Llama de Ayopaya: Towards Marketing of High Quality Fine Fibre in the Bolivian Andes

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Llama de Ayopaya : towards marketing of high quality fine fibre in the Bolivian Andes

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Introduction Llama fibre has the reputation to be of minor quality and therefore , in the Bolivian highlands , llamas are increasingly being replaced by alpacas although the former are still the dominant species in Bolivia . Alpacas are less hardy in rough weather and rangeland conditions and do not share the transport force of llamas appreciated in the mixed systems . Moreover , it is often overseen that llamas possess a double coated fleece with a fine undercoat , and the fibre quality judgement is not sustained by current quality controls . Pertinent data are lacking as the llama fibre price in Bolivia actually does not account for quality differences . If however llamas possess special quality traits , they offer a unique marketing option in the disfavoured highland areas by utilizing the local genetic resource .

Materials and methods Llama wool samples of three different regions were subjected to fibre quality assessment : 2766 llamas of Ayopaya region located in the Eastern Cordillera (4200-4300masl) , 814 of the Northern Plains (4000masl) and 97 of the Central Plains (3800masl) (Delgado 2003) . The following quality traits were tested : total fibre diameter , total fine fibre diameter ($\leqslant 30\mu$m) , and proportion of fine fibres . Analysis of variance was performed by SAS software . Interviews with representatives of the textile industry were conducted on requirements for marketing of wool and the respective quality standards . Preliminary steps were undertaken in promoting high value fibre commercialisation by small-scale farmers .

Results and discussion The three llama wool sources showed clear quality differences (Table 1) , whereas all were better than their current reputation . The high quality product baby alpaca has a total fibre diameter of maximum 22 .5μm (Annon . 2001) . The grouped samples in this study reached this quality with 22 .2μm on average or even 20μm when only considering the fine fibres that result from the dehairing process . Moreover , the llama fibre from Ayopaya had the highest proportion of fine fibres with 91% . Coupled with best homogeneity of the fleece , as expressed by lowest standard deviation of total fibre diameter , Ayopaya fibre was considered outstanding and the most promising of the three sources .

Table 1 *Llama fibre quality in the three study areas .*

Trait	Unit	Ayopaya	North	Central
Total fibre diameter	μm	22 .2[a]	22 .2[a]	27 .9[b]
Standard deviation of prior	μm	7 .5[a]	8 .6[b]	11 .5[c]
Total fine fibre diameter[1)]	μm	20 .5[b]	20 .0[a]	22 .6[c]
Proportion of fine fibres[1)]	%	91 .3[a]	89 .7[b]	74 .5[c]

Values in a row with no common superscript are significantly different at P$\leqslant$0 .05[1)] fibres $\leqslant 30\mu$m Source : Delgado 2003

Interviews with potential retailers revealed several limitations of actual sale , namely irregular and late first shearing of animals , mostly in deficient conditions , resulting in a fluctuating supply of produce with irregular quality .

It has been reported that alpaca fibre quality decreased tremendously over the last 500 years , namely from 18μm to a current average of about 28μm (Annon . 2001) . This clearly calls for monitoring and preventive breeding measures at farm level in order to conserve or improve the high actual standard of llama fibre in Bolivia . In Ayopaya , fibre samples are taken regularly from young males in order to provide farmers with the necessary information for selection . It is suggested to castrate the non-selected males . Moreover , the scientific results are regularly presented in cooperative meetings and were summarized in a farmer leaflet to be provided to potential customers in order to inform on the outstanding quality product .

Conclusions and outlook A special quality of llama fibre was detected in Ayopaya region , reinforcing the multi-purpose value of llamas in the flocks of highland farmers . Attractiveness and competitiveness of the fibre produce at the market have been investigated a priori to designing a full marketing concept . Similarly needed is the assessment of the feasibility and economic efficiency of management changes at farm level mandatory to produce a steady quantity of quality llama fibre .

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