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شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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التوثيق الإلكتروني والميكروفيلم

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ESTIMATION OF GENETIC TRENDS IN SOME PRODUCTIVE TRAITS OF A ZARAIBI GOAT FLOCK USING QUANTITATIVE AND MOLECULAR GENETIC METHODS

By

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B.Sc. Agric. Sci., (Animal Prod.), Fac. Agric., Ain Shams University, 2004
M.Sc. Agric. Sci., (Animal Nutrition), Fac. Agric., Ain Shams University, 2011

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ABSTRACT

Rasha Mohammed Mohammed Ahmed. Estimation of genetic trends in some productive traits of a Zaraibi goat flock using quantitative and molecular genetic methods, unpublished doctor of science thesis, University of Ain Shams, Faculty of Agriculture, Department of Animal Production, 2021.

The aim of this study was to evaluate the impact of selection programs used for Zaraibi goat in El-Serw experimental farm of Animal Production Research Institute. Records on 13062 Zaraibi kids were collected during the period from 1988 to 2018 for body weight traits. The milk production of 1559 does during 1990-2014 was recorded at first lactation. Phenotypic selection was practiced since the original flock was entered to the farm in 1984 and starting from the year 2004 the animal breeding values were estimated and taken in consideration along the phenotypic criteria in selecting the animal for breeding.

Data were analyzed using two statistical models. The first was used to estimate the fixed effects (gender, type of birth, parity of doe, year and season of birth and interaction between same factors) on body weight traits at 4, 6 and 12 months of age . The fixed effects for total milk yield were litter size, age of doe and season and year of kidding. While the second model was used with the same fixed effects in addition to the random effect of animal for estimating genetic parameters and animal breeding values (BV).

The least squares means of body weights at M4, M6 and M12 were estimated as 12.14 ± 0.02, 15.49 ± 0.02 and 24.08 ± 0.04 kg, respectively.

Heritability estimates of body weights at 4, 6 and 12 months of age were 0.28, 0.34 and 0.38, respectively. High positive genetic correlations were found among M4, M6 and M12.

Positive genetic trends for M4, M6 and M12 (0.091, 0.121 and 0.158 kg/year, respectively) were estimated indicating genetic

improvement in Zaraibi goat flock. The phenotypic trends were (0.020, 0.045 and 0.117 kg/year, respectively), and the environmental trend were (-0.060, -0.039 and -0.043 kg/year, respectively).

Heritability estimate for TMY was 0.19, with a positive genetic trend (0.215 kg/year) and negative environmental trend (-2.88 kg/year).

Sequencing methodology was applied for PCR products for the exon -3 region of the growth hormone gene. Result indicated one SNP, A72G was detected, which can be used as marker in selection of goat with high valued growth traits.

Key words: Selection, Genetic parameters, Growth hormone gene, Marker assisted selection, Zaraibi goat.

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