

Research Article

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Production Performance of Different Cross Breeds of Milch Cow in Mithapukur Upazila, Rangpur, Bangladesh

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Abstract

Keywords

Average, cross breed, milk production, milch and reproductive.

The study was undertaken to determine the productive and reproductive performance of different cross breed of milch cow in Mithapukurupazila under Rangpur district during December 2014 to November 2015. The average milk production of local cow is very low and it varies between 300 to 400 liters per lactation period of 180 to 240 days. Generally crossbred cows yield from 600 to 800 liters per lactation of 210 to 240 days. The study time in 2014 total milk production was 65967.5 litre and 89772 litre milk production on 2015. These study showed that the average body weight of Holstein Friesian Crossbreed (Male & Female) milk production is higher than Jersey crossbreed, Sahiwal and Red Sindhi crossbreed. But the fat percentage of milk of Jersey cross is higher than Holstein Friesian cross, Sahiwal and Red Sindhi cross.

Introduction

Most of the cattle in Bangladesh are non-descriptive types, which do not belong to any specific breed and termed as indigenous cattle. They are smaller in size and their milk production capacity is lower than that of exotic breeds. The average milk production of local cow is very low and it varies between 300 to 400 liters per lactation period of 180 to 240 days. Generally crossbred cows yield from 600 to 800 liters per lactation of 210 to 240 days. The most economic traits of the milk-producing animals are average body weight, milk yield calving interval, conception rate, birth weight of calves, gestation length etc. Now a day the demand for crossbred cows is very high because of higher

production of milk (ranging between 10-15 kg/day). It is interesting to note that a reasonable number of landless and marginal farmers have found crossbred cows as a profitable enterprise. The present experiment was conducted at Mithapukurupazila under the district of Rangpur, Bangladesh. Under improve nutrition and better disease control for a period of three years at farmer's level. The attempt of this experiment is to gear up the milk production. Different types of dairy cattle such as Holstein cross; Sindhi cross, Sahiwal cross, and Local cows were available in this upazila. We have limited information about productive and reproductive performances different crossbred and local dairy cows

under farm management condition. Cattle population in Bangladesh is about 24.13 million (FAO, 1994). In now a day's Bangladesh has 24 million cattle, out of which 6 million are dairy cattle of local and crossbreed (DLS-2008). Indigenous cattle are kept mainly in the stall with limited grazing on the roadside, embankment slope; fallow land and paddy straw are their staple food. Husbandry practices and health care of these animals are poor (Jabbar and Raha, 1984). Such low productivity of indigenous cows is an important constraint for future development of the livestock sector. High productive exotic breeds and their crosses normally do not have adequate resistance against the prevalent diseases. They do not thrive well in our environment. In spite of all these problems, some people have shown interest for development of small dairy farms. Bangladesh suffers from an acute shortage of livestock products like milk, meat and eggs. Milk has been considered as ideal food for human since long before the recorded history. Milk is renowned as an 'almost complete' as well as natural nutritious food for all mammals including human being (Debnath et al. 2014). According to Byron et al. (1974), the constituents of milk are water (87.20%), Protein (3.50%), Fat (3.70%), milk sugar or lactose (4.90%), ash (0.70%) and Dry matter (12.80%).

The domestic demand for milk has been rising faster than the domestic production of milk. Hence Bangladesh Government has given the priority on the development of dairying at farmer's level to increase the supply of milk from small dairy farms. In Rangpur district area, small and large scale dairy farms have been increasing day by day. Especially low income group of people has taken this farming as profitable enterprise. In order to establish future plan for dairy development in this region, it is essential to know details about the management practices and performances of different types of dairy breeds.

Materials and Methods

A. Study area

The Upazila namely Mithapukur under Rangpur district were selected as the study area. These selected Upazila were situated on the Northern side of the

Rangpur district in Bangladesh. These areas were also chosen for the reason that large amount of indigenous cattle of Rangpur district found in that area, therefore the area was considered suitable to conduct field survey. The questionnaire was carefully designed keeping the purposes of the study in mind. The questionnaire contained both open and closed form questions.

B. Period of study

The necessary data were collected from December 2014 to November 2015

C. Procedure of data collection

It was a field based programmed. The data for productive and reproductive performances were key words using a pre-structured questionnaire by interviewing cattle farm owners from door to door.

Productive traits

Birth weight: The birth weight of a new born calf is termed as birth weight.

Body weight: The weight of an adult male or female in kg.

$$\text{Body weight} = \frac{\text{Body Length} \times (\text{Heart Girth})^2}{300}$$

Milk yield per day: It is the total milk yield in lactation divided by the number of days in that lactation.

Peak milk yield per day: The highest amount of milk yields at their subsequent lactation length.

D. Statistical Analysis

The data collected from this experiment were analyzed by the help of statistical package for social science, SPSS (2008) and mean & standard deviation were estimated.

