

## Evaluation of Comparative Bio-Economic Performance of Duck Farming in Beel (LowLand) Area of Pabna

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**Abstract:** Data were collected from 10 different duck farm, five each of improved and local/deshi duck. The aim of the study was to evaluate biological and economic performance of improved and local duck farming depending on natural feed resources such as snails, oyster, fallen paddy etc. in the beel area. Supplimentary feeding is only practiced during scarce period. Egg production of improved duck per year was found to be double with comparison of local duck farming (200 vs 88). Season and availability of natural feed resources had a profound influence in egg production in this area. Average gross margin was Tk. (25099.61±885.64) and (5931.65±70.66) / farm / year for improved and local duck respectively, and with benefit cost ratio of 2.66±0.08 vs 1.51±0.05. So economic analysis reveals that farming with improved ducks in beel area is more profitable than that of local.

**Key words:** Farming, Bio-economic performance, scavenging, beel area

### Introduction

Duck comprises a considerable portion, occupying about 20% of total poultry population of Bangladesh (BBS, 1999). A major part of these ducks are conventionally maintained in the low laying wetland areas of revering Bangladesh like horse, beels, baors etc. In Bangladesh, ducks ranked second to chicken in total egg production and they are not only more resistant to diseases but also lay larger eggs and supply more meat and egg than indigenous chicken under climatic conditions of Bangladesh (Ahmed, 1986). Ducks are considerably cheaper to raise particularly in Bangladesh, where natural aquatic feed resources are available. The preliminary study (FSRDP, 1987) indicates that the beel, one of the most natural aquatic resourceful area, is predominantly rice growing area where duck farming has got a bright prospect either as a supplementary enterprises or independent one. It is a generalization that egg laying ducks in rice producing area of South-East Asian countries (from China to Indonesia, from India to Philippines) move from rice field to rice field and follow the rice harvest eating insect and collected the fallen grains (Bird, 1986). Bulbule (1986) reported that ducks were reared in nomadic way, predominantly in rice growing area of South-East Asia, where they fed themselves by foraging, picking the fallen paddy grains after harvest, aquatic materials (weeds, snails, small fish), earth worm, insect, duckweeds and

algae. However, studies covering availability of natural feed resource, systems of duck rearing and their production potentials in beel areas of Bangladesh are meager. Therefore, the present study was undertaken to see the management of egg laying ducks and their production performances in the beel area.

### Materials and Methods

The study involved ten different farmers, five of which reared Improved and five local type at Pabna site of Farming Systems Research and Development studies under On - Farm Research Division of Bangladesh Agricultural Research Institute (BARI). Improved ducks included Khaki Campbell, Gilding and their crosses. The number of ducks reared in each farm is given in Table 1. Farmers rearing improved duck collect ducklings of 4-6 weeks of age from various sources (government poultry farm, private farms). Local ducks are collected from their own hatching and adjacent villages. Supplementary feeding practice was used for growing and layer ducks and scarcity season of natural food. Ducks reared in the beel are mostly scavengers but farmers also practice supplementary feeding in the laying period. A floor space of 0.19m<sup>2</sup>/duck was provided for night shelter in a house made with bamboo, bamboo-mats and tin. All the birds were routinely vaccinated against Duck cholera and Duck plague. Records were kept on mortality; birds sold and egg production through

**Table 1: Information on ducks reared during study period in the beel area (Mean±SE)**

Farm	Duckling number	Bird sold	Mortality
Improved	114±4.30	11.8±1.31	7.2±1.77
Local	95±5	15.6±2.94	4.2±0.8

**Table 2: Supplementary feeding practice used for growing ducks according to the age**

Ingredients	Amount (g) / bird / day	
	6-11 weeks	12-21 weeks
Cooked rice	7	5
Rice polish	10	20
Unhusked rice	6	8
Wheat bran	10	25
Oyster meat	30	45
Snails	20	40
Scavenging hour / day	3-4	5-8

**Table 3: Supplementary feed given to laying duck/day in beel area**

Feed Ingredients	Period (In month)			
	April - June	July - September	October - January	February - March
Rice bran (g)	10	12	10	15
Collected snail (g)	20	10	45	35
Wheat bran (g)	15	25	15	15

**Table 4: Yearly egg production of ducks in the study area (Mean±SE)**

Farm	Type of number of ducks		Egg production / year	
	Female	Male	Per farm	Per duck
Improved	90.2±5.69	4.8±0.9	17378±1051.15	192.8±2.08
Local	71.0±3.36	4.2±0.66	6766.2±210.3	94.2±2.28

**Table 5: Cost analysis (TK / Farm) of duck farming of beel area (Mean±SE)**

Farm	Cost of Duckling	Production Cost (Feed)		Medication Cost	Gross cost
		Growth stage	Prodn stage		
Improved	4560±172.40	2848.2±163.73	7267.8±100.67	318±8	14886±468.8
Local	2850±150	2416.8±85.69	6038.8±175.94	273±12.40	11506.8±261.34

**Table 6: Return (TK/Farm) of duck farming at beel area (Mean±SE)**

Farm	Duck sold	Egg sold (Yearly)	Existing stock	Gross return	Gross margin	BCR
Improved	780±147.13	34756±2102.30	4275±254.16	39811±2270.12	25099.6±1885.64	2.66±0.08
Local	591±65.95	13536.4±420.34	3384±161.87	17110.4±688.92	5931.6±570.66	1.51±0.05

monitoring.

## Results and Discussion

**Duck dynamic:** The number of ducks per, at the beginning, ranged from 105-130 and 90-110 for improved and local types (Table 1). Higher mortality was observed in improved types of ducks (7.2±1.17) than those of local property ducks (4.2±0.8). About 7-22% ducks mostly comprises male, is sold each year.

**Scavenging and supplementary feeding:** The rearing of ducks in the beel area is done mostly

under scavenging. The scavenging hour per day increased with the age. It was found that 7-12 weeks of age scavenging hour/day was 3-4, while 5-8 at 12-21 weeks age (Table 2). During egg laying, ducks scavenged from 5-8 hour/day (Table 2 and 3). The ducks scavenged harvest paddy field, migrated area, around the village and beel areas during April - June, July - September, October - January and February - March, respectively (Table 3). Supplementary feeding practiced by the farmers depends on the

availability of natural feed resources in various

seasons (Table 2 and 3). During scare period supplementary feeding is essential to maintain normal health conditions of duck so as to ensure the future productivity of ducks. Supplementary balanced ration during flooding time and cropping season in the beel area is essential to support the normal productivity of ducks. Reported the Khaleque (1996). He also mentioned that some farmers fed paddy and collected snails from beel instead of formulated balanced ration.

**Egg production:** Farmers in beel area rear ducks only for table egg purposes. They keep only 2-3 ducks for avoiding excessive grouping so as to control the ducks easily. Total yearly egg production of improved ducks is more than double the production of local ducks (200 Vs 88) (Table 4). Khaleque (1996) reported that deshi ducks produced 60-90 eggs, whereas modern breeds laid more than 200 eggs/year.

**Profitability:** Duck breed that raised influences the economic performance of profitability. Results indicate that duck farming with improved breeds/varieties is more profitable than that of local. Average gross margin was TK. 25099.61±885.64 and 5931.65±70.66 per farm in improved and local duck farms, respectively with benefit cost ratio of 2.660 vs 1.51±0.05. So, there is a great prospect of duck farming under full scavenging condition. Effort should be given in duck farming with improved breeds in this natural resourceful areas to meet protein deficiency as well as to generate employment opportunity for unemployed people making small scale supplementary duck enterprises.

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