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PROGRAM AND ABSTRACTS

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ESTIMATION OF GENETIC PARAMETERS FOR DAIRY EWES USING RANDOM REGRESSION ANIMAL MODEL

Cadavez Vasco¹, Silva Amélia², Malovrh Špela³, Kovač Milena³¹CIMO - Centro de Investigação de Montanha, Instituto Politécnico de Bragança, Escola Superior Agrária, Bragança, Portugal²ANCOTEQ - Associação Nacional de Criadores de Ovinos da Raça Churra da Terra Quente, Quinta Branca, Portugal³University of Ljubljana, Biotechnical Faculty, Zootechnical Department, Slovenia
e-mail: vcadavez@ipb.pt

The objective of the study was to compare different models in the estimation of genetic parameters for test-day milk records in Churra da Terra Quente (CTQ) ewes. Data comprising 10700 test-day measurements from the first lactation of 3096 ewes were used in analysis of morning milk yield (MMY), afternoon milk yield (AMY), and daily milk yield (DMY). Records before 30 and after 150 days in milk were discharged. Average milk yield was 217.1 g, 198.3 g, and 415.4 g for MMY, AMY, and DMY, respectively. Pedigree file contained 5494 animals. Simple fixed regression animal model (FRM) and random regression animal models (RRM), where orthogonal Legendre polynomials of order 3 were used. The REML method as implemented in the VCE-5 programme was applied for estimation of (co)variance components. Statistical models contained linear regression on days in milk and number of lambs born as fixed effects, while flock-test-day, permanent environment of a ewe, and direct additive genetic effect were treated as random. Estimates of heritability from FRM were low, from 2.9% for AMY to 8.2% for MMY. Heritability estimates from RRM presented a maximum at 60 days of lactation ($\geq 33.9\%$) and decreased to values lower than 2.5% at the end of lactation. There is a potential for using random regression to model additive genetic and permanent environmental effects for genetic evaluation in CTQ ewes, especially from the first two thirds of lactation when decision on mating has to be taken.

Key words: Genetic evaluation, covariance, heritability, ewes