

Some Productive Performances of Nili-ravi and Crossbred (Nili-ravi X Local) Buffaloes at Government Buffalo Farm, Bagerhat, Bangladesh

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Abstract: This experiment was conducted at Buffalo Breeding and Development Farm, 'Bagerhat' a southern district of Bangladesh to investigate the milk (lactation) yield, lactation length and calf mortality rate of Nili-Ravi and crossbred buffaloes. From this study it was revealed that the average milk yield per lactation of Nili-Ravi and crossbred buffalo cows were 1161.805 ± 684.07 and 696.636 ± 258.68 liters respectively, while their average milk production per day were 3.5 and 2.24 liters. On the other hand average lactation length for same genotypes were 330.426 ± 70.08 and 311.556 ± 74.14 days respectively. The overall calf mortality rate was 24.28% and the average calf mortality rate for Nili-Ravi and crossbred buffalo were 37.1 and 14.1 percent respectively. Statistical analysis showed that there were significant variation ($p < 0.01$) existed between Nili-Ravi and crossbred buffalo calves in respect of calf mortality. From the study it may be concluded that Nili-Ravi buffaloes are better than crossbred buffaloes considering specially on milk production mentioned in the Buffalo Breeding and Development Farm, Bagerhat, Bangladesh.

Key words: Nili-Ravi, crossbred, milk yield, lactation length and calf mortality

Introduction

The buffaloes hold strategic place in overall livestock economy of Bangladesh and serve three important purposes viz. milk production, meat and draught power (Ghaffar *et al.* 1991). Cattle and buffalo supplies about 99% of the total milk produced in our country, 50% of the total milk consume and 98% of the draught power requirement of the country (BBS, 1991). Bangladesh suffers from an acute shortage of livestock products like milk, meat and egg. The domestic production of milk and meat are very little in respect of our total requirements. The per capita per day availability of animal protein has declined from 2.03 g to 1.82 g over the period from 1977 to 1987 (GOB, 1990). The annual production requirement and deficit of livestock products are given below.

Table 1: Annual requirement, production and deficit of livestock products

Products	Annual	Annual production	Annual deficit	Annual deficit (%)
Milk	9.636 MMT	1.412 MMT	8.224 MMT	85.35
Meat	4.336 MMT	0.504 MMT	3.831 MMT	88.36

Source: Dainik Ittefaq, 18.4.1999.

Table 1 indicates that the production of milk and meat must be increased at least 7 to 10 times more. The indigenous and crossbred cattle are not enough to fulfill the requirements. For this purpose we have to think about our buffalo wealth also.

Buffalo have a numbers of advantages over cattle viz. utilization of low quality roughages to produce more protein and to gain more body weight, more resistance common diseases, outstanding draught power, faster body growth and longer life span. Generally indigenous buffalo cows produce more milk than indigenous cows having more milk fat (10.5%) and total solids (21%). Another notable advantage specially in the coastal area is that they can survive against tidal wave which they are to encounter now and then.

Cattle and buffalo provide the necessary draught power for ploughing, transport, threshing sugar cane and oil seed crushing. In addition they provide animal protein through milk, meat for human consumption and dung for utilization as fuel and manure. It provides cost income through sale of live animal, milk, meat, hides, skins as well as through hiring out of the draught animals. This sector has the potential of being turned into a viable commercial sector and can be as a source of cash income for the landless rural poor. Development of the livestock sector may be considered as an important strategy of poverty alleviation, a major object of Bangladesh government. Despite their important role in national economy and their outstanding production potentials, buffaloes are most neglected in Bangladesh. They are often called non descriptive types (Cockril, 1974). Only few workers have been done by some investigators at home and abroad including comparative study on productive performances of Nili-Ravi and crossbred buffaloes. Keeping the facts and ideas in mind, the present study was undertaken to determine and

compare the productive performance of Nili-Ravi and crossbred (Nili-Ravi X Local) dairy buffalo cows raised in farm condition.

Materials and Methods

The experiment was conducted at Buffalo Breeding and Development Farm at Bagerhat from January to April 1999 to investigate the milk production, lactation length and calf mortality rate of Nili-Ravi and Crossbred buffaloes.

Selection of the farm: There is only one government buffalo farm in Bangladesh. This farm is located at Fakirhat under Bagerhat district and known as Buffalo Breeding and Development Farm. This farm within an area of 80 acres was set up in 1984 - 1985 fiscal year by the Department of Livestock Services under the ministry of Livestock and Fisheries to produce outstanding buffalo bulls and cows for increasing the productivity of these animals in the country. The main consideration in selecting this Buffalo Breeding and Development Farm at Bagerhat of Bangladesh were as follows:

1. A large number of Nili-Ravi and Crossbred (Nili-Ravi X Local) buffalo cows are raised in that farm.
2. This is only government buffalo farm where no study of this type was conducted previously.

