FACTORS AFFECTING PRODUCTIVE CHARACTERISTICS OF DAIRY BUFFALOES UNDER TROPICAL CONDITIONS

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INTRODUCTION

The Brazilian buffalo population has shown an annual increase of 12% during the last ten years. This is due to the adaptive capacity of this species to tropical conditions, specially in the ecotypes found in warm and humid lowlands, like those of the lower Amazon, Marajó Island, São Paulo and Paraná seashores, Mato Grosso Wetland etc. Following this increase, some breeders and research institutions have started to control productive and reproductive performance. We have tried to evaluate the factors that influence performance under tropical conditions, based on data collected from 1962 through 1989 on productive traits of cows belonging to six genetic groups

MATERIAL AND METHODS

The data were collected from 1962 through 1989 and consisted of 2285 lactatons of dairy cows belonging to six genetic groups: Jaffarabad, Mediterranean (Me), Murrah (Mu), 1/2Mu x 1/2Me, 3/4Mu x 1/4Me and ≥ 7/8Mu.

Data analysis employed least-squares procedures (2), the variables being genetic group, month and year of parturition, calf sex, milking frequency, order of parturition and linear effect of lactation length and calving interval. Differences among means were evaluated by the Tukey test.

RESULTS AND DISCUSSION

The mean values obtained were: 1454.66 ± 495.88 kg, 6.79 ± 1.00%, 100.61 ±41.05 kg, 6.00 ±1.77 kg, 1828.59 ± 540.77 kg, 2085.76 ± 773.86 kg and 2612.36 ±834.51 kg, respectively, for milk yield per lactation (PL), fat percentage (PG), fat yield per lactation (PGO), milk yield per day of lactation (PLDL) and day of calving interval (PLIEP), 4%-fat-corrected daily milk yield, and 305-day milk and fat-corrected milk yield (PL305 and PL4%305). The values are higher than those observed for dairy cattle in Brazil, and are comparable to results obtained by (1) and (4) in India and (3) in Egypt.

Index terms: Buffalo, Milk production.

The analyses of variance showed significant effects ($p<0,01$) of genetic group, month and year of parturition, lactation length and calving interval on all traits, with the exception of the effect of calving interval on fat percentage and production.

The main source of variation for all traits was lactation length, followed by year of parturition, genetic group, parturition order, with the other sources showing effects of similar magnitude. The coefficients of the regressions of productive traits on lactation length were: 5.24; 0.0026; 0.39; -0.003; 0.01; -0.91; 8.08 and -0.68, respectively, for PL, PG, PGO, PLDL, PL305, PL4% and PL4%305; while the regressions on calving interval had the followig coefficients: 0.31; 0.00028; -0.016; -0.0013, -0.0078; -0.41; -0.36 and -0.52, for the same traits.

CONCLUSIONS

- The sources of variation included in the model explained about 48% of the observed variation in the total sum of squares, no other sources having been identified.

- The animals having at least 75% Mu blood showed the highest mean milk yields.

- The highest number of parturitions (440) was observed in March, but 75,04% of all parturitions occurred from February through June. There were parturitions in all months.

- A negative linear effect of year on all traits was observed.

- Cows with female calves were higher milk producers than those with male calves.

- Two milkings a day increased mean milk yield by 22.21% or 279.49 kg, although only 136 lactations were obtained with once-a-day milking.

- Peak production was reached in the fifth lactation, with 286.14 kg more than in the first.

- Mean lactation length (244.2 days) were below the expected value (270 days), which indicates management errors.

- Reproductive efficiency, as confirmed by the mean calving interval (415.9 days) was 87.76%, an excellent index for the management conditions.

ABSTRACT

The Brazilian buffalo population has shown an annual growth rate above 12% and is becoming a significant alternative for milk and meat production. The main purpose of this study is to evaluate the non-genetic factors affecting milk characteristics and components. Two thousand, two hundred and eighty-five lactations of Jaffarabad, Mediterranean, Murrah and crossbred cows were analyzed by least-squares, the variables being genetic group, parturition order and the linear effect of lactation length and calving interval. Mean productions were: 1454.66 ± 495.88 kg, 6.79 ± 1.00%, 100.61 ± 41.05 kg, 6.00 ± 1.77 kg, 1828.59 ± 540.77 kg, 2085.76 ± 773.86 kg and 2612.36 ± 834.51 kg, respectively, for milk yield per lactation, fat percentage, fat yield per lactation, milk yield per day of lactation and day of calving interval, 4%-fat-corrected milk yield, and 305-day milk and fat-corrected milk yield. The analysis of variance showed significant effects ($p<0.01$) of group, month and year of parturition, sex, milking frequency, parturition order and linear effects of lactation length and calving interval for all traits, with the exception of the effect of calving interval on fat percentage and yield.

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