

Environmental Factors Affecting Milk Production in the Holstein-Friesian Population of Zimbabwe

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Abstract

The milk production of a cow is a result of the interaction of both genetic and environmental factors. Lactation records for calvings from 1979 to 1998, from Zimbabwe Dairy services Association were used to estimate the effects of the non-genetic effects on milk production. The model fitted had the fixed effects of herd, season of calving, parity and days in milk. Herd effects were significant (< 0.001). The effect of herd was found to be ranging from 14 to 47% of the total variation in the records. The contribution of the herd on fat and protein percent was lower compared to the contribution to yield traits. Month of calving had a significant effect on milk, fat and protein yield (< 0.0001), but had no effect on fat percent and protein percent. The highest yields were in the months of May to August. The Temperature Humidity Index (THI) ranged from 55.95 to 67.78, which is within the range for breed in under study. It had no effect on protein percent. Milk production increased up to parity 5. Protein percent increased from parity one to parity two and then remained almost constant. Fat percent declined from parity one. Milk production and component production increased with increasing days in milk. However, days in milk had no significant effect on fat percent and protein percent. The effect of days dry, days open and calving interval were not studied as they were serious confounding effects which made it impossible to estimate the effects of each one of them. The results indicate that outside economic constraints Zimbabwe can produce milk without the need for strong environmental modifications.

Keywords: parity, days in milk, season, temperature humidity index herd, Non genetic factors