



14. Resilience and Efficiency in Small Ruminants

Title presentation

The variance components estimation for growth traits of kids in Slovenia

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Abstract

The variance components estimation for growth traits of kids in Slovenia

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The aim of this study was to estimate variance components for growth traits (birth weight - BW, weaning weight - WW, and daily gain - DG) of kids in two goat breeds, the cosmopolitan Boer goat (BU) and the autochthonous and critically endangered Drežnica goat (DR) in Slovenia. Boer goats are kept especially for meat production, while Drežnica goat is a dual-purpose breed. The records of BW and WW were collected on-farms according to the breeding programs for 12,296 kids (9,853 - BU, 2,443 - DR) in the period from 2004 to 2019. DG was calculated from BW and WW considering the age at weaning. A pedigree file consisted of 15,224 animals was constructed from the Central database of small ruminants in Slovenia. The fixed part of the model for all traits included the breed effect, gender, litter size, dam parity, and season of weighing. Additionally, model for WW included the birth weight and the age at weighing as linear regressions. The random part of the model consisted of the additive genetic effect and flock effect. Variance components were estimated using REML method implemented in the VCE-6 program. Analysis of variance showed significant differences, respectively in BW, WW, and DG between breeds, genders, litter size, dam's parity, and season of weighing. BU kids had higher BW and WW, but lower DG compared to DR kids. Male kids had higher all analysed growth traits than female kids. Single kids had higher all analysed growth traits compared to twins or three kids in the litter. Heritability estimates for growth traits were 0.25, 0.27 and 0.31 for BW, WW, and DG, respectively. The flock effect explained 0.46, 0.34 and 0.35 of variability for BW, WW and DG, respectively. Estimated dispersion parameters will be used in the breeding value prediction of growth traits from the year 2020 onwards.

Keywords: goat, kids, on-farm performance, growth traits