A STUDY ON PRODUCTION & REPRODUCTION PERFORMANCE OF CATTLE ON FARM CONDITIONS AT SIRAJGANJ, BANGLADESH

A Production Report

Submitted by

MD. Shamim Reza

Roll no: 17/13

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Chattogram Veterinary and Animal Sciences University Khulshi, Chattogram-4225.

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Approved as to style &content by

Signature of student   Signature of supervisor

Prof. Dr. Jannatara Khatun

Head, Department of Animal Science & Nutrition

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ABSTRACT

A total of 130 dairy cattle from 50 cattle owners at Ulla para upazilla in Sirajganj district in Bangladesh were selected in this study from 17 FEB 2022 to 28 April 2022. Data about the owner (occupation, education, sex) and cattle housing, feeding, milk production, and reproduction were collected. From this study, it was observed that there four genotypes such as crossbreed 68.46%, local 14.61%, Holstein Frisian 10.76%, and Sahiwal 6.15 % were available in this area. Housing types were tin walled, tin-roofed, and solid floor. Farmers under the study area fed rice straw, cowpea, Napier and conventionally mixed concentrate mixture composed of rice bran, wheat bran, oil cake. Farmer supplied concentrate feed to local cattle 1kg, cross-bred 2.5kg, HF 3.5kg, and Sahiwal cattle 3kg and roughages supplied to local 15 kg, cross 12 kg, HF 10 kg, Sahiwal 13 kg and Milk yield averaged 1.9 Liter for local, cross 7.65 L, HF 10 L and Sahiwal 8.8 L. Initial milk production averages were local 1.3 L, cross 6 L, Hf 8.7 L and Sahiwal 7.5 L. Peak milk production local 3 L, cross 10 of Hf 14 L, Sahiwal 12L. The age of sexual maturity of different genotypes was local breed 12-16 months, cross breed 11-15 months, hf 12-15 months, Sahiwal 12-14 months and lactation period different breed were local 205-day, HF 300 day, cross 280 days, Sahiwal 275 day.

Key words: Holstein Friesian, Pabna cattle, Crossbred and local cattle genotypes, village, Sirajganj, Bangladesh.

Introduction

Bangladesh is primarily a farming country. Livestock is a vital component of agriculture's four subsectors (crops, livestock, fisheries, and forestry). According to the livestock population data of DLS 2021-22, 245.45 lakh cattle,266.04 lakh goats, 15 lakh buffalo & 36.79 lakh sheep have been recorded. The contribution of livestock to GDP is 1.44%. GDP growth rate of livestock is 3.80 %, Share of livestock in Agricultural GDP is 13.10%, employment (Directly) 20%, employment (partly) 50%. They grossly produce 119.85 lakh metric tons of milk (193.38 ml/d/head) where the requirement is 154.94 lakh metric tons (250 ml/d/head) & 84.4 lakh metric tons (136.18 g/d/head) of meat where the demand is 74.37 lakh metric ton (120 g/d/head).

Age at first service and calving, parturition to the service, calving interval, gestation length, daily and total milk yield, age and body weight of cows influence the onset of estrus and subsequent

fertility after calving are all factors that contributed to better reproductive efficiency in heifers and cows (Khan et al.,1998). According to reports, most cattle in Bangladesh are indigenous (Bos indicus), with a few crossbreds, pure dairy zebus, and European crossbreds such as Sahiwal, Sindhi, and Holstein Friesian (Khan et al.,1998). Cattle productivity is low in char regions that are connected to the mainland due to poor genetics, nutrition, herd health, and management (Alam et al. 2008). In Bangladesh, there are few comprehensive reports on the productive capacity of Desi and crossbred cattle under diverse management situations. (Alam and Ghosh, 1988; Nahar et al., 1989; Shamsuddin et al., 1988; Khan et al., 2001; Sarder, 2004; Rahman and Rahman, 2006). There is a scarcity of information about dairy cattle reproductive performance in the chars of Sirajganj district, which is completely cut off from the rest of the world and only communicates by water vehicle. Therefore the study was conducted in this area.

