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Economic Traits of Different Dairy Cows under Village Condition

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Abstract: This study was undertaken to evaluate the performances of economic trait of different dairy cows under village condition. The result showed that the average milk production of Holstein-Friesian cross, Sahiwal cross, Sindhi cross and indigenous dairy cows were 6.29 ± 3.16 , 4.72 ± 1.01 , 3.73 ± 1.10 and 2.10 ± 0.697 l per day respectively. The average length of lactation period for Holstein-Friesian, Sahiwal and Sindhi cross and indigenous dairy cows were 263 ± 24.73 , 256.31 ± 24.31 , 255.86 ± 27.58 and 230.62 ± 30.68 respectively. The average post-partum heat periods of Holstein-Friesian, Sahiwal and Sindhi cross and indigenous dairy cows were 98.75 ± 40.58 , 97.63 ± 36.03 , 114.65 ± 21.24 and 108.46 ± 36.32 days, respectively. The calving interval of Holstein-Friesian, Sahiwal and Sindhi cross and indigenous dairy cows were 373.25 ± 33.25 , 383.42 ± 34.44 , 397.77 ± 37.07 and 418.78 ± 36.74 days, respectively. The average length of dry periods of Holstein-Friesian, Sahiwal and Sindhi cross and indigenous dairy cows were 127 ± 46.66 , 136.05 ± 23.42 , 138.39 ± 41.78 and 170 ± 68.89 days, respectively. It was concluded that economic trait, productive and reproductive performances of indigenous cows were inferior to crossbred dairy cows.

Key words: Indigenous, crossbred, reproduction and performance

Introduction

The cattle of Bangladesh are mostly of indigenous type (*Bos indicus*) with few cross breeds along with some pure breeds of Holstein-Friesian, Sahiwal, Sindhi etc. The number of cross-bred cattle is increasing day by day with the spread of artificial insemination practices throughout the country. The milk production of Bangladesh indigenous cattle is low compared to improved breeds of cattle (Hussain *et al.*, 1984). Dairy profitability is directly related to the level of milk production which is very frequently affected by sub-optimal reproductive performance of the dairy cow (Rahman *et al.*, 1995). A good number of small and medium sized mini-dairy farms with the aim to produce milk has been developed mostly in urban and semi-urban milk pocket areas like Pabna, Sirajgonj, Manikgonj, Munshigonj, Madaripur, Kishoregonj, Rangpur, Kushtia and Faridpur district (Amin, 1994). The economic trait of indigenous and cross-bred cows under village condition in Chittagong area has not yet been evaluate. This study, therefore, was under taken to evaluate the performance of economic trait of different dairy cows under village condition.

Materials and Methods

The experiment was concluded in some selected areas of Bolkhali upozila in Chittagong district during the period from July-November 2001. Farmers do not keep records and accounts of their operation of farm. For this reason

survey has to be conducted. In this study the information for individual farmer was collected like other survey works. The following steps were taken in conducting the study.

Selection of the study area: The study area were selected from 8 villages under in Bolkhali upozila in Chittagong district. The data of 100 dairy cows collected from small holder dairy farms out of which 20 were Friesian, 19 Sahiwal and 23 Sindhi cross and 32 indigenous dairy cows. A large number of crossbred and indigenous dairy cows were raised in this area.

Preparation of survey schedule: The survey schedule was developed in accordance with the objectives of the study. Survey schedule was prepared to occurred the desired information from the dairy owners. The survey schedule contained the following economic trait of different cows.

Milk yield (1 day^{-1}), Length of lactation period (day), Dry period (day), Post partum heat period (day) and Calving interval (day).

Method of data collection: The data was collected through direct interviewing method of farm owners.

Data processing and tabulation: The collected raw data on crossbred and indigenous dairy cows were grouped

and tabulated according to calving and lactation number. The dairy cow owners were also classified into crossbred raisers and indigenous raisers.

Statistical analysis: Data collected from the small dairy farm owners were processed, tabulated and analyzed in accordance with the objective of the study. In some cases completely randomized design (CRD) were used for data analysis by using one-way analysis of variance test with the help of MSTAT Statistical programme. Least significant difference (LSD) test was done to find out the significant difference between treatments means. Calculating LSD value with the help of significant difference test (Gomez and Gomez, 1984).

Result and Discussion

Milk yield and lactation period: The average Milk yield of Holstein-Friesian, Sahiwal and Sindhi cross and indigenous dairy cows were 6.29±3.16, 4.72±1.01, 3.73±1.10 and 2.10±0.697 l day⁻¹, respectively. Statistical analysis showed that their was significantly (P<0.01) higher than that of indigenous cows. The result of milk production of this experiment agree with the result of Ali (1998) who found that milk yield of crossbred cows was significantly higher than indigenous cows. Lower milk yield of indigenous cows indicates that genetically merits of our indigenous non-descriptive milking cows are poorer than crossbred cows.

