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Factors affecting wool quality of Jezersko-Solčava sheep in Slovenia

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The aim of the study was to determine factors affected the wool quality traits of the autochthonous Jezersko-Solčava sheep breed in Slovenia. The breed is widespread all over the country and it is known for convex facial profile and long lop ears. The breed originate from the ancient Alpine population of Zaupeel sheep improved with the meat Bergamasca sheep and the extinct Paduan sheep that was known for the best wool in Venetia with long soft crimped fibres. Fleece samples belonged to 177 young Jezersko-Solčava rams included in the performance test for growth in two different test stations (Logatec, Jezersko) in the year 2018. Rams were selected from 40 flocks throughout the country according to the breeding program. Fleece samples were taken from the left side of the body at the end of the test period when all rams were sheared with Bowen technique at the average age of 279.4 ± 36.4 days. The fleeces weight (FW) were recorded as well. Samples were sent in the laboratory of AAFT (www.aaft.com.au) in the UK where fibre diameter (FD), comfort factor (CF), spin fineness (SF), staple length (SL) and fibre curvature (FC) were determined. The average FW was 1.74 ± 0.45 kg, FD was 30.52 ± 2.83 μm , CF was $54.43 \pm 16.36\%$, SF was 29.91 ± 2.86 , SL was 79.83 ± 21.01 mm and FC was 1.74 ± 0.45 degrees/mm. According to determined fibre diameter, all 177 rams were classified in three classes of wool quality as follows: medium (10 rams; 5.6%), strong (67 rams; 37.9%) and extra strong (100 rams; 56.5%). The MIXED procedure (SAS/STAT) considered fixed effect of the test station, the age at shearing of each ram fitted as linear regression and the flock of origin as a random effect. The effect of the test station significantly affected the staple length as expected because rams from the test station Jezersko were sheared twice, i.e. at the beginning and at the end of the test period and had shorter SL compared to rams from Logatec, which were sheared only once. The effect of age was found significant related to fleece weight as well as the fibre curvature. Both traits significantly increased with age of the ram at shearing. The random effect of the flock of origin contributed a relatively large part of the phenotypic variance for fleece weight (0.27), fibre diameter (0.21), comfort factor (0.26) and lower part for spin fineness (0.14). The results confirmed that some enthusiastic breeders who processed the wool in the farm still have knowledge for subjective scoring of wool quality when they are choosing breeding rams for their own flock. Therefore, we decided for such a study for the first time and reported objectively determined wool quality traits of Jezersko-Solčava sheep from the laboratory. Regarding all above, we have a plan to include wool quality traits in the breeding program of Jezersko- Solčava sheep in the future.

Keywords: sheep, Jezersko-Solčava sheep, wool, fleece weight, fibre diameter