Introduction

Bangladesh's economy is built on agriculture with livestock being, one of the most important components. Cattle are an inseparable and integrated part of small holder subsistence farming system. Over ninety percent of the cattle population in Bangladesh are indigenous zebu type and the remaining ten percent are exotic pure breeds (Sahiwal, Sindhi, Holstein Friesian and Jersey) and their crosses with indigenous. Total number of livestock in Bangladesh is 563.28 lakh of which nearly 24.5 million cattle are distributed throughout the country including a huge percentage of about 85% indigenous cattle which are reared for milk and meat purpose mainly by the poor people for financial support (DLS, 2021-'22). Livestock is an important part of the farming system because it is not only a source of meat protein but also a key source of farm power and livelihood. Direct employment is delivered by the livestock for 20% of the overall population, and part-time employment is delivered for 50% in Bangladesh. The contribution of livestock accounts for around 1.44% of national GDP, 13.10% of agricultural GDP, and has a 3.80% annual growth rate (DLS, 2021-'22). Thus livestock plays a significant role in the economy and cow has great contribution on rural economy of Bangladesh.

This survey was designed for a clear concept of management and milk production of indigenous cattle of Bangladesh. A large number of small and marginal farmers rear indigenous cattle as their economical wheel. The major goals of animal production are to produce high-quality, healthy animals that are able to produce to their full capacity as well as a source of high-quality, nutritious food. Moreover milk and meat from indigenous cattle are rich in nutritious ingredients. There is more SNF in milk and less water percentage which makes it more concentrated nutritionally. It may vary animal to animal in case of indigenous cows and some other factors like breed, health condition, feedings, time of milking etc. Animal management techniques, nutrition, genetics, and the environment all have an impact on an animal's health and quality. A high-quality, nutritional, and secure food supply are the main goals of animal production, together with healthy, productive animals that are in good health. Cattle production systems incorporate ethical management practices, environmental ethics, property stewardship, economic awareness, and viability, whereas

management practices are specifically linked to forage production, nutritive value, herd size, housing arrangements, and opportunities to match forages with animal needs. In our country- rice straw, natural grasses, and minimal or no concentrates are the basic of traditional feeding program for dairy cattle (Salam, 2020). Seasonal variations can be seen in the quantity and kind of fodder available from natural pasture. During the dry season, there is a severe lack of feed supply, and the feed that is available of very low quality. Poor nutrition causes delayed growth, loss of body condition, reduced production and reproductive function, and increased vulnerability to illnesses and parasites. Rice straw, which has little nutritional content and palatability but makes up 90% of all roughage fed to animals, is the primary roughage for dairy cows. Rather than the needs of the cattle, the amount of green fodder provided to the cattle each day depends on the time allotted by the farmers to collect the grass or weeds from roadside ditches, agricultural land, or weeds taken from crop fields. The most of the year, the cattle did not receive enough feed. In order to address the nutritional issues of livestock, it appears that effective utilization of the available feed resources (agricultural and agro-industrial byproducts, natural pastures, and browse), as well as appropriate supplementation of diets based on low-quality natural pasture and crop residues, are necessary. To ensure a consistent feed supply all year long, fodder conservation techniques should be developed, especially for the production of hay and silage (Khan et al., 2009). The notion of feeding interventions, the use of concentrates, and the augmentation of urea with rice straw should be taught to small-scale dairy farmers.

Methodology

Study area

This survey was conducted in one village (Badamia) and at the UVH, Trishal under Mymensingh district for 2.5 months (February, March and April 2022).

Preparation of survey questionnaire

A preliminary questionnaire was designed to collect information from the selected farmers. The questionnaire was refined, changed, and rearranged straightforwardly after necessary revisions to avoid misunderstanding and obtain exact responses.

Data collection

Before taking the interview, the goals and objectives of the study were explained to the respondent before the interview so that they may be convinced and speak freely. The questions were then asked logically, with explanations provided wherever appropriate, with special attention paid to the respondents' moods and a friendly relationship established between them and the researcher. To maintain data consistency, any discrepancy was rationalized and resolved by comparing them to local norms.

Data entry, sorting and statistical analysis

The acquired data were entered into Microsoft Office Excel sheets when the pre-tabulation task was completed. Using the Microsoft Excel computer program, the obtained data were checked for normal distribution.

Result and Discussion

Purpose of cattle rearing

The availability of dairy supplies like milk, meat is severely limited in Bangladesh. More milk is being consumed domestically than is being produced domestically. As a result, the Bangladeshi government has prioritized the growth of dairy farming at the farmer level in order to improve the supply of milk from small dairy farms. Dairy farms of all sizes are expanding daily in the Mymensingh district area. Particularly low income groups have adopted farming as a profitable trade (Khan et al., 2010). Figure 1 depicts the purposes of cow husbandry. The majority of farmers (59%) reared their cattle for a partial income, 30% for family maintenance, 9% for commercial objectives and 2% for other reasons.

