

Abstract

This study was conducted to estimate the genetic parameters of milk yield, fat percentage and protein percentage of Khuzestan Najdi cattle that were recorded under supervision of Deputy of improving livestock production of Agriculture Organization of Khuzestan during 1991 to 2014. Data were analyzed using single and multivariate repeated animal model as well as random regression test day model. GLM procedure of SAS software was used to determine the fitting fixed factors in the analyzing model. Data analysis was performed to estimate genetic parameters using WOMBAT software. In this model, number of calving, age, year, season of calving and lactation day were used as fixed effects. Mean and standard deviation of milk yield, fat percentage and protein percentage were 2.8 ± 1.41 , 4.1 ± 2.06 and 3.76 ± 0.62 , respectively. Estimated heritability for milk yield, fat percentage and protein percentage in single trait model were 3.8, 0.2 and 1.5%, respectively and in multi trait model were 3.72, 1.16 and 1.65, respectively. Also, heritability of milk yield, fat percentage and protein percentage in random regression test day model were 6.38, 2.5 and 3.4, respectively, which was significantly higher than single and multivariate models. Increased genetic correlations between traits of milk yield and fat percentage, milk yield and protein percentage, and protein percentage and fat percentage were -0.179, -0.9986 and -0.291, respectively. Also permanent environmental correlation between traits of milk yield and fat percentage, milk yield and protein percentage, and protein percentage and fat percentage were -0.0842, -0.2776 and -0.3165. Finally phenotypic correlation of traits of milk yield and fat percentage, milk yield and protein percentage, and protein percentage and fat percentage -0.0127, -0.0298, and -0.0199, respectively. The phenotypic trends of milk yield, fat percentage and protein content were -0.017, -0.045, and 0.026, respectively, which indicate a significant downward trend of these traits in Khuzestan Najdi cattle. Genetic trends of milk, fat and protein percentages were -0.47, -0.0002 and -0.0004, respectively. Considering the moderate heritability, it can be concluded that by improving the environmental conditions and selection do not lead to favorable genetic improvement in these traits.

Keywords: Heredity, Necklace, Genetic Correlation, Multivariate Model.



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