Results and Discussion

Table No. 1. Present total population of different visited farms at Mithapukur region

Breed	Milking Cow	Dry cow	Bull Calf	Bull calf(1-3)	Heifer	Heifer (1 year)	Total
Holstein Friesian Cross	31	14	14	1	14	40	114
Jersey Cross	3	1	2	1	7	-	14
Sahiwal Cross	7	5	2	1	5	3	23
Red Sindhi Cross	1	3	-	-	1	3	8
Total	42	23	18	03	27	46	159

Table No. 2:Month wise milk production in 2014-2015(42 milking cow on visited farm)

Month	Milk production in 2014(Liter)	Milk production in 2015(Liter)
January	5040.5	9330.0
February	4869.5	9291.5
March	5814.5	8853.0
April	4996.0	8196.5
May	5936.5	7048.0
June	5459.0	6491.0
July	5219.0	5948.0
August	5241.0	4643.0
September	4931.0	6302.0
October	5225.5	7751.0
November	5901.5	7730.5
December	7333.5	8187.5
Total	65967.5	89772

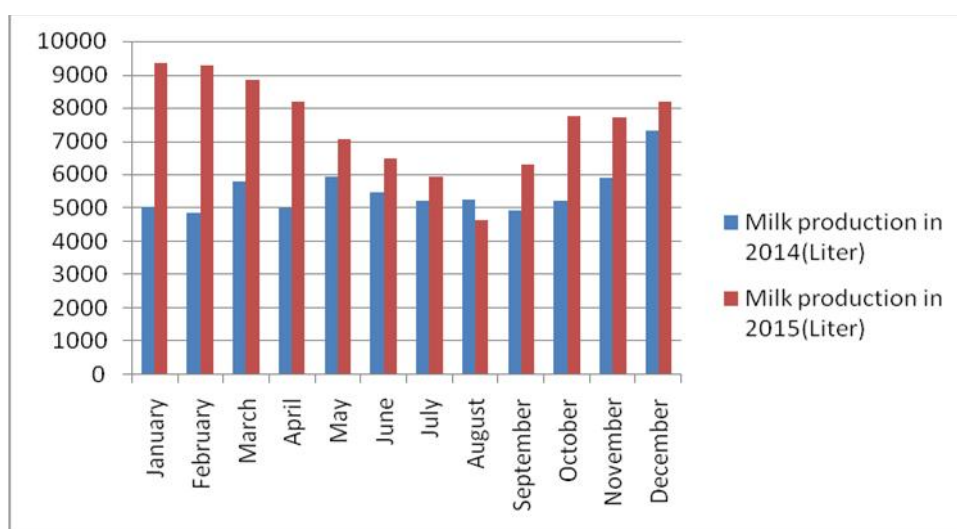


Figure1.Month wise milk production in 2014-2015(42 milking cow on visited farm)

TableNo. 3. Productive pattern of different milch cow

Breed	Average body weight (kg) of female	Average body weight (kg) of male	Average milk yield (litter)/ lactation
Jersey Cross	350	475	4000
Holstein-Friesian Cross	475	700	6150
Sahiwal Cross	300	422	2150
Red Sindhi Cross	295	400	1474

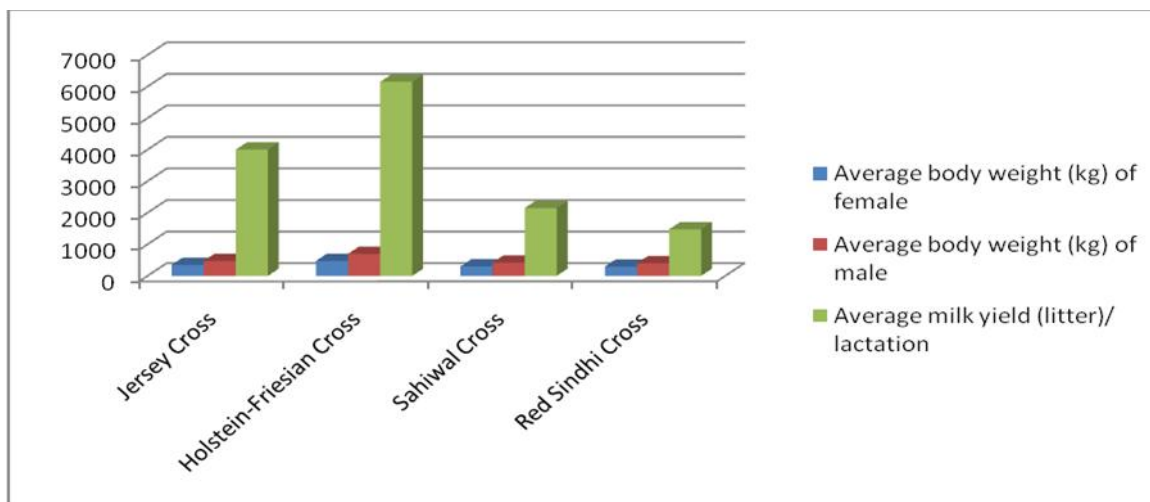


Figure2.Averageproductive pattern of different milch cow

Table No. 4. Comparative productive performance of different milch cows

Breed	Jersey Cross (Mean±SE)	Holstein Friesian Cross (Mean±SE)	Sahiwal Cross (Mean±SE)	Red Sindhi Cross (Mean±SE)
Birth weight(KG)	23.1±1.21	25±1.9	21.5±1.5	20±1.3
Milk yield/day (L)	7.73±0.73	12.9±1.2	5.51±0.40	4.1±1.01

