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Reproductive performance of murrah buffaloes

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ABSTRACT

Data on 744 Murah buffaloes maintained at Buffalo Research Centre, CCS Haryana Agricultural University, Hisar from the year 1993-94 to 2000-2001 were analysed for studying the trends in reproductive traits. A significant decrease in age at first calving (AFC) was observed over the years, the age decreased from 1570 (during 1993-94) to 1440 days (during 1999-2000). No definite pattern was observed in case of service period (SP) over the years, however, it ranged from 107 to 163 days. A similar trend was observed in calving interval (CI), it ranged from 409 to 479 days. Calving interval and service period improved in favourable direction with advancement of parity.

Key words: Trends, Reproductive traits, Buffaloes.

INTRODUCTION

Production potential of buffaloes is constrained by its low reproductive efficiency due to higher age of puberty, poor conception rates, longer service period and calving interval. The reproductive traits are believed to be governed by the non-genetic factors such as environment, feeding and management. Improvement in environmental conditions, better feeding and management may result in improvement of reproductive efficiency. The present study reports trends in some of the reproductive traits of buffaloes.

MATERIAL AND METHODS

Data on 744 Murrah Buffaloes maintained at Buffalo Research Centre, CCS Haryana Agricultural University, Hisar from the year 1993-94 to 2000-2001 was collected for studying the effect of year on reproductive traits. Data on age at first calving, service period and calving interval was analysed using the computer programme of Harvey (1987). The years were treated as fixed effects in the model of analysis. A recent data set (year 2000-2001) on 71 buffaloes was also used to study the effect of parity on service period and calving interval.

RESULTS AND DISCUSSION

Overall mean for age at first calving (AFC), service period (SP) and calving interval (CI) was 1500.4, 125.5 and 440.2 days, respectively (Table 1). The year effect was significant for all the above traits. A significant decrease in AFC was observed over the years, the AFC decreased from 1570.5 days (during 1993-94) to 1440 days (during 1999-2000). Although the year effect was significant for SP but no definite trend was observed over the years. The SP was the higher during 1994-95 (163.1 days), it significantly decreased from 1996 to 1999 and then again increased from 1999 to 2001. A similar trend was observed for CI, being longer during initial years, significantly decreased from 1996 to 1999 and then again increased at the end. The similarity of trend in CI and SP is due to the fact that SP is a part of CI and any change in SP will reflect in CI as the gestation length is almost constant. Basu *et al.* (1978), Chakravarty and Rathi (1989) and Rohilla *et al.* (1992) also erported a significant effect of year on SP. A significant effect of year on CI was reported by Rathi *et al.* (1971), Basu *et al.* (1978 Singh *et al.* (1984 and 1987) and Rohilla (1990).

While studying the effect of parity on SP and CI, it was observed that parity affected both these traits significantly. The SP decreased significantly from 300 days in second parity to 80 days in parities five and above (Table 2). Correspondingly reduction in CI was also observed from 609 days in second parity to 387 days in parities five and

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Table 1: Yearwise least square means of reproductive traits

Year	No. of Obser-vation	AFC (days)	SP (days)	CI (days)
Overall	744	1500.4 ± 25.5	125.5 ± 15.7	440.2 ± 16.7
1993-94	86	1570.2^{a} ± 46.2	107.5^{a} ± 21.8	4122.2^{a} ± 24.4
1994-95	88	1560.6^{a} ± 41.4	163.1^{b} ± 25.2	460.1^{b} ± 32.8
1995-96	92	1575.8^{a} ± 39.5	135.0^{ac} ± 30.1	456.0^{b} ± 32.6
1996-97	122	1438.17^{b} ± 38.7	107.0^{a} ±25.3	408.0^{a} ±32.6
1997-98	104	1480.4^{bc} ±45.6	107.7^{a} ±25.3	410.6^{a} ±31.2
1998-99	98	1502.0^{ab} ± 32.6	108.7^{a} ± 31.6	417.2^{a} ±30.4
1999-2000	83	1440.0^{b} ± 35.2	148.3^{bc} ±27.5	459.0^{b} ±29.6
2000-2001	71	14512^{b} ± 42.6	146.0^{bc} ± 27.1	479.6^{b} ± 32.9

Figures bearing different superscripts differed significantly (P<0.05)

Table 2: Parity wise least square means of reproductive traits

Parity	No. of observation	SP (days)	CI (days)
Overall	71	146.0± 27.1	477.6± 32.9
1	27	2098^{c}± 36.8	512.5^{a}± 39.6
2	17	300.0^{d}± 42.4	609.0^{b}± 42.8
3	8	154.0^{a}± 22.2	463.8^{d}± 22.0
4	6	199.5^{a}± 57.5	513.3^{a}± 58.3
5 and above	13	79.5^{b}± 6.35	387.4^{c}± 6.77

Figures bearing different superscripts differed significantly (P<0.05)

above. Shah *et al.* (1989) and Rohilla *et al.* (1982) also observed a significant effect of parity on SP and CI.

From this study, it may be concluded that improvement in reproductive performance of buffaloes is possible through intervention with environment, feeding and management as reflected in year-wise variations in AFC, SP and CI.

REFERENCES

Basu, S.B., Bhosrekar, M., Goswami, S.L. and Sarma, P.A. (1978). Sources of variance affecting reproductive performance of Murrah buffaloes. Indian J. Dairy Sci. **31**: 294-296.

Chakravarty, A.K. and Rathi, S.S. (1989). Effect of genetic and non-genetic factors on growth, reproductive and productive traits in Indian buffaloes. Asian J. Dairy Res. **8**: 59-64.

Harvey, W.R. (1987). Mixed Model Least-Squares and Maximum Likelyhood Computer Program. January, 1987.

Rathi, S.S., Balaine, D.S. and Acharya, R.M. (1971). Phenotypic and genetic parameters of some economic traits in Indian buffaloes. Indian J. Anim. Prod. **2**:16.

Rohilla, P.P. (1990). Effect of blood biochemical polymorphic traits and environmental variations on growth, production and reproduction of Murrah buffaloes. Ph.D. Thesis, Haryana Agril. Univer. Hisar.

Rohilla, P.P., Chaudhary, S.R. and Sharma, R. (1992). Influence of various environmental factors on growth reproduction and production of Murrah buffaloes. Indian J. Anim. Prod. Mgmt. **8**: 235-239.

Shah, S.N.H., Willemse, A.H., Wiel, D.F.M., Van, D.E. and Engel, B. (1989). Influence of season and parity on several reproductive parameters in Nili-Ravi buffaloes in Pakistan. Anim. Reprod. Sci. **21**: 177-190.

Singh, C.V., Yadav, M.C. and Dutt, C. (1984). Factors affecting first lactation milk yield in Nili-Ravi buffaloes. Indian J. Anim. Sci. **54**: 878-879.