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## Genetic determinism of quality of lamb leather in Lacaune dairy sheep breed

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Enhancing the economic valorization of by-products from dairy farming, such as skins and wool, serves as an important element in ensuring the economic sustainability of sheep farming. However, achieving this improved valorization necessitates a comprehensive understanding of the factors influencing the quality of these by-products. Lacaune lamb skins have long been esteemed for their exceptional quality. Over the past few decades in France, however, the quality of this leather has declined, primarily attributed to the increasing prevalence of two skin defects: pinhole and straw-like bushiness. To explore the genetic determinism of these defects and their potential correlation with wool traits, approximately 1400 Lacaune lambs from 72 rams underwent phenotyping for the two skin defects and four wool traits. The pinhole defect exhibited a high heritability ( $0.59 \pm 0.07$ ) and demonstrated a strong genetic correlation with the predicted core bulk of the wool ( $rg = 0.54 \pm 0.08$ ). The straw-like bushiness defect displayed a lower heritability ( $0.25 \pm 0.06$ ) and was found to be correlated with the mean fiber diameter ( $rg = 0.41 \pm 0.15$ ). In an initial study, the two skin defects exhibited either null or only weak genetic correlations, most often favorable, with milk production traits (milk yield, fat and protein contents). A genome wide association study revealed for the pinhole defect one major signal on chromosome 3 close to a cluster of keratin genes.