Materials and Method

1. Farm selection and management:

The areas Sirajganj where available cross breed, local, HF, Sahiwal of the farm. A total number of 50 farms with 130 dairy breeds were selected during the milking period, lactation length, sexual maturity, age within 3-4 years. Animals were grazing from early morning to noon. They fed their cattle green grass, straw and mixed concentrate. Few farmers were able to be supplied 1.5 kg of mixed concentrate (wheat bran, rice bran, oil cake).

2. Data Collection:

The data were collected directly from farmers of the Sirajganj district using questionnaires. It was designed in a simple manner to get accurate information from the dairy cow owners. The questionnaire consists of the name of the owner, address of the owner, breed of cows, housing system, feeding system, lactation length, sexual maturity, milk yield, initial milk, peak milk.

3. Statistical Analysis

The collected data were complied, tabulated and analyzed the percentage of all value.

RESULT AND DISCUSSION

1. Occupation, Education, Sex Farm owner

From the table 1, we can get the status of the farm owner. Among them, the farmer was 44%, businessperson 34%, job holder 10% housewife 10%, other 2%. There are 92% male and 8% female farm owners. Their educational status was 58% above class 5, 28% above class 8, 12% under class 5 & 2% uneducated.

From this, we can see that people especially men of all classes and educational levels are interested in cattle farming.

Table 1: Occupation, Education, Sex Farm owner

Criteria	Category	Percentage (%)
Occupation	Farmer	44
	Businessperson	34
	Job holder	10
	Housewife	10
	Others	2
Education	Class 5 Above	58
	Class 8 Above	28
	Class 5 Below	12
	No Class	2
Sex	Male	92
	Female	8

2. Different Genotypes in Ulla Para, Sirajganj

In table 2, we can get the data of various genotypes found in Ulla para. There are 68.46% cross, 14.61% local, 10.76% hf,6.15% Sahiwal cattle. This table shows that people are more interested in the cross breed as local breeds have less production and pure foreign breeds fail to reach maximum production due to environmental changes.

Table 2: Different Genotypes in Ulla Para, Sirajganj.

Criteria	Category	Percentage (%)
Genotype	Cross	68.46
	Local	14.61
	Hf	10.76
	Sahiwal	6.15

3. Housing Type

Table 3 shows the housing types of the dairy farms. In the farm brick-walled, tin-roofed & solid floored farm was observed in that area and 2% contains cross breed, 2% contains HF & 2% contains Sahiwal.

Among the tin walled, tin roofed & solid floored farm, 10% have local, 60% have cross, 6% have HF & 2% have Sahiwal. Again, the same house type with unpaved floor, 2% with local & 2% with cross breed. There has also unpaved floored house with shola roofed. There have 2% farm of local breed in these types.

Here has also 4% shola walled, tin roofed & unpaved floored farm containing local breed & 6% have same wall & floor type but the roof contains shola.

This shows the pictures of the farmer's condition. Their financial condition makes them interested in tin walled, solid floored & tin-roofed houses mostly. These types of houses are also good for hygiene and temperature control, which is important for better production.

Table 3: Housing type

Wall type	Floor-type	Roof type	Local %	Cross %	HF %	Sahiwal %
Brick walled	Brick	Tin	-	2	2	2
Tin walled	Brick	Tin	10	60	6	2
	Unpaved	Tin	2	2	-	-
		Shola	2	-	-	-
Shola	Unpaved	Tin	4	-	-	-
		Shola	6	-	-	-

4. Feeding system

Table 4:1 represents the amount of concentrates fed to the cattle in the area and it was observed that the used concentrates were composed of wheat bran, rice bran, till oil cake and the farmer supplied their cattle with about 1 kg to local, 2.5 kg to cross, 3.5 kg to HF and 3 kg to Sahiwal cattle.

Table 4:1 Average concentrates

Type of concentrates	Amount of concentrates (kg)			
wheat bran, rice bran, till oil cake	Local	Cross	HF	Sahiwal
	1	2.5	3.5	3

Average roughages

Table 4.2 indicate the amount of roughages. Here using roughages were Napier, Para, Cowpea and hay and are given 15 kg roughes to local, 12 kg to cross,10 kg to hf,13 kg to Sahiwal.

