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Abstract Submission Form

Title (Mr./Mrs/Dr./Prof.) Dr.

Presenting author Birgit Fuerst-Waltl

Institute

Institute/company: BOKU University

Adress: Gregor-Mendel-Str. 33

ZIP/Postal code: 1180 City: Vienna

Country: Austria

Insert all authors and institutions

Fuerst-Waltl, B. (1), Fuerst, C. (2). (1) BOKU University, Vienna, Austria; (2) ZuchtData EDV-Dienstleistungen GmbH, Vienna, Austria

Preferred presentation Oral

Preferred session Session 7: Breeding for agroecological transition in sheep and goats

Email of corresponding author birgit.fuerst-waltl@boku.ac.at

Title of your paper Introduction of a genetic evaluation for longevity in Tyrol Mountain sheep

Insert ABSTRACT text

With 15,166 registered ewes (> 0.5 years) on 1,047 farms in 2022, Tirol Mountain has the largest number of animals among the registered sheep breeds in Austria. Tyrol Mountain is an aseasonal breed; in 2022, 10.351 lambings from 8.147 ewes were recorded. Official breeding values for Tyrol Mountain sheep in Austria were published for the first time in 2017. At the same time, genetic evaluations have been introduced for other sheep and goat breeds. For the mountain sheep breeds, genetic evaluation currently includes the traits age at first lambing, lambing interval, lambs born and lambs born alive (both maternal and paternal) and the fitness index based on these traits. However, longevity, one of the most important functional traits, is missing from the current breeding objectives. While survival analysis has long been the "state of the art", especially in dairy breeding, many newly established routine genetic evaluations are based on linear models. Therefore, a genetic evaluation for a longevity related trait was developed for Tyrol Mountain, which can be implemented in routine breeding value estimation based on linear models. For this purpose, 5 cumulative periods from first lambing onwards were defined. The traits are the number of lambings in the periods 1, 2, 3, 5 and 8 years after the first lambing. The average number of lambings is 1.8 in the first year and 4.5 within 8 years, the maximum number of lambings after 8 years is 15. Apart from the random animal genetic effect, the evaluation model includes the fixed effects of age at first lambing, year-month, and herd, and the random effect of herd-year. The last uncompleted period of living animals is considered by extrapolating their expected performance. All following periods are then set to

missing for these animals. Estimated heritabilities for the 5 periods range from 0.034 (period 1) to 0.140 (period 8). Genetic correlations between traits are consistently high, ranging from 0.81 to 0.99. Period 3, i.e. the number of lambings within 3 years after the first lambing, is considered the target trait. The first official breeding values for longevity will be published in June 2024, along with new breeding values for conformation and a total merit index.
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Enter keywords sheep, longevity, genetic parameters, breeding values