Genetic and Environmental Trends for Milk Traits in the Zimbabwean Holstein-Friesian Population

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Abstract

The data was obtained from the Zimbabwe Dairy Services Association. Genetic trends for milk yield, fat yield and protein yield were estimated using 30, 395 records of cows in parities 1 to 8 using AIREML procedures for cows born 1973 to 1994. Environmental trends were estimated as the difference between the phenotypic and genetic values. The heritabilities for milk yield, fat yield and protein yield was 0.23, 0.21 and 0.21, respectively. The annual genetic trends ranged from 8.72 to 14.40 kg for milk yield and 0.285 to 0.44 kg for fat yield. The annual genetic trends for cows born 1987 to 1994 were higher at 22.39 kg for milk yield, lower for fat yield at 0.127 and 0.39 kg for protein yield. The effects of the droughts were clear from the environmental trends obtained. Also the harsh economic climate in Zimbabwe has led to the negative environmental trends. There were positive genetic trends in milk yield traits that indicate that the dairy cattle genetic improvement strategies that were used in Zimbabwe in the last twenty years were effective.

Keywords: protein yield, milk yield, genetic trend, fat yield, Holstein friesian