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VEREIN ZUR FÖRDERUNG DER FORSCHUNG IM GESUNDHEITSSEKTOR VON LAMAS UND ALPAKAS e.V.

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BOOK OF ABSTRACTS

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Relationship between coat colour and temperature measurements along the alpaca fibre

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In the South American Andes alpacas are raised at an altitude between 3,500 and 5,000m. Alpaca is one of the few economically productive species under these conditions. They are characterized by a wide range of coat colors, which can be grouped into 9 basic colors: White (W), LFY, LFX, LFZ (Light Fawn Intensity X, Y, Z), Light Brown (LB), Dark Brown (DB), Dark Brown Black (DBB), Black (B) and Gray (G). The coat color can influence the thermoregulation of alpacas, since color has an important effect on the reflectance of solar radiation. Therefore, the present work aims to evaluate the effect of coat color on thermoregulation at noon in sunny days. From 18 animals (2 per coat color) over a period of 15 days a total of 540 temperature records were taken from the mid side on two points along the fiber: 1) medium point - MP of fiber length, and 2) fleece base – FB (contact with the skin). Temperature was taken with an infrared thermographic camera at a distance of 1m. All measurements were taken at the Pacomarca Research Station at an altitude of 4100m. The statistical model included the effect of coat color (9 levels) and fiber length and fiber diameter as covariates. The coat color temperatures in the MP were: 30.62, 31.11, 33.01, 31.14, 31.18, 31.73, 30.01, 33.01, 30.62 °C, and the temperatures in the FB were: 33.34, 33.31, 34.77, 33.81, 34.42, 33.78, 33.78, 35.64, 34.04 °C for W, LFX, LFY, LFZ, LB, DB, DBB, B and G respectively. A significant difference was found for FB among colors. The temperature in the MP is lower and more homogeneous compared to FB. Likewise, significant differences were found for both covariates fiber diameter and fiber length in the FB. It seems that the fiber diameter, fiber length and coat color play an important role in heat isolation in alpacas.