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*Full Length Research Paper*

## Relationships among milk production, reproductive traits, and herd life for Tunisian Holstein-Friesian cows

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### Abstract

The objective of this study was to link productive life of Tunisian dairy cows to their performances of milk, fat, and protein yields and fertility traits. Data included 128,652 records collected from 1990 to 2004 on 47,276 Holstein-Friesian cows in 142 herds. A linear model that included fixed effects of herd-calving year, calving season, parity, and age at first calving was used to study variations of milk production, fertility, and herd life. Relations among yield and fertility traits and herd life were examined by computing linear correlations between residuals from fitting respective linear models. Under Tunisian conditions, a dairy cow averages 5905, 180, and 167 kg of milk, fat, and protein, respectively. Intervals between successive calving and from calving to first service, and days open were 427, 90, and 163 days, respectively. True herd life was 41.99 (SD = 24.6) months. The optimal age at first calving ranged between 23 and 27 months. Cows with intermediate yields tended to stay longer in the herd than low or high producing ones. The mean lactation number was 2.6 with more than 57% of cows culled after the first two lactations and only 7.14% of them reached their fifth lactation. Phenotypic correlations of true herd life with milk, fat, and protein yields were 0.07, 0.11, and 0.09, respectively. Those with fertility parameters ranged from -0.04 (with days open) to 0.06 (with calving interval).

**Key words:** Milk production, reproductive traits, herd life, dairy cattle.

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