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Title

Determination of effective factors on Survival and estimation of Variance components in many herd Holstein cow

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Abstract

The purpose of this study was to estimate variance components and determination of effective factor on survival in Holstein cows. The information of used for this study included of 168866 Holstein survival records. The information of several herds that collected by Animal Breeding Center of Iran duration of 26 years (1985-2011) for Holstein cows were used. After data edition, effective factors on survival and culling risk were determined by Survival and cmprsk software. Estimation of variance component was performed with using of exponential distribution for censored dates by fitting of model with additive effect (animal model) by using of MCMCglmm software. A total of 100000 replications were generated in the analysis and a burn in period of 10000 samples was used with samples taken each 75 cycles. The result showed that environmental factors such as year of calving, number of lactation periods, calving easy, and herd were significant in level of 0.001 and month of calving was significant in level of 0.01. Based of survival change function, more of population were culled in ages of 200 to 3000 days and after 3000 days, culling probability had mild slope of decreasing. The high level of calving easy had higher culling probability than low levels. The heritability value for survival in univariate and multivariate analysis were estimated 0.0184, 0.0182- 0.0216, respectively that indicates additive genetic contributions for this traits is low and genetic selection for this trait was not effective. The genetic correlation between survival with milk production, calving easy and birth weight were negative. The results of this study suggests that environmental effect must be included in the model of analysis survival and pay attention to environmental and management factors for improve of survival trait. Given the negative correlation between survival and milk production, calving easy and birth weight traits, improving of this traits decreased survival of animals.

Key words: survival traits, genetic parameters, breeding value, Holstein cows.