

Accepted : July, 2010

Correlation and path analysis of 300 days milk yield in Phule Triveni crossbred cattle

SHEETAL L. GOSAVI, D.K. DEOKAR, NILISHA P. HADAWALE AND ANJALI A. BHAGAT

ABSTRACT

Data on 420 Phule Triveni crossbred cows of various generations viz., FJG, H, 3H, 4H, 5H and 6H maintained at Research Cum Development Project on Cattle (RCDP), Mahatma Phule Krishi Vidyapeeth, Rahuri, Dist. Ahmednagar (M.S.) for a period of 33 years (1975 to 2007) were considered for present study casual association of factors affecting 300 days milk yield in Phule Triveni crossbred cattle by using path analysis. The correlation coefficients among the different traits were estimated. The data were analysed by least square method by considering the period season lactation order, age at first calving and birth weight of calf as a sources of variation. The data were corrected for significant effects and used for estimating the casual association of factors affecting 300 days milk yield by using path analysis for individual lactations up to fifth lactation. The results indicated highly significant correlation of LL (0.488 to 0.582), CI (0.217-0.344), SP (0.213-0.435) with 300 DMY, while birth weight of calf showed positive (0.061 to 0.156) and age at first calving showed negative (-10.143 to 0.008) and non-significant correlation with 300 DMY. The highly significant correlation of LL, CI, and SP with 300 DMY was due to high contribution of direct effect through LL in CI (0.287 to 0.364) and SP (0.040 to 0.587). The model explained nearly 20% variation and magnitude of residual effects clearly indicated that genetical factors considered for present study and environment factors have less influence on 300 DMY.

Key words : Phule Triveni, Path analysis, Lactation, Days milk yield, Generations

INTRODUCTION

The present milk production of India is 106.9 million tones and India ranks first in the world in total milk production (Dairy India, 2005-2006) is due to change in genetic make up of zebu cattle by crossbreeding with exotic dairy breeds like Holstein Friesian and Jersey which was launched on large scale in early part of fourth five year plan by ICAR, New Delhi. The Phule Triveni is a triple crossbred cow has genetic combination of 50% Holstein Friesian + 25% Jersey + 25% Gir. The performance of these animals was studied under field condition for five years which revealed that Phule Triveni has produced more milk at farmers door as compared to farm condition and it widely accepted by farmers due to its typical characteristics of high milk yield, high fat content and ecological adaptability. The path analysis (Wright, 1921) proves helpful in partitioning the correlation coefficients into the direct and indirect effects of independent variables on dependent variable. If the correlation is due to direct effect, it reflects true relationship and for improving milk production such factors should be

taken into consideration, as these are more important in breeding programme.

MATERIALS AND METHODS

The data of 420 Phule Triveni (50% HF+ 25% Jersey + 25% Gir) triple crossbred cows of various generations viz., FJG, H, 3H, 4H, 5H and 6H, maintained at Research Cum Development Project on Cattle (RCDP), Mahatma Phule Krishi Vidyapeeth, Rahuri, Dist. Ahmednagar (M.S.) were collected from history/ pedigree sheets for a period of 33 years (1975 to 2007). The data were classified by considering age at first calving, birth weight of calf, period and season of birth/calving as a sources of variation.

The correlation coefficients among the different traits were estimated by Snedecor and Cochran (1967). Path analysis of 300 DMY was done for individual lactations up to fifth lactations. To establish a cause and effect relationship, the first step was used to partition the correlation coefficients into direct and indirect effects by path analysis as suggested by Wright (1921). The second step was used to prepare path diagram based on cause

Sheetal L. Gosavi, D.K. Deokar, Nilisha P. Hadawale and Anjali A. Bhagat (2010). Correlation and path analysis of 300 days milk yield in Phule Triveni crossbred cattle, *Vet. Sci. Res. J.*, 1 (2) : 78-82