International Journal of Tropical Agriculture
Volume 40, Numbers (3-4) • 2022 : pp. 335-337
ISSN: 0254-8755

Reproduction and Production Performance of HF Crossbred cows in Urulikanchan village of Pune district of Maharashtra

Lata Sharma and Jayant Khadse

BAIF Development Research Foundation, Urulikanchan, Pune- 412202. E-mail: lata.sharma@baif.org.in

Abstract: The present study was conducted in Urulikanchan village of Pune district to understand the reproduction and production performance of Holstein Friesian crossbred cows under field condition. A total number of 77 farmers were selected randomly and surveyed for the study. In the present study, records on 152 milking cows were used to investigate milk yield, fat percentage, 65 cows were used to estimate lactation yield, lactation length and 228 cows for age at first service, age at the first calving (**AFC**) and calving interval (**CI**) in crossbred. The average AFC was found to be 27.85 months. More than 50% of the heifers were 26 to 32 months of age when calved for the first time (AFC). Calving Interval was found to be 28.78 months. Average milk yield, 305-days lactation yield and fat percent were found to be 8.36 lit, 3096 litre and 3.61 percent respectively. It is found that an increased AFC was also associated with decreased milk production, delayed peak time and longer CI. Therefore, controlling AFC is an important management factor in achieving higher lactation performance and shorter length of the calving interval.

Keywords: Production, Reproduction, Age at first calving, Calving interval

INTRODUCTION

Cross-breeding native cattle, Bos indicus, with exotic Bos taurus cattle is a widely used method of improving reproduction and production of cattle in the tropics (Van Raden and Sanders, 2003). Although indigenous cattle are well adapted to local production conditions, they usually mature late and have poor growth rates and low milk yields (Syrstad, 1988). Animals with these levels of B. taurus blood calves earlier than the indigenous stock, produce more milk, and have longer lactations and shorter calving internals (CIs). Cross-breeding is therefore a very attractive short-term livestock improvement tool as improvement can be made in a population within a single generation. However, despite the impressive results and high demand for milk in the tropics, well-organized and successful cross-breeding programmes remain few (McDowell, Wilk and Talbott, 1996). Therefore attempts were made to study the performance of crossbred cattle under field condition.

MATERIAL AND METHODS

A total of 77 farmers who have 3 to 4 lactating cows were selected randomly for the study. The farmers were interviewed twice for the data collection at the interval of six months. The data on 228 HF crossbred cows were collected, out of which data on 152 milking cows that had three successive lactation was collected to calculate lactation yield and lactation length in the present study. The cows were inseminated with frozen semen of Holstein Friesian bulls. All crossbred cows were having 50 to 62.5 percent exotic (Holstein Friesian) blood level. The data on 228 female for reproduction parameters like age at first service, age at first calving, calving interval as well as 152 cows for production parameters like average daily milk production and fat percent, and 65 cows for calculating 305 days lactation yield and lactation length were collected and analyzed.

Article History: Received: 21 June 2022; Revised: 22 July 2022; Accepted: 10 September 2022

RESULTS AND DISSCUSSION

Age at first Service (AFS)

Dairy cattle production performance on reproduction and production traits is presented in table 1. The average age at first service of crossbred heifers was 17.61+0.41 months (Table 1).

Age at first calving (AFC)

Average age at first calving in cross bred cattle is presented in table 1. AFC is the period from birth of female calf till she calves for first time to begin her productive life. Early age at first calving produce desirable results in terms of economy by reducing cost of rearing of animals to attain its productive stage. It also facilitates more number of calves in her life span as compare to late calvers. The average age at first calving was recorded to be 27.85±0.45 in crossbred cattle respectively.

This indicates the potential for reducing age at first calving by bringing about improvement through crossbreeding and in management practices.

Calving Interval

Best reproduction efficiency leading to timely calving of an animal is an indication of having optimum calving interval. For economic milk production, the cow should calve regularly at an optimal interval. The farmer always prefers an animal having shorter calving interval for better economic gain. Average calving interval was recorded to be 14.93+0.28 / 450.90±8.25 days months in crossbred cattle. Periyasamy *et al.*, (2019) reported 460.56±11.08 days calving interval in crossbred cows. The overall calculated mean in the present study was lower in comparison with earlier reports (Mondal *et al.,* 2005; Hadge *et al.,* 2009; Dandapat *et al.,* 2010; Vinothraj *et al.,* 2016). Galkunde *et al.* (2013) reported that there was a reduction in calving interval by 0.8 times and in age at first calving by 0.9 times in 50 percent Bos taurus blood. Prasanna *et al.* (2021) reported mean calving interval in crossbred cows were 413.61±9.47 days.

