

Vol. 12 (4): 511-516 (2022)

HISTOLOGICAL STRUCTURE OF THE SKIN OF THE SIMMENTAL BREED BULLS AND SIMMENTAL CROSSBREDS WITH RED STEPPE AND BLACK AND WHITE CATTLE

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Received August 2022; Accepted September 2022; Published October 2022;

DOI: <https://doi.org/10.31407/ijeess12.465>

ABSTRACT

The paper presents the results of studying the microstructure of the skin of purebred bulls of the Simmental breed (group I), Simmental crossbreeds with red steppe cattle (½ Simmental x ½ red steppe) (group II), and Simmental crossbreeds with the black-and-white breed (½ Simmental x ½ black-and-white) (group III). An increase in the thickness of individual layers of skin and its total thickness was found in bulls of all experimental groups with the advantage of group I Simmentals. Thus, in winter, they outperformed crossbred bulls of groups II and III in total skin thickness, respectively, by 259.6 microns (8.33%, $P < 0.05$) and 180.4 microns (5.65%, $P < 0.05$), and in the summer season by 320.1 microns (7.94%, $P < 0.05$) and 211.3 microns (5.10 %, $P < 0.05$). This caused a larger burial depth of hair follicles, sebaceous, and sweat glands in the pilar layer of the skin of the Simmentals of group I. It was found that the skin of the bulls of the Simmental breed of group I had a better developed glandular apparatus. Thus, crossbred young bulls of groups II and III were inferior to Simmental bulls of group I in the number of hair follicles per 1 mm² of skin in winter, respectively, by 1.8 pcs (12.50%, $P < 0.05$) and 1.0 pcs (6.58%, $P > 0.05$), sebaceous glands by 2.1 pcs (10.88%, $P < 0.05$) and 1.0 pcs (6.58%, $P > 0.01$) and 1.4 pcs (7.00%, $P < 0.05$), and sweat glands by 1.6 pcs (9.52%, $P < 0.05$) and 1.4 pcs (8.25%, $P < 0.05$). Similar intergroup differences in the development of the glandular apparatus of the skin were observed in the summer period. Thus, the bulls of the Simmental breed (group I) exceeded the crossbred young bulls of group II and III in the number of hair per 1 mm² of the skin, respectively, 1.9 pcs (14.73%, $P < 0.05$) and 1.2 pcs (8.82%, $P < 0.05$), sebaceous glands by 2.2 pcs (13.25%, $P < 0.01$) and 1.8 pcs (10.59%, $P < 0.05$), sweat glands by 1.8 pcs (11.84%, $P < 0.05$) and 1.7 pcs (11.11%; $P < 0.05$).

Keywords: cattle breeding, Simmentals, crossbreeds with red steppe and black-and-white cattle, young bulls, skin microstructure.