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RIAFPA: AN INTERLABORATORY GROUP FOR TESTING ANIMALS FIBERS IN ANDEAN COUNTRIES

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Introduction

Given the importance of animal fibers production (sheep, goats and camelids) for countries in the Andean region and the installed capacity in equipment in universities and research centers of Peru and Argentine [1], it is necessary to strengthen technical capabilities in fiber metrology, technology innovation, quality control and performance in laboratories. These laboratories work isolated with little (or no) articulation, therefore an adequate integration strategy could solve this deficiency giving greater strength to the information and knowledge generated. At the present the interlaboratory groups available on textile fibers are under the orbit of the IWTO, like Interwoollabs [2] or ILRT. These interlaboratory groups are focused on global wool trade. We intend to create a framework for research laboratories in sheep, goat and camelid luxury fibers testing. Also, given the characteristics of the institutions involved, it is intended to establish lines of research that address the problems of production, trading, transformation and value adding to satisfice the demands of the primary and industrial sector. In 2016 and 2017 two previous meetings were held to consolidate and formalize the intention to create a work group, leading to the formation of *Ronda Interlaboratorios de Analisis de Fibras Textiles de Paises Andinos* (RIAFPA). The main objectives of the group are strengthening the competence and technical capacity of the participating laboratories, assist laboratories to harmonize and validate new equipment, to develop cooperation between laboratories and promote a work agenda related to technological linkage and articulation between institutions in sheep, goat and camelids fibers research.

The RIAFPA group includes 9 members involved in the research of textile fibres of sheep, goats and south american camelids in public and private laboratories from Peruvian (7) and Argentina (2).

Between August to November 2018, a total of 15 fineness measurement equipment (Fiber EC=F; Minifiber EC=M; Laserscan=L; OFDA2000=O) distributed in 9 laboratories were evaluated.

Source of sample material

Four scoured and minicored wool samples (core test samples) with mean fiber diameter (MFD) ranged from 19.2 to 28.4 micrometers (µm) was used. Each sample was split in 9 subsamples and distributed among laboratories. The assigned values have been obtained with a Laserscan equipment controlled by Interwoolabs in the last 24 years.

Analysis of data

The data were collected and analyzed using a model that included the fixed effects of samples (1 to 4), laboratories (1 to 9), equipment (F, M, L and O) and their interactions, the measurements of the subsamples were considered as repetitions. General Linear Models (GLM) procedures from SAS were used. Only for information purposes some results of MFD are shown.

Results

The overall performance for minicored samples showed that difference between RIAFPA means and assigned values ranged from 0.07 to 0.44 µm. Sample 1 exceeded in 0.02 µm the IWTO tolerance for the finest range (0.32 vs 0.30 µm). The rest of the differences were within tolerance values.
Figure 1 shows lab x equipment performance. It was observed that is mandatory to calibrate the equipment 1, 2, 4, 5, 6, 9 and 10 as having two, three or four measurements outside the acceptable limits. Equipment 3, 12, 14 and 15 had one value outside the expected ranges and it is recommended to control the calibration by means of a validation procedure and monitoring the measurements in the corresponding failed range. The equipments 7, 8, 11 and 13 had a satisfactory performance with all their values within the tolerances allowed. It is expected that 2019 work includes incorporation of more labs and fibers from other species (alpaca and llama).

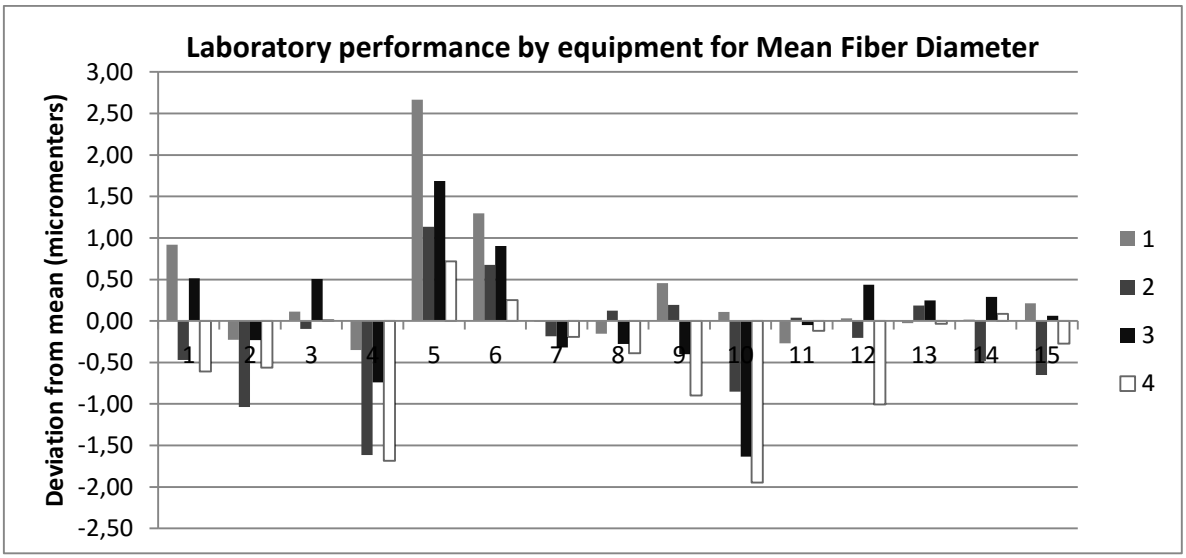

Figure 1: Comparison of lab x equipment samples for mean fiber diameter measurements.

[1] J. Mueller, M. Elvira and D. Sacchero. Proceedings of the 64 th EAAP Annual meeting, 6th European Symposium on South American Camelids and 2nd European Meeting on Fiber Animals. Nantes, France. 2013.

[2] Interwoollabs, http://www.interwoollabs.org , accessed December 2018.