The impact of age at first lambing on some dairy traits in Istrian sheep breed

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Summary

The optimum age at first lambing (AFL) in dairy sheep heavily relies on husbandry system, local dairy facilities policies, inherent characteristics of the breed etc. Early-life AFL poses risk for incomplete ewe's body development and soundness, and belated one for generating the opportunity expenses. The study aimed to determine the impact of AFL on daily milk yield, fat%, protein%, and lactose% in 1891 Istrian ewes under selection (5024 records for each trait). The distribution of phenotypic records from 1st to 7th parity was 1715, 1034, 770, 545, 310, 193, and 158, respectively. The average daily milk yield, fat%, protein%, and lactose% were 1.07 kg, 7.07%, 5.9%, and 4.3%, respectively. The distribution of AFL with peeks centered at 14th and 24th month of age enabled partition of the first parity ewes to those mated in the first (n=889) or second year of life (n=1002). The inferential statistical analysis (model) was suited for unbalanced repeated measurement experimental design. The AFL, litter size, and parity were fitted as categorical, and length of suckling and milking period as continuous fixed predictors. The flock-season and animal were fitted as random effects. The AFL had statistically significant effect only on daily milk yield ($P<0.01$), and surprisingly, in the favor of younger AFL class. However, the magnitude of the effect was negligible (0.03 kg) to be of any practical importance. The genetic component of the traits was only partially accounted for by fitting the animal in the model, so we hereby argue that generalization of the effect should wait the analysis (BLUE) within the upcoming single step genomic evaluation (BLUP) in this population.

Key words: sheep, age, lambing, milk, chemical composition