

AUSTRALIAN ALPACA ASSOCIATION INC.

RESEARCH AND DEVELOPMENT PROPOSAL

PROJECT TITLE: Impact of Locking Style on Desirable Characteristics of Suri Fibre, such as Lustre and Fineness.			
PRINCIPLE OBJECTIVE OR ISSUE ADDRESSED: To determine the relationship between locking style of suri fleece and characteristics such as lustre and fineness.			
RESEARCH ORGANISATION: Private individual			
Organisation type: (Circle or Bold)			
C'wealth Gov't	State Gov't	CSIRO	University
Consultant	Private	Other (Specify)	
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OBJECTIVES AND OUTCOMES			
a. To develop a descriptive definition for the different locking styles of suri fleece.			
b. To determine if different locking styles relate to different internal structure of the individual fibre.			
c. To determine if a. and/or b. above relate to other desirable fibre characteristics such as fineness or lustre.			
The data collected in this project, while being valuable in its own right, will be used in two other proposed R&D projects relating to lustre identification and measurement and the impact of locking style on processing and end product.			
CONTEXT AND BACKGROUND			
As breeders, we need to know if we are focusing on the most important fleece characteristics in our breeding program and if different fleece styles have greater levels of lustre, are finer and have softer handle.			
Many authors indicate there are a number of (more easily measured) characteristics that influence lustre.			

These include:

- Fineness
- Density
- Colour
- Consistency of fibre
- Cross-sectional shape of fibre
- Flatness and consistency of scales structure

The identification of characteristics of suri fibre that contribute to lustre may enable suri breeders to tailor their breeding program toward always selecting for lustre, while still improving other characteristics.

While the above characteristics are said to impact lustre, there does not seem to be a consistent or direct correlation (i.e. fine and dense animals without lustre vs coarser and less dense animals with greater lustre).

There is some suggestion that the different locking styles relate to different internal structure of the individual fibre. Whether this structure then relates to other characteristics, such as lustre, fineness or handle is important to determine. There is some importance also in identifying if specific locking styles produce finer fleece.

BENEFITS

This project addresses a major AAA R&D priority, viz:

Genetic Improvement

The alpaca industry must be able to respond to market demands (in fibre, meat, hide, etc.) with effective methods for modification of the product. Understanding of the genetic parameters and heritability of desired production traits enables the producers to maximise their production. Development of genetic improvement models will be an ongoing imperative for the industry.

PROPOSED R&D ADOPTION

Results of the research will be disseminated to the membership of AAA (and the broader community) through a range of publications and presentation of a paper at the National Conference. There is also opportunity to provide hands-on workshops to reinforce the findings of the research.

The data collected will also feed into Stage 2 research projects to determine the processing needs and outputs and for determining objective measurement protocols for lustre in alpaca fibre (there is some suggestion that this could be done in partnership with the mohair industry, thereby utilising their funding sources).

PROJECT INTEGRITY

This project will be designed with identifiable outcomes and a number of reporting requirements. It will be undertaken using currently acceptable scientific procedures and be fully documented. The proposed principal investigator has postgraduate scientific qualifications and has undertaken similar scientific investigation in the past. All components of the project will undergo peer review to ensure integrity.

PROJECT DESIGN AND METHODOLOGY

The project will be undertaken in 6 stages:

1. Literature Review: Review previous published and unpublished data undertaken on alpaca fibre as well as mohair, wool or other fibres, where relevant. Identify styles of locking (eg. Cameron Holt). Document available research.
2. Develop Protocols: Develop and document protocols for taking and assessing samples of fibre, chain of custody and data collection and recording.
3. Collect and analyse Samples: Collect fleece samples from suri breeders Australia-wide in conjunction with the existing AAA fibre sampling project. Identify and record characteristics of the fibre in order to determine their influence on lustre and fineness. These include:
 - Lock style – record style type and consistency/quality over length of lock. Develop photographic documentation of different locking types
 - Length of sample

- Cross section – take individual fibre cross section, fix and assess under microscope, describe fibre structure and photograph examples of types
 - Lustre – develop and document a subjective assessment of lustre (future project to develop objective measurement protocol)
 - Colour – describe colour and uniformity within sample
4. Collect and document fibre analysis: Receive histograms and record data, such as micron, CV, curvature, etc from histogram against data collected in 3. above. Undertake multivariate analysis to identify correlation between locking style, fibre structure and other fibre characteristics.
5. Report on findings. Prepare a detailed scientific paper which documents project objectives, methods and outcomes.

BUDGET DETAILS AND FUNDING SOURCES

PROJECT PLAN

Stage 1

Literature Review, set up protocols and develop recording sheet; send out for peer review (eg. Cameron Holt, Dr Paul Swan, CSIRO) and report to AAA. Request breeders to support project by sending midside fibre samples appropriately marked.

From Approval – end October 2005

Stage 2

Receive fibre samples, assess and take and analyse cross sections, forward fibre samples to lab, receive histograms and document results; report to AAA.

October 2005 – January 2006

Stage 3

Reporting, including drafts and peer review – draft and final report to AAA.

February 2006 – April 2006.

Tom Gouldie -

Signed the above info is true and accurate

Agree that if AAA support is granted, abide by requirements of the AAA