




## Effects of age-class, shearing interval, fleece and color types on fiber quality and production in Argentine Llamas

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### RESUMEN

Influence of animal age, shearing intervals and fleece and color types on the productivity and quality of the fiber were investigated in fleeces and skin samples of a Llama flock of the high altitude plateau in the province of Jujuy, Argentina. In this fiber and skin samples of Llama the following variables were evaluated (mean  $\pm$  S.D.): (i) fleece variables - greasy fleece weight (GFW),  $1614.97 \pm 376.16$  g; fiber weight per skin surface unit (FWSSU, mg/mm<sup>2</sup>),  $122 \pm 28.7$  mg; staple length (SL), 19.07 cm; mean fiber diameter (MFD),  $22.91 \pm 1.55$   $\mu$ m; fiber diameter coefficient of variation (FDCV),  $26.39 \pm 4.34\%$ ; weighted fiber diameter (WFD),  $23.11 \pm 2.28$   $\mu$ m; total medullation degree (TMD),  $28.3 \pm 4.7\%$ ; continuous medullation degree (CMD),  $19.95 \pm 4.5\%$ ; non-continuous medullation degree (NCMD),  $30.7\% \pm 5.5$ ; lattice medullae (La),  $0.4 \pm 0.32\%$ ; continuous medullae (C),  $15.8 \pm 4.01\%$ ; interrupted medullae (I),  $11.0 \pm 4.3\%$ , fragmented medullae (F),  $22.8 \pm 5.8\%$ , and non-medullated (NM),  $51.9 \pm 3.77\%$ . (ii) Horizontal sections variables - total follicular density (TFD),  $20.69 \pm 4.38$  No/mm<sup>2</sup>; secondary follicle density (SFD),  $16.92 \pm 3.82$  Nr/mm<sup>2</sup>; primary follicle density (PFD),  $3.77 \pm 0.83$  No/mm<sup>2</sup>; secondary/primary ratio (SPR),  $4.52 \pm 0.82$ ; fiber diameter within primary follicles (FDPF),  $35.5 \pm 4.27$   $\mu$ m; fiber diameter within secondary follicles (FDSF),  $19.92 \pm 3.82$   $\mu$ m; primary on secondary diameter ratio (PSDR),  $1.77 \pm 0.82$ . (iii) Vertical sections variables - follicular length (FL),  $2624.68 \pm 299.77$   $\mu$ m; follicular depth (FD),  $1515.55 \pm 229.23$   $\mu$ m; grade of follicular curvature (GFC),  $4.33\%$ ; follicular angle (FA),  $35.9 \pm 6.86^\circ$ ; bulbar papillae area (BPA),  $962.90 \pm 230.47$   $\mu$ m<sup>2</sup>. The analysis showed that age is the external effect that displays greater modifications (GFW, FWSSU, fundamentally MFD and WFD). The GFW increases significantly ( $p < 0.05$ ) between ages, with a slight but constant tendency to 4 years old, and at the same time the SL and MFD also significantly ( $p < 0.05$ ) increases. The shearing interval affects only the fiber productivity (GFW and SL), and significant ( $p <$

0.05) differences are only between annual shearing and the rest. The fleece types show variations in SL between straight curled types or hemi lustre (HL) and straight or non-crimped or lustre (L) types and double coated (DC) fleece type. In this way, the HL and L have significance ( $p < 0.05$ ) longer SL though do not show significant ( $p < 0.05$ ) weight (GFW, FWSSU) differences in relation to the DC fleece type. The overall MFD does not show any variation between fleece types ( $p < 0.05$ ), but the FDPF show significant ( $p < 0.05$ ) differences. These results also are wider PSDR in DC, and narrower PSDR in HL and L fleece types. This has no relation with TFD and SFD, which is less ( $p < 0.05$ ) in L and with FL, which is shorter in DC fleece type. We concluded that the increase of the GFW with age is mainly due to the increase of the MFD (diminution of the quality). This could be explained by the decrease of TFD that takes place as animal grows, since the points of inflection of the increases of MFD, diminution of SL and diminution of TFD agree into the same class of ages.

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