

9. REPRODUCTIVE AND LACTATION PERFORMANCE OF DAIRY CATTLE ON SMALL HOLDER FARMS IN IRINGA AND MBEYA REGIONS

Balikowa, D., MSc. (Agric.)(1997)

Supervisor: Dr. G. C. Kifaro

A total of 844 records of 100 day and 305 day milk yield (MY), and 2165, 2154, 2887 and 1306 records of lactation length (LL), dry period (DP), calving interval (CI) and age at first calving (AFC), respectively, were used in this study. The records were taken between 1989 and 1996 on small holder farms in Iringa and Mbeya regions of Tanzania. Data were analyzed using the General Linear Models procedure of SAS (1988) for the effects of genotype, location (district, region), parity, year and season of calving, suckling and two day interactions between factors. AFC and CI were analyzed as covariates indices, P1 and P2 were computed as a ratio of the milk yield in the 2nd and 3rd 100 days of lactation to the yield in the 1st 100 days, respectively. Ratio and regression factors for predicting the 305-day MY from single monthly milk records were developed within region-parity-genotype subclasses. The overall least squares means were 748.4 kg, 1786.0 kg, 369.8 days, 128.0 days, 484.9 days and 36.7 months for 100-day M, 305-day MY, LL DP, CI and AFC, respectively. The corresponding coefficients of variation were 33.7, 35.3, 23.2, 66.5, 28.6 and 18.6 percent, respectively. Estimates of repeatability for LL, DP and CI were 0.27, 0.16 and 0.22, respectively. Four genotypes were analyzed including: exotics, F1-Boran, F1-Zebu, and high-grades. The exotics produced significantly higher milk yields, had longer lactations, and shorter dry periods than crossbreds. They, however, had no advantage over the crossbreds in AFC, CI and persistency of milk yield. Crossbreds showed significant differences only in MY where the F1 crosses of Boran out-yielded those of Tanzania Shorthorn Zebu, and in CI where the high-grades had a lower mean than F1 crosses. Parity had a significant effect on MY, persistency and CI but not LL and DP. There were significant regional differences with respect to MY, LL, DP and CI. Districts within regions showed significant differences in MY, LL, DP and persistency but not AFC and CI. Year to year variations were

significant for all the traits analyzed. The season of calving was not an important factor for all the traits analyzed. AFC was not affected by the season of birth of the heifer. The effect of suckling was only analyzed for F1 crosses of Boran. Cows that suckled had significantly longer CI and LL. Other traits were not affected by suckling. The duration of CI had a significant effect on 100 - day milk yield, LL, DP and P2.