FACTORS AFFECTING SOME ECONOMIC TRAITS IN MURRAH BUFFALOES

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ABSTRACT

1176 first three lactation records of Murrah buffaloes maintained at National Dairy Research Institute, Karnal and Punjab Agricultural University, Ludhiana, spread over a period of 11 years were analysed to assess the influence of farm, season and period of calving and parity on peak yield, 305 days yield, complete lactation yield, lactation length, dry period and calving interval. The least squares means were 12.04 ± 0.14 kg, 1934.77 ± 19.81 kg, 2067.74 ± 23.86 kg, 313.19 ± 2.77 days, 172.84 ± 5.52 days and 492.38 ± 5.82 days, respectively for the traits under study. Farm, period of calving, season of calving and parity showed highly significant (P<0.01) influence on all the traits except non significant effect of farm on peak yield and complete lactation yield and period of calving and dry period. Significant (P<0.05) effect of period of calving on complete lactation yield and dry period and season of calving on peak yield and dry period and parity on dry period was also studied.

INTRODUCTION

The success of a dairy industry is much dependent on level of production and reproduction traits of the animals. There are several non-genetic factors which introduce bias in the estimation of phenotypic value of economic traits. In the absence of accurate value of the these traits, it becomes difficult to estimate genetic parameters of the traits which determine the optimum selection criterion for planned improvement of the animals.

Therefore this study was an attempt to assess the influence of important non genetic factors viz. location of farm, period of calving, season of calving and parity on some production and reproduction traits in Murrah buffaloes.

MATERIAL AND METHODS

A total of 1176 first three lactation records of 415 Murrah buffaloes maintained at National Dairy Research Institute, Karnal and 213 at Punjab Agricultural University, Ludhiana were analyzed for this study. The data were spread over a period of 11 year (1981-91). The buffaloes born from common sires at two farms were scrutinised for peak yield (PY), 305 days milk yield (305 MY), complete lactation milk yield (CLY), lactation length (LL), dry period (DP) and calving interval (CL). The entire duration was divided into 3 periods, viz 1.(1981-83), 2. (1984-87) and 3. (1988-91). Each year was further delineated into 4 seasons, viz 1. winter (Dec-Mar.), 2. Summer (Apr.-Jun.), 3. Rainy (Jul.-Sep.) and 4. Autumn (Oct-Nov.). Least squares analysis (Harvey, 1966) was carried out to study the influence of farm, period and season of calving and parity on above traits.

Duncan’s multiple range test (DMRT) as modified by Kramer (1957) was used to make pair-wise comparison among the sub-group means.

Part of Ph.D. Thesis, submitted by first author to N.D.R.I., Karnal, India.
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RESULTS AND DISCUSSION

The least squares means with standard error and DMRT of some economic traits in Murrah buffaloes are presented in Table 1. The overall least squares means for PY, 305MY, CLY, LL, DP and CI were 12.04 ± 0.14 kg, 1934.77 ± 19.81 kg, 2067.74 ± 23.86 kg, 313.19 ± 2.77 days, 172.84 ± 5.32 days and 492.38 ± 5.82 days, respectively. The similar results were also observed by Vij and Tiwana (1986), Prakash and Tripathi (1990) and Vij and Tiwana (1987).

**Location of Farm:** The location of farm had highly significant (P<0.01) influence on 305MY, LL, DP and CI. This was in agreement with that reported by Gogoi et al., (1990). The estimates for PY, 305MY and CLY were higher and for LL, DP and CI were lower at Karnal farm. The differences in the performance of the animals maintained at two farms may be attributed to variation in climatic conditions and management practices.

**Period of Calving:** Period of calving showed significant (P<0.05) effect on CLY and CI and highly significant on PY, 305MY and LL. In support to present
findings Chhikara et al., (1994) and Dutt and Yadav (1988) reported similar effect of period respectively on CLY and CI. The animals born during 1988-91 were found to be best performer for PY, 305MY, CLY, LL and CI. The variation in the performance in different periods might be due to variation in the nutrition, managemantal practices and change in genetic compositions of herd due to selection pressure over the years.

Season of calving: The season of calving had significant (P< 0.05) on PY and DP and highly significant (P<0.01) on 305MY, CLY, LL and CI. Similar influence on PY (Sane et al. 1972) DP (Vij and Tiwana, 1987), 305MY (Sahana, 1993), and on LL (Singh, 1987) have also been reported. The animals born during winter season (Dec-Mar) had highest peak yield and animals born during summer (Apr.-Jun) showed highest 305MY, CLY and longest LL. The shortest DP and CI were noticed in rainy (Jul-Sep) and summer calvers, respectively. The differences in the phenotypic values in different seasons may be attributed to variation in feed and fodder availability and varying nutritional requirements of animals in different seasons.

Parity: Parity indicated highly significant (P<0.01) influence on all the traits except significant (P<0.05) effect on dry period. In agreement to present findings Gajbhiye and Tripathi (1988), Sahana (1993), Chhikara et al., (1994), Singh (1987) and Vij and Tiwana (1987) have reported highly significant influence of parity on the traits under study. The highest peak yield was recorded in 3rd parity and 305MY and CLY in 2nd parity. Shorter dry period and calving interval was observed in 2nd parity. The different performance in different parity may be due to differences in the age of animals and managemantal factors in different time.

From this study it is concluded that farm, period of calving, season of calving and parity had great role in the expression of phenotypic values of the traits. In order to bring about improvement in these economic traits the need of letterment in feed and fodder availability and managemantal practices are advocated.

ACKNOWLEDGEMENT
The authors are thankful to Head, DCB, Division and Director, NDRI, Karnal for providing necessary facilities for carrying out this study

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