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Estimation of Genetic Parameters of Milk Production Trait in Iranian Holsteins in Heat Stress Condition using Bayesian Method

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Abstract

The aim of this study was to evaluate the effect of heat stress on milk production traits in Iranian Holsteins and estimate the genetic parameters of milk production trait under heat stress condition. To evaluate the effect of heat stress on the studied trait, the data set was included 587745 first lactation test day records of 70468 Holstein cows from 645 milk-recorded herds by the Animal Breeding Center of Iran. The weather information was obtained from a meteorological organization. The temperature humidity index (THI) in recorded days was calculated and used in the model. Effect of impressive factors on milk production including herd, year, season of calving milking times, the month recording, and temperature humidity index was the investigated by GLM process in SAS software and significant effects included in analysis model. Random regression model carried out to estimate genetic parameters under heat stress conditions using BlupF90 software. The results of fixed effects analysis showed that all survived factors had a significant effect on the milk production trait. The threshold point for THI was 72, and then by increasing THI up from 72, milk production decrease. This reduction is -0.056 for increasing each unit in THI. The range of heritability for milk production trait estimated 0.1 - 0.22 and the correlation between THI and milk production was in the range 0.1- 0.9. The highest heritability related to the period that animal was in end of lactation and the THI was the lowest.

Key words: Genetic parameters, Milk production, Heat stress, Holesteins Cow, Bayesian Method

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