of mismanagement. Almost 100% farmers face this problem.

#### **4.1.5 Low quality chick:**

The suppliers supply low quality chicks. As a result the farm owners are deprived from Having good and healthy chicks. Many chicks die in their early stage of life. It is very harmful for a farm and loosing farmer interest regarding expanding the farm. 55% of farmers complained about this.

**4.1.6 High mortality rate of chicks:** When the farms become affected by any contagious disease, the mortality rate of the birds is very high. The farm owner cannot take proper care and treatment in due time. 45% farmers are facing this problem.

#### **4.1.7 Lack of well-established diagnostic lab:**

There is not enough opportunity for diagnosis of disease in Chittagong. Because of lack of diagnostic laboratory .almost 100% farmers are suffering from this problem.

#### **4.1.8 Lack of post mortem facilities:**

There is lack of post mortem facilities of dead bird for the diagnosis of disease. As a result they cannot know the actual cause of the diseases and not take proper preventive measure. About 90% farmers are facing this problem.

**4.1.9 Lack of bio-security knowledge:** The farm owners do not maintain bio-security strictly. Local people, cattle, goat, dog, cat, other birds are always threatened for a farm. Many farmers do not use foot bath at the entrance of the farm. About 85% farm owners don't have enough knowledge about bio security.

#### **4.1.10 Unavailability of drugs:**

Good and varieties quality of drugs are not found in this area. It is a major cause of death of birds and a barrier of establishment of farms. 70% farmers having this problem.

#### **4.1.11 High cost of drug:**

The cost of birds drug is very high. The poor farm owners are not able to buy drug of high cost for the treatment of their birds. All of the farmers think that the price of drugs are too high.

#### **4.1.12 Absence of proper disease control model:**

There is no any disease control model in the rural level on which the farmer can prevent diseases occurred in the farm. 100% of farmers feel the lacking of proper disease control model.

#### **4.1.13 Acute shortage of veterinary support staff:**

There is lack of veterinary doctor and other staff for the suggestion of farm owner for the development of ornamental bird farm. About 30% farmers complains about this problem.

### **4.2 Prospect of ornamental bird farming in Chittagong:**

The geographical location, environmental condition, number of people, cordiality of people, unemployed people favor the establishment of ornamental bird farm on a large scale in this area. Other factors which can also influence ornamental bird farming in this area are given below:

#### **4.2.1. Availability of bird:**

Since Chittagong is one of the biggest city in Bangladesh so, there is a huge market of ornamental bird which is situated in Reazuddin Bazar, Chittagong. So, farmers can get varieties of bird from there and sell their birds.

#### **4.2.2 Developed transportation facilities:**

The transportation facility is good. It is easier for the farmers to transport the necessities from one place to another. So people of this area may find interest to establish farm.

#### **4.2.3 Quality of bird:**

Good quality bird can be supplied from Different birds market.

#### 4.2.4 Peoples demand:

Now a day people's demand is increasing in this field. Pet animals and birds keeping has become their hobby. These birds are so attractive and friendly so, they may be reared for removing the loneliness of people. So, people have interest to buy them.

#### 4.2.5. Utilization of birds and bird's product:

**Table13: Utilization pattern of ornamental birds**

<b>Species</b>	<b>Utilization pattern</b>
Love bird	Pet trade, ornamental cage pet trade, aviculture
Parrot	Circus, Display, Companion, zoo.
Purple swamphen	Meat trade, zoo
Dove	Pet trade ,ornamental cage pet trade, aviculture ,meat trade.

## **CHAPTER-V**

### **CONCLUSION AND RECOMMENDATION**

Ornamental bird farming is a new concept in Bangladesh among all the business related to birds and animals. If disease prevalence, mortality rate can be checked it would be a successful business in this country. In this study considering clutches per year per bird, total number of produced egg, total number of sold bird, market demand, price, mortality rate, disease prevalence profitability is more in dove rearing compare to lovebird, parrot, purple swamp hen. Despite of above factors utilization of birds and their products is also a great factor for ranking. Dove can be used for pet trade, ornamental cage pet trade, aviculture and meat trade. Specific species are studied in this study. So, details study is needed in this field.

## References

BBS (Bangladesh Bureau of Statistics), 2015. Quarterly Labour Force Survey.

BBS (Bangladesh Bureau of Statistics), 2016. Quarterly Labour Force Survey.

Clubb, S., 2009. Peach faced Love birds. *Journal of the association of avian veterinarians* 1:32-34.

Dawn, M., 2012. *Specialized Care for Avian and Exotic pets*, USA

Dunn, J.L. and Alderfer, J.K. eds., 2008. *National Geographic field guide to the birds of western North America*. National Geographic Books.

John, W., 2010. *Breeding behavior of parrot*, Sydney University Press, Australia.

Pacheco, C. and McGregor, P.K., 2004. Conservation of the purple gallinule (*Porphyrio porphyrio* L.) in Portugal: causes of decline, recovery and expansion. *Biological Conservation*, 119(1), pp.115-120.

Pearlstine, E.V. and Ortiz, J.S., 2009. A natural history of the Purple Swamphen (*Porphyrio porphyrio*) in Florida.

Pranty, B., Schnitzius, K., Schnitzius, K. and Lovell, H.W., 2000. Discovery, distribution and origin of the purple swamphen in Florida. 28:1-1

Warburton, L.S., 2004. *Agapornis nigrigenis* in Zambia, University of Natal, South Africa, Psittacine Volume 16, No 1.

World population prospect: 2017 revision. United Nations Department of Economic and Social Affairs.

**Some websites:**

[www.berkscountrybirdclub.com?love](http://www.berkscountrybirdclub.com?love) bird

PricelessParrots.com/,African grey parrots.

[\\_www.birdsnways.com/wisdom/ww14eiv...](http://_www.birdsnways.com/wisdom/ww14eiv...)

[en.wikipedia.org/wiki/List\\_of\\_birds\\_of\\_Bangladesh](http://en.wikipedia.org/wiki/List_of_birds_of_Bangladesh)

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**The Author**

## **BIOGRAPHY**

Jahangir Mahmood, Son of Jahangir Alam Chowdhury and Sultana Rajia. He is an interned veterinary doctor under the faculty of Veterinary Medicine (FVM) in Chittagong Veterinary and Animal Sciences University (CVASU). He passed his Secondary School Certificate (SSC) Examination in 2008 followed by Higher Secondary Certificate (HSC) Examination in 2010 from Chittagong board. In future he would like to do Research work about animal welfare, epidemiological study and Zoonotic diseases those take public health significance in the world regarding one health constitution.