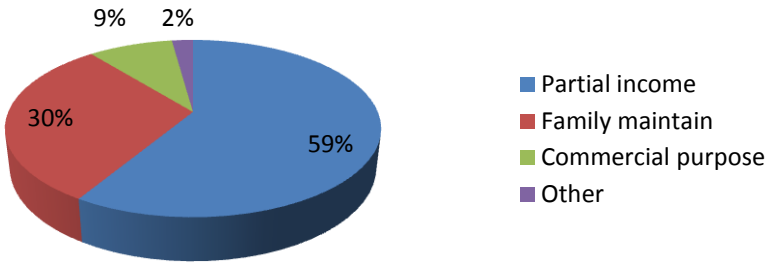

Figure 1: Purpose of cattle rearing.

Feeding

One of the key restrictions in livestock production is feeding, which accounts for a considerable amount of the cost of milk production (Singh et al., 1995). The performance of milking animals is affected by both quantitative and qualitative feed and fodder shortages, resulting in both under and overfeeding, which has a severe impact on milk production economies. The most important challenge faced by small dairy producers during the dry season is a lack of feed. During this time, the only roughage available is rice straw. Other crop leftovers, such as sugarcane tops, are also not widely used, some are unavailable in all areas. The animals are primarily confined in stalls with little access to roadside grazing; their main sources of food are paddy straw, embankment slopes, and fallow ground. Poor animal care and husbandry techniques are used with these animals (Jabbar and Raha, 1984). The high

expense of concentrate feed, which is increasing day by day and is becoming out of reach for farmers, is a major issue in the rearing of cows for marginal people.

According to the survey all the farmers (100%) provided straw and grass as roughage as their main feed. Besides of those they were used to provide rice polish (93.48%), bran (50%) and broken rice (10.87%) as concentrate sources. 23.91% and 10.87% of farmers irregularly supplied manufactured concentrate feed and maize respectively where all the farmers purchased feed from the local market. A small number of farmers (6.52%) supplied vitamin and mineral supplements for increasing milk production whereas no farmers were used to supply feed additives and growth promoters.

Table1: Feeds and fodders

Parameter	Categories	No of respondent	Percentage
Roughage	Straw	46	100
	Roadside grass	46	100
	Cultivated fodder	00	00
Concentrate	Rice polish	43	93.48
	Broken rice	5	10.87
	Bran	23	50
	Maize	5	10.87
	Conc. feed	11	23.91
Vitamin, mineral supplement	Yes	3	6.52
	No	43	93.48
Feed additives, growth promoter	Yes	00	00
	No	46	100

Housing

Table 2 and Table 3 summarized the cattle farming system and housing system. Only 4 farmers (8.70%) managed their cattle in an intensive system and the rest 91.30% under a semi-intensive system. Approximately 84.78%, of farmers supplied the house with a mud floor and bamboo fence, 13.04% provided semi-concrete (concrete floor and half of tin or bamboo fence), and 2.17% provided concrete house (concrete floor and wall) for their cattle. In another region of the same district, Hossain et al. (2004) observed that 63% farmers provided closed house and 63% farmers used paved floor.

Table 2: Farming system

Farming system	No of respondent	Percentage (%)
Intensive	4	8.70
Semi-intensive	42	91.30
Extensive	00	00

Table 3: Housing system

Floor	No of respondent	Percentage (%)
Mud	39	84.78
Semi-concrete	6	13.04
Concrete	1	2.17

Deworming

In the villages most of the cattle graze on pasture land and are a good source of a parasitic contamination. This is because the majority of cattle have parasite burdens that are truly subclinical, with large output losses despite the absence of overt parasitism. In traditional and small-scale dairy cattle, GI nematodes were present at levels of 67% and 37%, respectively. *Fasciola gigantica* was present in traditional and small-scale dairy cattle in 63.8% and 28.4% of cases, respectively. Amphistomes were found in traditional and small-scale dairy cattle at rates of 81.9% and 41.1%, respectively. (J. D. Keyyu et al, 2006). These are resulting for management specially for grazing habit. In the surveyed area only 15.22% of farmers medicated their cattle with anthelmintics (Albendazol, Triclabendazol, Levamesol, Oxyclozanide) last 6 months.

