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GENETIC PARAMETERS FOR LONGEVITY IN HOLSTEINS COWS

PARÂMETROS GENÉTICOS PARA LONGEVIDADE EM VACAS DA RAÇA HOLANDESA

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The milk yield has been the most selected trait in dairy cattle breeding programs. However various studies have shown a decline in adaptive and longevity traits in herds that are under selection for improving production, especially in taurine breeds, as the Holstein, who was highly selected for milk production. The aim of this study was to estimate genetic parameters for first lactation 305-day milk yield (Y305) and for longevity traits and to verify the association among them, in high production Holstein cows. The data sets used were from Agrindus Farm, with calving occurring between 1989 and 2005. The traits analyzed were Y305, productive life (PL), calculated as the length of lactation days from the first day of lactation until the culling, and age at culling (AC). Variance components were estimated by Restricted Maximum Likelihood, applying multi-trait animal model. Heritability estimates for Y305, PL and AC were, respectively, 0.35, 0.07 and 0.10. Heritability estimates for PL and AC suggest small genetic variability to get genetic gains by direct selection for these traits, because they are influenced by decisions of voluntary and involuntary culling, being largely affected by factors related to the environment. It is difficult to measure these traits because it is necessary to evaluate culling of animals and causes of culling. The magnitude of the heritability estimate for Y305 evidences the existence of reasonable additive genetic variability, which allows efficiency by selecting for this trait. The genetic correlations between Y305 and PL was 0.02 and between Y305 and AC was 0.01, suggesting small genetic association between Y305 and longevity traits. In this case, the selection for Y305 is viable due to high heritability estimate and the favorable and almost null genetic correlation between Y305 and the longevity traits. Some studies have used to analyze longevity traits as threshold and since this trait has great economic importance, it has been included as selection criteria in most animal breeding programs.

Key words: genetic correlation, heritability, milk yield, productive life.