ICAR 2008

ICAR Guidelines for Alpaca shearing management, fibre harvesting and grading

36° ICAR Session Niagara Falls
16 – 20 June 2008

2007

ICAR Executive Board approved the new “Animal Fibre” TASK FORCE

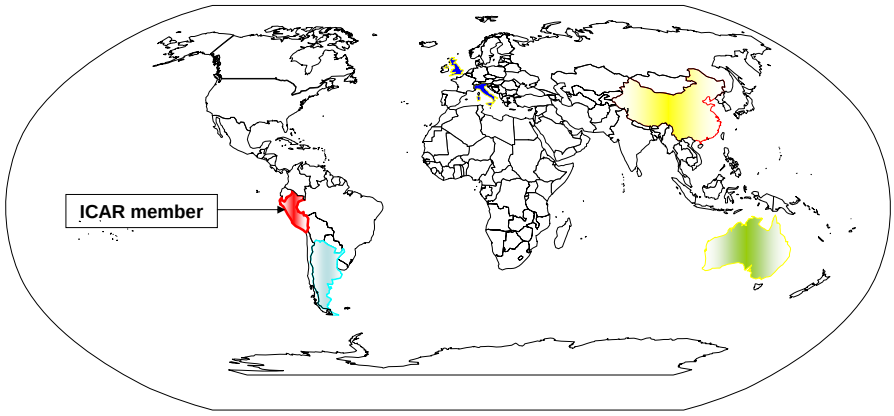
ACTIVITIES

1. **Defined the Working Group and the Terms of Reference**
2. **Participation in the International Conference "The wool roads" to be held in Italy (University of Camerino) on 12 October 2007**
3. **Drafting of an ICAR official document for the definition of the instruments and methods for Alpaca breeding identification**
4. **Drafting of an ICAR official document on the standard definition of correct methods of Alpaca fibre harvesting and grading**
5. **ICAR Animal Fibre Task Force Promotion in Alpaca fibre-producing countries (Peru, Bolivia, Australia, Europe, USA etc.)**

Working Group

Name	Country	Company		Type
Marco ANTONINI	ITALY	ENEA	Dpt. of Biotech, Agro-industry and Health Protection	Research Centre
LOU Yujie	CHINA	Jilin Agricultural University	Faculty of Animal Science and Technology	University
Claudio TONIN	ITALY	CNR – Biella Italian National Research Council	Institute for Macromolecular Studies	Research Centre
Hugh GALBRAITH	UK	University of Aberdeen	School of Biological Sciences	University

Name	Country	Company		Type
Oscar TORO	PERU	DESCO (ICAR Member)	Centro de Estudio y Promoccion del Desarrolo	Ngo
Eduardo FRANK	ARGENTINA	Catholic University of Cordoba	Facultad de Ciencias Agropecuaria	University
Moises ASPARIN	PERU	MICHELL Group	Farm Mallkini	Enterprise
Malcolm FLEET	AUSTRALIA	SARDI Research Scientist (Wool)	Turretfield Research Centre and Roseworthy Campus	Research Company
Fabrizio CASTAGNETTI	ITALY	ERMENEGILDO ZEGNA Group	AGNONA	Enterprise



Terms of Reference

1. **Monitor the correct Alpaca identification methods and the availability of new development instruments.**
2. **Contribute to the definition and homogenization of the correct methods of Alpaca fibre harvesting and grading.**
3. Contribute to the definition of objectives and criteria of Alpaca fibre selection programmes worldwide.
4. Contribute to adequate analytical performance quality for Alpaca fibre recording purposes worldwide.
5. Monitor the development of reference documents and standards on methods of Alpaca fibre analysis and quality assurance in laboratories, applicable to animal fibre recording.