Production Performance

The result indicated (Table 2) that all the cows were milked by the owner. Overall average daily milk production in crossbred of HF was recorded to be 8.36±0.17 litre. Average lactation length in crossbred cattle was 222.56+0.12 days with mean lactation yield 2437.70±12.5 while peak yield and fat percent was reported 16.36 litre 3.61±0.10 percent respectively. Galkunde *et al.* (2013) reported that 50 percent Bos taurus blood, lactation milk yields were 2.6, 2.4 and 2.2 times higher than those of local cattle in the highland, tropical wet and dry, and semi-arid climatic zones, respectively; lactation lengths increased by 1.2, 1.2 and 1.9 months in the above-mentioned climatic zones, respectively; While Prasanna *et al.* (2021) reported peak milk yield, lactation yield and lacation length in crossbred cows were 14.92±0.36, 2983.45±78.32 kg and 324.71±9.29 days respectively.

Table 1: Reproduction Performances of Dairy Cattle

Parameters	*Number*	*Mean+S.E.*	***Range***
Age at First Service (AFS in months)	228	17.61±0.41	16 - 32
Age at First Calving (AFC in months)	228	27.85±0.45	27 - 40
Calving Interval (CI in months)	228	14.93±0.28	12-25

Table 2: Production Performances of Dairy Cattle

Parameters	*Number*	*Mean+S.E.*	*Range*
Average Daily Milk Yield (MY in Litre)	152	8.36±0.17	3 - 16
Lactation Length (LL in days)	65	222.56±0.12	210 - 260
Lactation Milk Yield (LY in litre)	65	2437.70 ± 12.51	1600-4400
Fat (%)	152	3.61±0.10	301-400

CONCLUSION

The estimated overall means of various traits inthis study indicates current production potential of crossbred (H.F. crossbred). The values obtained for different production and reproduction parameters provide inputs to refine or review the ongoing breeding programme for the genetic improvement of native cattle germplasm. It may be concluded from the

study that the productive and reproductive performance of crossbred cows was better than that of indigenous cows.

References

Bhattacharya, T.K., Patil V.K., Mahapatra A.S., et al. Dairy performance of Tharparkar, Holstein Friesian and their crosses (2014).

Dairy Knowledge Portal, http://14.139.252.116/agris/breed.aspx

Dandapat A, Banerjee D and Chakraborty D (2010). Geneticstudies on various production and reproduction traits of Sahiwal and crossbred cattle (HF×Jersey×Sahiwal) ofan organised farm. Veterinary World, 3(4): 167-168.

Galukande E., MulindwaH., Wurzinger M., Roschinsky R., Mwai A.O. and Sölkner J. Cross-breeding cattle for milk production in the tropics: achievements, challenges and opportunities. Animal Genetic Resources, 2013, 52, 111–125. Food and Agriculture Organization of the United Nations, 2013 doi:10.1017/S2078633612000471

Hadge MR, Kuralkar SV, Ali SZ and Kharkar KP (2009). Performance of Sahiwal and its Jersey crosses for reproductive traits in different lactations. Indian Journal of Animal Research, 43(1): 75-76. McDowell, R.E., Wilk, J.C. & Talbott, C.W. 1996. Economic viability of crosses of Bos taurus and Bos indicus for dairying in warm climates. *J. Dairy Sci.* 79: 1291–1303.

Mondal SC, Alam MM, Rashid MM, Ali MY and HossaiMM (2005). Comparative study on the different dairy genotypes reared in Bangladesh Agricultural University Dairy Farm. Pakistan Journal of Nutrition, 4(4): 222-225

Periyasamy Vijayakumar, Arunasalam Singaravadivelan (2019). Paramasivan Silambarasan, Masilamani Ramachandran and Richard Churchil. Production and Reproduction Performances of Crossbred Jersey Cows. Veterinary Research International | April-June, 2019 | Volume 07 | Issue 02 | Pages 56-59

Prasanna J. Sai, Rao S.T. Viroji, Prakash M. Gnana, Rathod Suresh, Kalyani P., Sharma, Major Rajesh (2021). Production and Reproduction Performance of Sahiwal and HF × Sahiwal Cows. *Indian Journal of Animal Research,* B4701.

Vinothraj S, Subramaniyan A, Venkataramanan R, Joseph Cand Sivaselvam SN (2016). Genetic evaluation of reproduction performance of Jersey×Red Sindhicrossbred cows. Veterinary World, 9(9): 1012-1017

Syrstad, O. 1988. Crossbreeding for increased milk production in the tropics. Norw. Agric. Sci. 2: 179–185.

Van Raden, P.M. & Sanders, A.H. 2003. Economic merit of crossbred and purebred US dairy cattle. *J. Dairy Sci.,* 86: 1036–1044.