

PRODUCTIVE PERFORMANCES OF INDIGENOUS DAIRY COWS IN DIFFERENT AREAS OF COMILLA DISTRICT

MR Begum¹ MM Rahman² MN Hassan^{3*} M Yousuf⁴ and MC Sumy⁵

Address

^{1&5} Assist. Prof., Dept. of Agril. Economics and Social Sciences
² Doctor of Veterinary Medicine CVASU, Chittagong ³ Assist. Prof., Dept. of Environmental Sanitation, Faculty of Nutrition and Food Science, PSTU Patuakhali ⁴ Director (Program) SANGRAM, Bangladesh.

Correspondence*

nazmul_jh@yahoo.com

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Abstract

The study was conducted to observe the productive performances of indigenous cows under household condition in different areas of Laksam Upazila of Comilla district. For achieving the goal, a total of 82 indigenous cows were randomly selected and data on different productive parameters were collected and analyzed by proper method. It was revealed that the average milk production was 1.59 liters with ranges between 1 and 2.5 liters and the second parity gives the highest production. The mean lactation period was 6.52 months with the minimum and maximum of 5 and 8 months respectively. The average age at first calving and calving interval were 41.12 months and 13.32 months respectively. The prevalence of mastitis and FMD were 16% and 18% respectively. Milk production has significantly positive correlation with lactation period and negative with calving interval. A one way analysis of variance or completely randomized design showed that milk production varied significantly with different parities and types of feed. A multiple comparison test of Scheffe method showed that highest production was observed in 2nd parity and was significantly different from the production of 3rd, 4th, 5th and 6th parity and, feeding with roughage, grass and concentrate (RGC) together gives significantly more milk than with grass and concentrate (GC), and roughage and grass (RG).

Key words: Productive performances, indigenous cows, milk production

Introduction

Milk production of both local and exotic breed depends not only on the genetics, but also its interaction with the environment, and some other managemental factors. There are many factors which affect on milk yield where lactation length is one of them (Bajaw *et al.*, 2004). The higher phenotypic correlation between milk production and calving interval seen in the highest producers than their contemporaries producing less milk (Miller *et al.*, 1967). Maize silage is the most economic and common forage has an important effect on the milk yield (Aktürk *et al.*, 2010). Mastitis is the most prevalent disease in dairy herds world-wide and is responsible for several production effects (Seegers *et al.*, 2003). Good animal health is vital for maximum production since cattle must be healthy to reach their performance potential (The Merck Veterinary Manual, 2005). The average milk yield per day per cow was 1.89 litres in our household level (Mondal *et al.*, 2010). The average lactation period of indigenous cows was 228 days observed by Zafar *et al.* (2008). A studied by Habib *et al.* (2010) reported that lactation order significantly affected production except lactation length and in 5th lactation produced highest total of 604.3 ± 69.3 kg with daily average of 2.17 ± 1.8 kg. The relationship between age at first calving and milk yield in first lactation was found statistically non-significant (Khan *et al.*, 1989; Patil *et al.* 1980). There is a direct relationship between milk produced in the first lactation and a longer calving interval (Millar *et al.*,

1967) in the highest producers. Dahlin (1998) and Ahmad (1999) also reported increase in milk yield towards third parity whereas Javed (1999) described that lowest milk yield was seen in 1st parity and increased towards 5th parity and decline thereafter to 12th parity. A contradictory report that parity had no significant effect on milk yield (Dhumal *et al.*, 1989). Moreover, Milk yield gradually increased towards 4th and 5th parity and declined there after (Bajaw *et al.* 2004). A study by Aktürk *et al.*, (2010) regards the effects of the feeds on the milk yield and found that maize silage and barley have the highest effect on the milk yield and the direct effect of barley and maize silage on the variation of milk production is 13.99% and 20.35% respectively. Rahman *et al.* (2009) observed that the prevalence of mastitis is higher in wet than in dry season. On average, 18.7% quarters has mastitis during the wet season and 6.9% in the dry season dairy farms of Bangladesh (Weiss *et al.*, 1997). Although there were some study regarding this finding are available for different areas of Bangladesh but rare data are available on the study area. Productive performance is the key to profitability of dairy cow rearing. So the study was undertaken to observe the present productive status of cow of this study area and how the related factor affects their production.

Materials and Methods

A total of 82 indigenous cows of different ages were randomly selected and data on different parameters on milk production were collected through questionnaire

during the period from 6 May to 6 July 2013. A Completely Randomized Design was employed to test the significant difference of daily milk production across parity and types of feed. A multiple comparison of Scheffe method was applied to see the actual difference between parity and types of feed based on daily milk production. SAS 9.3, SPSS 16.0 and R 2.14.0 version were used during analysis and 5% level of significance was considered.

