

Genetic improvement in a herd of egyptian buffaloes

Kawther Abdel Moneim

197v. SUMMARY Results obtained are summarized as follows: 1. Genetic factors: Year of calving constituted a considerable highly significant ($p < 0.01$) source of variation in milk yield of different stages of lactation studied and in length of lactation period. 2. Spring calvers showed the best performance for all traits of the study except initial milk yield for which summer calvers recorded the highest production. Differences due to season of calving effects on all traits was limited, but showed significance for 305-day milk yield ($P < 0.01$) and length of lactation period ($P < 0.05$). 3. Milk yield of the 3 stages of lactation studied indicated in general, an ascending trend as parity advanced. However, length of lactation period increased from the 1st parity to the 2nd and decreased thereafter. 4. Parity effects were highly significant ($P < 0.01$) for both initial and 6-month milk yields but non-significant for 305-day milk yield and length of lactation period. 5. Estimates of linear and quadratic regression coefficients of milk yield of the 3 stages of lactation studied on age of 1st calving showed significant ($P < 0.01$ or $P < 0.05$) curvilinear effects. Age at first calving did not exert any significant effect on length of lactation period. 6. Phenotypic ~ genetic improvement- During the period of study, phenotypic 'improvement' in milk yield of the 3 stages of lactation investigated was achieved, but not in length of lactation period. The average phenotypic change per generation was 6.6, 13.6 and 17.0 kg in initial, 6-month and 305-day milk yields, respectively and -2.9 days in length of lactation period. 7. A general slight positive genetic improvement per year, in milk production traits studied, was indicated. The estimate of average genetic improvement per year, obtained by the methods applied, ranged between 5.0 and 5.6 kg for initial milk yield, between 1.8 and 7.0 kg for 6-month milk yield, between 2.8 and 2.6 kg for 305-day milk yield and between 2.6 and 12.0 days for length of lactation period. 8. Heritability, phenotypic ~ genetic correlations- Heritability estimates of milk production traits studied were low (ranged between 0.021 and 0.111). 9. A strong positive highly significant ($P < 0.01$) phenotypic correlation coefficients were estimated among milk yields of the 3 stages of lactation studied (ranged between 0.670 and 0.852). Also, there was a strong positive phenotypic correlation coefficient between 305-day milk yield and length of lactation period (0.652). 10. Estimates of genetic correlation coefficients- Significant initial, 6-month and 305-day milk yield in all possible connections indicated the presence of positive genetic association among them. The most efficient estimate is that between 6-month and 305-day milk yield (0.995, 0.004) because of its low standard error. 11. Estimates of genetic correlation coefficients between length of lactation period on one hand and each of initial, 6-month and 305-day milk yields were 1.097, 1.434 and 1.461, respectively.