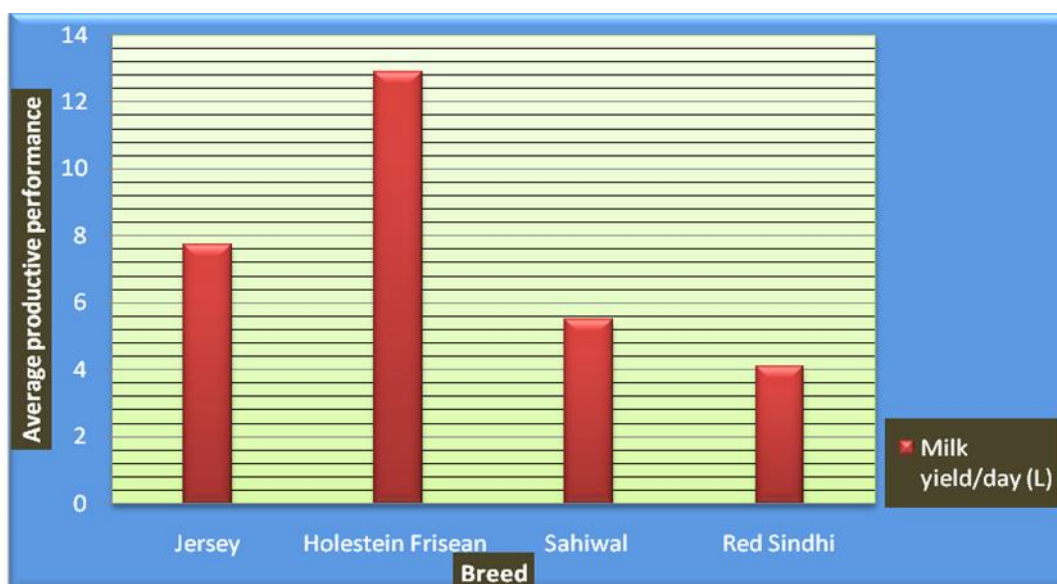


Figure 3. Average productive performance of different milch cow

Birth weight of Calves:

In study area, the birth weight of Jersey, Holstein Friesian, Sahiwal, and Red Sindhi cross were 23.1 ± 1.2 , 25 ± 1.9 , 20 ± 1.3 , 21.5 ± 1.5 respectively (Shown in Table 4). Maximum birth weight found in case of Holstein Friesian cross (25 ± 1.9 kg) and minimum was found in case of Red Sindhi cross (20 ± 1.3). Saha *et al.*, (2008) found that the mean values of different calves of crossbred L×SL and L×HF crossbred cows were 22.05 ± 6.22 Kg and 24.95 ± 5.83 Kg respectively. The birth weight of L× HF crossbred calves was higher than L× SL crossbred calves. The mean birth weight of different crossbred calves of SL× L and HF× SL cows were 23.44 ± 1.61 kg and 25.81 ± 1.52 kg respectively. From the above data analysis we found that different birth weight of Holstein Friesian, Sahiwal lower than study of Saha *et al.*, (2008) due to the breed factor, hereditary factor, feeding practice and physiological status were also responsible for the birth weight.

Milk yield/day:

Milk yield is the most economic traits of a lactating cow. In Mithapukur region the milk yield/day of Jersey, Holstein Friesian, Sahiwal, Red Sindhi cross were 7.73 ± 0.73 , 12.9 ± 1.2 , 5.51 ± 0.40 , 4.1 ± 1.01 respectively (Shown in Table 4). Highest milk yield found in Holstein Friesian cross (12.9 ± 1.2) than other milch cow. Saha *et al.* (2008) found that, the daily milk yield mean of L×SL were 8.90 ± 2.1 liters per day and 12.54 ± 3.50 liters for L×HF crossbred cows. The total milk yield in lactation 2208.78 ± 550.60 liters and 4106.24 ± 644.79 liters for L×HF crossbred cows respectively. The average daily milk yield of European × Indigenous crossbred cows ranges from 9.7 to 12.1 liters. The average milk yield of Sahiwal crosses ranged from 2063 to 2552 liters. In the present study, the total milk yield in lactation is much higher in L×HF crosses than the L×SL crosses cows. The variation of milk production might be due to the genetic potentials of individual breed. Above the results we stated that the milk production rate is high in Holstein Friesian crossbreeds. But the average amount is lower in my experimental area due to poor management and disease condition.

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Conclusion

Study on productive performances of different types of milch cow in Mithapukur region, there were clearly observed that different birth weights of calves, milk yield and lactation length might be due to the breed factor, environment, management, feeding practice, nutrition and physiological status. Differences in calving interval might be due to breeding method, physiological status of cows and management practices. The present study revealed that the highly genetic potential breed can help us to mitigate our peak demand of milk. So this study suggest rearing crossbred cows with genetic potentials to get more milk protein for developing our nations.

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