



STUDY ON PERSISTENCY OF MILK PRODUCTION IN HOLSTEIN FRIESIAN CATTLE ON AN ORGANIZED FARM

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ABSTRACT

The production performance from 213 cows maintained at H.F Project, Anand Agricultural University, Anand over a period from 1992-2007 were studied. The persistency of milk yield is one of the most important economic traits of dairy animals. The persistency of milk production was measured in Holstein Friesian cattle up to 42nd week of lactation and the overall persistency (%) for weekly milk production in first, second, third, fourth and fifth lactations were observed to be 84.45, 83.46, 83.40, 83.50 and 83.80 %, respectively. The present study revealed that the Holstein Friesian cattle have good persistency in milk production.

KEY WORD: *Lactation Persistency, H.F.*

I. INTRODUCTION

India blessed with mega biodiversity center for domesticated animals viz. Cattle, Buffalo, Sheep, Goat, Camel, Horse etc. India is first ranking country for the total milk production in world but the per animal productivity is very less eventhough large number around 37 recognised breeds of cattle (Anonymous, 2013). In India, to uplift the production performance famers are adopting the certain exotic breeds viz. Holstein Friesian (H.F.), Jersey, Brown Swiss etc. The H.F. and Jersey breed are most suitable for crossbreeding because high milk yielding capacity. The average milk yield of Holstein Friesian is 5000-6000 lit. per lactation in temperate climate but production performance of Holstein is 3500-4500 lit. per lactation under tropical climate. Among the economic traits of H.F. cows the persistency is one of the most important trait. The lactation persistency refers to the ability to maintain milk production at a high level after peak production. The present study was conducted with the objective of estimation of persistency because information on Persistency will help the breeder to study lactation characteristics of Holstein Friesian cattle and identify various measures to be taken for achieving high peak yield and sustain it for longer period so as to increase lactation yield.

II. MATERIALS AND METHODS

The production performance data (morning and evening) for 575 lactations from 213 cows were collected over a period from 1992-2007 maintained at H.F Project, Anand Agricultural University, Anand for present study. The daily milk yield of both morning and evening recorded in kg for each and every animals maintained at farm. Among all production traits the lactation persistency was evaluated to know the persistency of milk yield of Holstein Friesian cow maintained in tropical climate condition. The lactation yields up to 42 weeks for first to fifth lactation of Holstein Friesian cattle were used to estimate the persistency of milk production. Average weekly milk yield data for first, second, third, fourth and fifth lactation were utilized to estimate the persistency by the method of Sturtevent (1987) as modified by Pradhan and Dave (1973).

$$\frac{8^{\text{th}} \text{ week's yield} \times 100 + 9^{\text{th}} \text{ week's yield} \times 100 + \dots + 42^{\text{nd}} \text{ week's yield} \times 100}{7^{\text{th}} \text{ week's yield} \quad 8^{\text{th}} \text{ week's yield} \quad 41^{\text{th}} \text{ week's yield}}$$

N-1

N = Total No. of Weeks included (42 weeks)

III. RESULT AND DISCUSSION

The overall lactation yield, 305 days Standardized lactation yield, lactation length, dry period, peak yield, days to attend peak yield, Peak week yield, weeks to attend peak yield were 3728.97 ± 69.33 kg, 3320.61 ± 52.02 kg, 368.81 ± 4.48 days, 136.18 ± 6.40 days, 18.30 ± 0.28 kg, 57.04 ± 3.28 days, 113.87 ± 1.90 kg and 8.61 ± 0.47 weeks, respectively in present study. The lactation persistency refers to the ability to maintain milk production at a high level after peak production. The persistency value of milk production up to 42th week of lactation was calculated by utilizing the method of Sturtevent (1987). The persistency of milk production was measured in Holstein Friesian cattle up to 42nd week of lactation and the overall persistency (%) for weekly milk production in first, second, third, fourth and fifth lactations were observed to be 84.45, 83.46, 83.40, 83.50 and 83.80 %, respectively.

In the present study, persistency of weekly milk production ranged from 83.40 to 84.45 and the overall persistency index was 83.72 %. Shah *et al.* (1983) reported the persistency of lactation by Ludwick and Peterson method and found that the third lactation was most persistent with 94.49% persistency index, while fourth was least with persistency index 83.80% and overall persistency index was 90.6%.

Singh *et al.* (2002) reported the persistency indices ranging from 71.69 to 97.41% in crossbred cows of Holstein, Brown Swiss, and Jersey with Harijana. Weller *et al.* (2006) reported the persistency indices of $64.5 \pm 13.1\%$ and $64.7 \pm 12.0\%$ in first and second lactation and the persistency indices showed a declining trend after second lactation. As compared to this report, the persistency of lactation of in the H.F. cows under study was higher. The present finding revealed that the Holstein Friesian cows possess higher persistency of milk production in almost all lactations.

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BIBLIOGRAPHY

- Anonymous, 2013. National Plan of Action for Management of Animal Genetic Resources, NBAGR, Karnal.
- Pradhan, V.D. and Dave, A.D. 1973. A study on the lactation curve and the rate of decline in milk yield in Kankrej cattle. *Indian J. Ani. Sci.* **43**: 914-917.
- Shah, S.V. Deshpande, A.P. and Singh, R.D. 1983. A Study of persistency of milk production in Friesian Cows. *J. Ani. Sci.* **18**: 512-516.
- Singh, K. Kanaujia, A.S. and Khanna, A.S. 2002. Prediction functions for persistent lactation yield in crossbred cattle. *Indian J. Ani. Sci.* **72**(5): 414-417.
- Sturtevant, E.L. 1987. Influence of distance from calving on milk yield, N.Y. (Geneva). *Agri. Expt. Sta. Ann. Rept.* **5**: 26. c.f. Arya, J.S. (1983).
- Weller, J.L. Ezra, E. and Leitner, G. 2006. Genetic Analysis of Persistency in the Israeli Holstein Population by the Multi-trait Animal Model. *J. Dairy Sci.* **89**:2738-2746.