Results and Discussion

Table 1 presents the summary statistics where the average milk production was 1.59 liters, and the maximum and minimum was 2.5 and 1 liters respectively. The mean lactation period was 6.52 months with the minimum and maximum of 5 and 8 months respectively. The average age of first calving was 41.12 months and ranges from 39 to 42 months. The average calving interval was 13.32 months with the ranges from 12 to 14 months.

Table 1. Summary statistics of some productive parameters of cows

Variables	Mean	Std Dev	Minimum	Maximum
Daily milk production	1.59	0.47	1	2.5
Lactation period	6.52	0.71	5	8
Age of first calving	41.12	0.91	39	42
Calving interval	13.32	0.66	12	14

Figure 1 describes the information about the prevalence of mastitis and FMD, use of vaccine and anthelmintics and, floor type of sheds where chance of having mastitis and FMD of indigenous cows were 16% and 18% respectively and, only 13 (16%) cows were vaccinated. Regular anthelmintics used were in 18 (22%) cows, at times in 62 (76%) and 2 (2%) did not use any deworming agent. In case of floor type, 29 (35%) cowshed floor was with brick and 53 (65%) with mud.

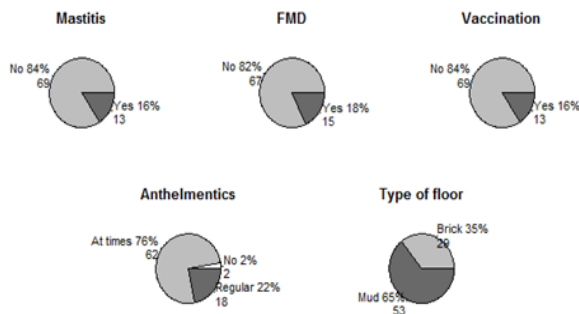


Fig. 2. Pie-chart of different variables

Figure 3 express that, milk production was peak at 2nd parity accounted by 2.5 liters and decreased later. The mean of milk production was 1.84 liters when roughage, green grass and concentrate were given together and it was lower in those cows where any two of those feeds were used.

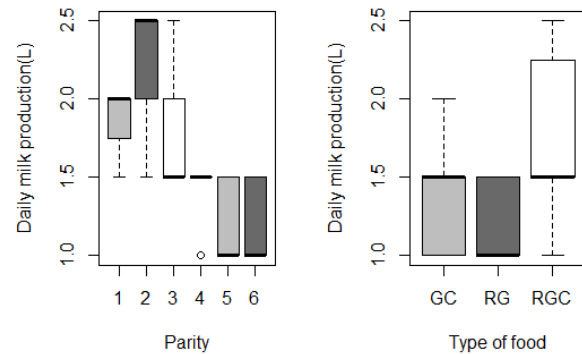


Fig.4. Different box plot across parity and type of food

The correlation between daily milk production with lactation period, age of first calving and calving interval demonstrated in Table 1, where lactation period and calving interval has the significantly positive and negative correlation with milk production which were supported the findings of Bajaw *et al.*, 2004 and Miller *et al.*, 1967. It was observed that the age of first calving has no significant effect on milk production in this study.

Table 2. Correlation between daily milk production with lactation period, age of first calving and calving interval.

	Daily milk production	P-value
Daily milk production	1	--
Lactation period	0.5139	<.0001***
Age of first calving	-0.15484	0.1648
Calving interval	-0.54226	<.0001***

***significant at <0.05

A Completely Randomized Design was applied separately types of food and parity with milk production to determine whether the milk production was different or not for parity and different types of feed. A multiple comparison test of Scheffe method was applied to observe which parity and feed were significant with others. The daily milk production was different across parity, F=31.25, P-value <0.05. Daily milk production was different for different types of feed. Average daily milk production was significantly different of different types of feed F=21.29, P-value <0.05. The results showed that both factors (parity and food) had an effect on milk production which was supported by Habib *et al.* 2010 and Aktürk *et al.*, 2010. A multiple comparison test of scheffe method

showed that the milk production for 1st parity was significantly different from 5th parity; 2nd parity was significantly different from 3rd, 4th, 5th and 6th parity. Third parity was significantly different from 5th and 6th parity. Milk production was significantly different for RGC type of feed from GC and RG type of feed.

Conclusion

From this study it may be concluded that lactation period, calving interval, parity and types of food were significantly associated with milk production. In spite of some pit falls of the study like small sample size and short time, the findings will certainly help the future researcher to conduct more specific research in the study area.

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