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Genetic and Phenotypic Association Among Milk Production Traits in Jersey Cattle*

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Milk production is a complex biological phenomenon influenced by both genotype and environment. The information on the interrelationship among the milk production traits is scanty. Therefore, the present study was undertaken to know the association among lactation milk yield (LMY), first 305 days milk yield (F305 DMY), Lactation length (LL) and dry period (DP) in Jersey cattle.

The coefficient of correlation among various milk production traits were estimated by using the adjusted data for significant non-genetic effects of 18 years from 1972-90 (Becker, 1975). The data were pertainted to 424 Jersey cows maintained at Exotic Cattle Breeding Farm, Tathwade, Pune. The standard errors of genetic and phenotypic correlations were estimated as described by Robertson (1959) and Panse and Sukhatme (1967), respectively.

The Phenotypic association among milk production traits: The phenotypic correlations of LMY with F305 DMY (0.92±0.04) were significant ($P < 0.01$) and positive in Jersey cattle. The similar phenotypic correlations of LMY with LL and DP were reported by E1-Barbery *et al.,* (1983) in Holstein - Friesian cattle. However, the non-significant phenotypic correleations among LMY, LL & DP were reported by Katoch and Yadav (1990) in Jersey cattle. The results in the present investigation revealed a close association among lactational milk yield, lactation length and dry period.

Estimates of phenotypic correlations between F 305 DMY and DP (0.30±0.04) was significant ($P < 0.01$).

The phenotypic correlation between LL and DP (-0.24±0.05) was negatively significant ($P < 0.01$). The observations made by Dutt *et al.,* (1974) in Tharparkar cattle were in agreement with the present findings.

Genetic association among milk production traits: The genetic correlation of LMY with F305 DMY (1.0±0.03), LL (0.99±0.55) and DP (0.68±0.43) were observed to be significant ($P < 0.01$) and positive. The contradictory results for genetic correlation of LMY with LL and DP were reported by Katoch and Yadav (1990) in Jersey cattle.

The significant ($P < 0.01$) correlation between LMY and LL indicate the selection for LMY might increase the LL in Jersey cattle.

The genetic correlation between F305 DMY and LL (0.88±0.11) was significant indicating that the selection for F305 DMY might increase the LL in Jersey cattle. Whereas, the estimate of genetic correlation between F305 DMY and DP was greater than one which indicated that the use of more number of observations per sire for each trait might give reliable estimates.

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The gentic correlation between LL and Dp (0.70±0.69) was significant ($P < 0.01$) and positive. However it was associated with high standard error, hence reliability of the estimate is poor. The correlation studies revealed that sufficient data size is needed for reliable estimates.

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