The average lactation period of Holstein-Friesian, Sahiwal and Sindhi cross and indigenous dairy cows were 263±24.73, 256.31±24.31, 255.86±27.58 and 230.62±30.68 days, respectively. Lactation period of crossbred cows were significantly (P<0.01) higher than that of indigenous cows. The result of lactation period of this experiment agrees with the studied by several workers (Hossain and Routledge, 1982; Khan *et al.*, 1991; Hasan, 1995) and found that average lactation period of crossbred cows were higher than that of indigenous cows.

Dry period: In the experiment dry period was considered the time starting from the end of lactation upto next calving period. It was observed that the dry period of Holstein-Friesian cross, Sahiwal cross, Sindhi cross and indigenous dairy cows were 127 ±46.66, 136.05± 23.42, 138.39± 41.78 and 170± 68.89 days, respectively (Table 2). The average dry period for crossbred cows were significantly lower than indigenous dairy cows (P < 0.05). The present results were nearly similar with Nahar *et al.* (1989) Who found that average dry period for F1 graded Sindhi and Sahiwal was 145.90±4.29 and 127.21±5.84 days, respectively.

Post partum heat period: The average post partum heat period of Friesian, Sahiwal, Sindhi cross and local cows were 98.75±40.58, 97.63±36.03, 14.65±21.54 and 108.46±36.32 days respectively. In this study post partum heat period was highest (114.65±21.54) for Sindhi cross and lowest(97.63±36.03 days) for Sahiwal cross.

Statistical analysis showed that there was no significant difference between the post partum heat period of different types of dairy cows. In a similar study Ali (1998) conducted an experiment and found that post partum heat period of cross-bred and indigenous cows were 109.59±26.87 and 103.83±18.54 days respectively. The result of present experiment agrees nearly with this findings.

Calving to first service: It was found that the average days of calving to first service of riesian cross, Sahiwal cross, Sindhi cross and indigenous cows were 109±37 .26, 114±38.89, 113.10±27.20 and 124.53±43 .33 days, respectively (Table 2). The average days of calving to first service within different types of dairy cows were not significant (P>0.05). In another experiment Ali (1998) in Gaibandha district showed that the average calving to first service of cross-bred and indigenous dairy cows were 124.13±27.89 and 113.98±20.75 days respectively. The study agrees with the findings of Ali (1998). Kassa (1990) carried out an experiment in the Ethiopian Central Highlands and found that the calving to first conception of Zebu cow was 199.80±61.80 days and 157.80±62.80 days for crossbred cows.

Calving interval: It was observed the calving interval of Holstein Friesian cross, Sahiwal cross, Sindhi cross and indigenous dairy cows were 373.25±33.25, 383.42±34.44, 377.77±37.07 and 418.78±36.74 days, respectively (Table 1). Statistical analysis showed that there were significant differences (P< 0.01) within the calving interval of different types of dairy cows. In this experiment the calving intervals are approximately similar for cross Bbred cows (373±33.25, 383.42±34.44, 377.77±37.07) and higher for indigenous cows (418.78±36.74 days) the result contradicts to the findings of Mondal (1998) who found that the mean calving intervals of jersey cross Sahiwal cross Sindhi cross Holstein cross and red Chittagong cows were 501.41±86.41, 444.97±94.93, 431±98.53, 414.12±451.42 and 469.30±123.76 days, respectively in Bangladesh Agricultural University dairy farm. The result of this study also contradicts with Nahar (1987) who observed that the mean calving interval of Sindhi Sahiwal jersey and Holstein cross Bbred cows under farm condition were

Table 1: Milk yield and lactation length of different dairy cows

Parameter	Holstein-Friesian cross cow	Sahiwal cross cow	Sindhi cross cow	Indigenous cow
Milk yield (l)	6.29 ±3.16a	4.72±1.01b	3.73 ±1.10ab	2.10±0.697c
Lactation period (day)	263±24.73a	256.31±24.31a	255.86±30a	230.62±30b

Different Superscripts in the same row differ significantly * * Significant at 1% level.

Table 2: Performance of economic trait of different dairy cows

Parameters	Holstein-Friesian cross	Sahiwal cross cow	Sindhi cross cow	Indigenous cow	Significant value
Dry period (days)	127±46.66a	136.05±23.41b	138.39±41.78b	170±68.89a	*
Post partum heat period (days)	98.75±40.58	97.63±36.03	114.65±21.54	108.46±36.92	N.S.
Calving to first service(days)	109±37.26a	114.47± 38.89a	113.10±27.20a	124.53±43.33b	**
Calving interval	373.25±33.25b	383.42±34.44a	377.77±37.07a	418.78±36.74a	**

Different Superscripts in the same row differ significantly. * * Significant at 1% level. * Significant at 5% level.

451.78, 485.48, 36.28 and 749.41 days, respectively. In this experiment calving intervals of crossbred dairy cows reared at Bolkhali upozila in Chittagong District were lower than the calving intervals of crossbred dairy cows reported by Mondal (1998) and Nahar (1987). The results of this study indicates that dairy cows owners of at Bolkhali upozila in Chittagong District area are taking good care to their cows and hence there calving intervals was lower than the calving intervals of cows reported by above authors.

It was concluded that economic trait, productive and reproductive performances of indigenous cows were inferior to crossbred dairy cows.

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