Description of Animals and feed management: At first there were some Murrah and Nili-Ravi buffalo cows and bulls transferred from Savar Dairy Farm and Tejgaon Dairy Farm. Hundred (100) Buffalo cows were purchased from different locations of Bangladesh in between 1986 to 1987. Besides this 100 Nili-Ravi buffaloes were imported from Pakistan in 1990 and most of them were pregnant heifers and first lactating cows. During this research period the farm consisted of Nili-Ravi, Crossbred (Nili-Ravi X Local) and some indigenous. There were about 255 buffaloes of different age and sex groups. The heifers, dry cows and milch cows (after milking) were allowed to graze in the field until late noon. After grazing and allowing them they were driven back to stall. There they were fed green grasses like napier, para, german, oat etc. on the basis of year round availability and straw ad libitum. Concentrate feeds (include wheat bran, rice bran, oilcake and salt) were also provided. The amount varies depending upon sex and age group.

The following parameters were studied to determine the productive performance of different buffalo cows:

1. Lactation (Milk) yield
2. Lactation length and
3. Calf mortality rate.

Method of Data collection: The data were collected from records kept by the farm personnel. Respondents were given a brief description about the nature and purpose of this study. During data collection careful attention was given to attain accurate and reliability of data.

Table 2. Summary of the data used and the traits analysed

Traits	Nili-Ravi (No.)	Crossbred (No.)
Lactation yield	18	12
Lactation length	18	12
Calf mortality rate	124	156

Analytical Technique: Data collected from records kept by the farm personnel were processed, tabulation and analyzed in accordance with objectives of the study. Analyses were mainly done through graphical form. Similarly analyses of variance test was done to find out statistical difference treatments.

Results and Discussion

The productive performances of Nili-Ravi and Crossbred (Nili-Ravi X Local) buffalo cows were measured by lactation yield, lactation length and calf mortality rate.

The average yield per lactation for Nili-Ravi and Crossbred buffalo cows were 1161.805 ± 684.07 and 696.634 ± 258.68 liters respectively (Table 3), while their respective average milk production per day were 3.5 and 2.25 liters. Statistically milk yield of Nili-Ravi buffaloes were significantly higher ($p < 0.01$) than that of Crossbred buffalo cows (Table 4).

Khan (1995) found the average 1st and 2nd lactation yield (305 days) for Nili-Ravi buffalo cows were 1150.26 ± 60.63 and 965.84 ± 93.46 liters respectively. This findings is similar to some extent with the present study.

Table 3: Average lactation Yield (liters)

Lactation No.	Nili-Ravi	Crossbred
1st	1437.501 ± 297.90	826.525 ± 266.18
2nd	1215.194 ± 405.12	719.063 ± 284.61
3rd	832.719 ± 228.72	544.313 ± 111.87
Average (1st to 3rd)	1161.805 ± 684.07	696.634 ± 258.68

Table 4: Analysis of variance for testing the lactation yield between Nili-Ravi and Crossbred buffalo cows

Source of variance	Degree of	Sum of squares	Mean Square	F-value	Probability	LSD value
Between breed	1	6655904.358	6655904.36	21.58	**	315.47
Error	88	27143523.36	308449.13			
Total	89	33799427.72				

** = Significant at 1% level of probability

Table 5: Average length of lactation (days)

Lactation No.	Nili-Ravi	Crossbred
1st	336.00 ± 74.1	290.83 ± 65.54
2nd	355.44 ± 80.80	368.917 ± 84.06
3rd	299.83 ± 40.05	274.917 ± 24.64
Average (1st to 3rd)	330.426 ± 70.08	311.556 ± 74.14

Table 6: Average calf mortality rate between Nili-Ravi and Crossbred buffaloes

Genotype	Calf born (No.)	Calf alive (No.)	Calf dead No.	Calf mortality rate (%)	Chi-square test (probability)
Nili-Ravi	124	78	46	37.1	**
Crossbred	156	134	22	14.1	
Overall	280	212	68	24.28	

** = Significant at 1% level of probability

The average lactation length overall lactation for Nili-Ravi and Crossbred buffalo cows were 330.426 ± 70.08 and 311.556 ± 74.14 days respectively (Table 5). A partial similar reports were also made by Arjava and Basu (1985) who found the average first lactation length for Nili buffalo cows was 308.83 ± 3.46 days.

The overall calf mortality rate was 24.28 % (Table 6). The average calf mortality rate for Nili-Ravi and Crossbred buffalo were 37.1 % and 14.1 % respectively. Chi-square test indicated that statistically significant variation ($p < 0.01$) existed between Nili-Ravi and Crossbred buffalo calves. Jogi and Lakhani (1996) found that the average mortality rate of Murrah buffalo calves was 16.86 %.

From the study it may be concluded that Nili-Ravi buffalo cows are better than that of Crossbred buffalo cows considering specially on milk production in Bangladesh.

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