Table 4: Dewoming in the last 6 months

Deworming	No of respondent	Percentage (%)
Yes	7	15.22
No	39	84.78

Body Condition Score (BCS)

Cattle fat reserves can be non-invasively assessed using the standard visual technique known as body condition scoring (BCS), which frequently uses a five-point scale. The body condition scoring (BCS) method enables a quick evaluation of the cow's fat stores. A cow's energy balance can be determined by looking at its fat reserves and

how they have changed over time. Table 5 shows the body condition score (BCS) of the cows where 60.87% of cattle possessed BCS 2.5 and 21.74% and 17.39% had BCS 2 and 3 respectively. And table 6 indicates the relation between lactation stage and Body Condition Score. This analysis showed a deviation of BCS from 2.61 to 2.20 during the period of early lactation stage to late lactation stage where at mid lactation period cows possessed an average body condition score of 2.38. BCS varies from cow to cow for a variety of reasons. Several factors have been linked to cow BCS, including BCS at calving (Roche et al., 2007a), parity (Dechow et al., 2001; Pryce et al., 2001; Roche et al., 2007a), age within parity (Gallo et al., 2001; Koenen et al., 2001 (Pryce and Harris, 2006).Roche et al. (2007a) found a higher rate of BCS loss in early lactation when calving BCS increased, and a lower rate of BCS growth post-nadir as nadir BCS increased. These findings hint to at a BCS aim that animals strive toward within their herd (Kennedy, 1953; Garnsworthy, 2006). In general, first-parity animals are managed to calve in higher BCS than their older herd mates (Berry et al., 2006b; Roche et al., 2007a), however, they do not recoup BCS as well as their multiparous counterparts post-nadir (Berry et al., 2006b; Roche et al., 2007a). Possible explanations include the fact that first-parity animals are still growing, increasing their cumulative energy sinks; Berry et al. (2005) found that BW at first calving differed amongst three different strains of Holstein-Friesian dairy cattle.

Table 5: BCS and average milk yield

BCS	Percentage (%)
2	21.74
2.5	60.87
3	17.39

Table 6: Relation between lactation stage and BCS

Lactation stage	Average BCS
Early	2.61
Mid	2.38
Late	2.20

Milk Production

Table 7 shows the average daily milk production. 1.46 litre of milk was produced each day on average. Cows in the area produce extremely little milk on average, 300 to 400 liters each lactation period of 180 to 240 days (Khan et al., 2010). Cows produced 2.55±0.11 litres of milk each day, according to Habib et al. (2003). Khan et al. (2000) found an average daily milk yield of 1.80±0.87 kg in rural environments, which is somewhat higher than the current study's results. According to published studies, indigenous cows provide a wide range of milk yields, indicating the possibility of selecting indigenous cattle resources to boost milk yield in Bangladesh. Genetic architecture, feeding systems, and quality are all different.

Table 7: Average milk production

Lactation stage	**Average milk yield (L)**	
Early	2.19	1.46
Mid	1.48	
Late	0.72	

Dry period

The average dry duration was 145 days for the cows. These findings concurred with those of Ali et al. (2000) and Nahar et al. (1992). According to Ali et al. (2000), native cows had an average dry period of 141 days**.**

Calving interval

The average calving interval was 455 days of the studied population. According to Nahar (1987), Sindhi and Sahiwal cows had mean calving intervals of 415 and 429 days, respectively, under urban circumstances. In contrast to this study, Ali et al. (2000) reported that the average calving interval for indigenous cattle was 539 days.

Suggestions

- Awareness programs (campaign, training) should be arranged.
- The concept of supplementation of mineral during pregnancy should be developed,
- They should know about udder care to prevent mastitis.
- Basic health management concept should be known like deworming, vaccination etc.
- They should know about ration.

Limitations

- Lacking of skillful personnel.
- Most of the farmers couldn't give accurate information of age, calving interval etc.
- They don't have fixed ration or feed ingredients for their cattle.

Conclusion

It is difficult to conclude about the productivity from the results of this experiment. Taking into account the significant role that small-scale dairy production plays in reducing poverty and ensuring food security. A special action plan should be implemented for the urgent development of this industry, with the effective use of existing feed resources and a thorough breeding program receiving top priority. To compare the production and reproductive performances of native cattle in the Mymensingh area with those of other indigenous cattle in Bangladesh, more research is needed.

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Biography

I'm Maria Yeasmin Mili, daughter of Md Mozibur Rahman and Raniara Begum. I passed my Secondary School Certificate (SSC) examination from Mathbari Union High High School & College, Trishal, Mymensingh in 2013 and Higher Secondary Certificate (HSC) examination from Shahabuddin Degree College, Fulbaria, Mymensingh in 2015. I enrolled for Doctor of Veterinary Medicine (DVM) degree in Chittagong Veterinary and Animal Sciences University (CVASU), Bangladesh. I have immense interest to work in the field of Medicine.