Concentrates may help to increase production, but overeating may produce acidosis. So, it should always consider. More green grass decreases not only cost but is also good for production. A lower amount of feed (daily allowance per animal of individual feed was 5.17±0.96 kg dry rice straw; 5.36±0.33 kg cut and carries grass and 1.47±0.24 kg concentrate) than that of the present study was supplied for the cows producing milk 2.30 to 8.20 liters/day/cow but similar ingredients of concentrate mixture were used (Haque et al.,1999).

Table 4.2: Average roughages

Type of roughages	Amount of roughages (kg)			
Napier, Para, Cowpea, hay	Local	Cross	HF	Sahiwal
	15	12	10	13

5. Production performance

Table 5 shows the performance of the animals. Milk yield for local, cross, hf, Sahiwal breed were1.9 L, 7.65L,10L, and 8.8L, respectively. This table shows that the most productive breed is Holstein Frisian. These results agree with findings of the average milk yield of the Desi, Sahiwal × Desi, Friesian × Desi cows was 2.1 ± 0.7, 4.7 ± 1.0 and 6.2 ± 3.2 liters/day, respectively (Shamsuddin et al.,2006) found the average milk yield per cow per day is 7.2 liters in Sirajganj-Pabna region of Bangladesh, while it was 3.5 liters, 4.8 liters and 5.1 liters per cow/day in Mymensingh, Khulna Satkhira and Chittagong, respectively.

Initial milk production for local is 1.3L, cross is 6.0L, HF is 8.7 L and Sahiwal is 7.5 L & Peak production for local 3 L, cross 10L, HF 14L& Sahiwal 12L.In a different study in Bangladesh peak milk production of Friesian ×Local crossbred and Local cattle documented, 11.63±2.90 liter/day/cow and 9.42±2.40 liter/day/cow, respectively (Sarder et al., 2006).

Table 5: Production performance of different breeds in Ulla Para, Sirajganj

Parameter	Local	Cross	HF	Sahiwal
Milk yield (Average in L/d)	1.9	7.65	10	8.8
Initial milk production (Average in L/d)	1.3	6	8.7	7.5
Peak milk production (Average in L/d)	3	10	14	12

6. Reproduction of different Breed

All the breeds come to sexual maturity at the age of 11-16 months. Their lactation length is 205, 280, 300, 275 days for local, cross, HF, Sahiwal respectively. Lactation length was highest for Jersey × Desi (270 ± 0.0 days) and lowest for Friesian × Desi (234.0 ± 24.0 days). On the other hand, lactation length was highest for Friesian × Local cows (263 ±34.0 days) and lowest for the indigenous cows (252.5 ± 68.2 days) (Asaduzzaman and Miah 2004). This finding of lactation length of the present study was partially in agreement with the average lactation length of Desi, Desi × Sahiwal, Friesian × Desi dairy cows which were 230.6 ± 30.7, 256.3 ± 24.4 and 263 ± 30.7 days respectively (Islam et al.,1999). The average lactation period for crossbred and

indigenous cows was 283 and 207 days respectively, which differ significantly (Mondol SC et al., 2005). The lactation length of dairy cows of the Sirajganj-Pabna region was 249 days (Shamsuddin et al.,2006). The figure was 285 days for Mymensingh, 251 days for Khulna-Satkhira and 286 days for Chittagong areas.

Table 6: Reproduction of different Breed

Criteria	Local	Cross	HF	Sahiwal
Age of sexual maturity (month)	12-16	11-15	11-15	12-14
Lactation period (day)	205	280	300	275

Conclusion

In the villages of Bangladesh's Sirajganj district, a crossbreeding program employing Holstein Friesian and local cow genotypes could boost total milk production. During the lactation month of the cows, farmers should feed their dairy cows with special attention during this time. Farmers in the research area were well-versed in breeding techniques, and artificial insemination was widely used.

various perspectives. Finally, I would ever be thankful to all my well-wishers, family members for their inspiration.

The Author.

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Biography

MD. Shamim Reza son of Mr. Kayum and Mrs. Shahanara Parvin. He is an intern veterinary doctor under the faculty of veterinary Medicine (FVM) at Chattogram Veterinary and Animal Sciences University (CVASU). He passed his Secondary School Certificate (SSC) Examination in 2013 from the Rajshahi board followed by Higher Secondary Certificate (HSC) Examination in 2015 from the Rajshahi board. In the future, he would like to research work about zoonotic disease and animal welfare those take public health in the country regarding one health framework.