Terms of Reference

6. Maintain a frame for analytical quality assurance of Alpaca fibre testing laboratories through recommendations to ICAR member organisations and an international network of reference laboratories.
7. Monitor the development of laboratory devices for Alpaca fibre analysis of interest to fibre recording and equipment related to fibre recording analysis. For this term, the ICAR Alpaca Working Group should keep contact with textile manufacturers.
8. Establish and maintain liaisons with International Organizations / bodies involved in natural fibre analysis issues dealt by ICAR, in particular IWTO.
9. According to the results obtained with Alpaca, the Working Group could explore the opportunities to open sections in other domestic animal species and breeds for textile fibre (i.e. merinos sheep, Angora goat, cashmere goat etc.)

Draft Program of the Camerino International Conference
"WOOL ROADS"

Morning

RESEARCH ON TEXTILE ANIMAL FIBRE

- **EAAP: its role in the European Research**
  Dr A. ROSATI (*EAAP – WAAP*)
- **ICAR: activities in genetic improvement of animal fibre**
  Dr M. ANTONINI (*ENEA – Università di Camerino*)
- **Animal nutrition and fibre production**
  Dr H. GALBRAITH (University of Aberdeen - UK)
- **The Season effect on fibre growth**
  Dr D ALLAIN (INRA – Francia)
- **Animal for fibre: behaviour and adaptation**
  Prof. M. GERKEN (Università di Gottingen)

Afternoon

ITALIAN RESEARCH ACTIVITIES ON WOOL PRODUCTION

- **To Clothe the environment Abruzzo Region**
  Prof. B. BARBONI (University of Teramo)
- **GAL Sibilla e Piceno project: "the Wool Roads"**
  Dr. C. CARLETTI (C.I.A. Marche)
- **The situation of derived Merinos breeds in Italy**
  Prof F. PANELLA (University of Perugia)
- **Black and brown Merinos in Italy**
  Prof. C. RENIERI (University of Camerino)
- **IGP Proposal for natural Coloured wool**
  Dr. C. CARLETTI (C.I.A. Marche)
- **Vegetal colour for white wool dying**
  LA CAMPANA Farm

Alpaca shearing management, fibre harvesting and grading

MAIN GOALS

A.

OPTIMISING the quality and uniformity of raw material and providing confidence for its use by manufacturers.

B.

MAXIMIZING the financial return and profit



Critical Control Points

General Alpaca Fleece Collection CCP (AFCCCP)

1. Standardising alpaca Clip preparation
2. Structural needs
3. Preparation for shearing
4. Shearing process
5. Grading and classifying
6. Packaging and transport

Fibre AFCCCP

1. **Fineness** (average diameter - μm),
2. **Homogeneity** (average diameter Coefficient of Variation - C.V. %)
3. **Staple length** (average length – mm)
4. **Medullation** (percentage %)
5. **Impurities** (greasy yields and percentage content of vegetable matter - %)
6. **Colour**

Environment and Equipment AFCCCP

1. **Rest Area for Alpaca before shearing**
2. **Shearing area**
3. **Procedures for shearing**
4. **Grading areas**
5. **Equipment for grading**
6. **Packaging and baling area**

GUIDELINES FOR SHEARING

- **Step 1: Alpaca clip preparation**
- **Step 2: structural needs**
- **Step 3: preparation for shearing**
- **Step 4: shearing process**
- **Step 5: Grading and Classification**
- **Step 6: Raw material packaging and labelling**

Alpaca Fibre Classification Proposal

Step 1
Alpaca clip preparation

- Rest paddock close to the clip area
- Keep the alpaca dry

Flock shearing sequence

Suri **Huacaya**

A. Sex
B. Colour
C. Age

Step 1

Alpaca clip preparation

The timing of the shearing period

A. Environmental conditions

B. Reproduction activities

C. Pasture vegetative phase



Step 2

Structural Needs

The Pens

A. bales, ropes, twines and strings for hay packaging

B. rubbish wastes

C. unused equipment such as old beams or machines

D. wires, barbed wires, old sandpapers, screws, nails, bolts and chains

E. cigarette ends

Step 2
Structural Needs
The clip shed area

A. **Alpaca Handling Area.** *Where the Alpaca rest before being brought into the clip area*

B. **Clip Area.** *Where the alpaca undergo the shearing*

C. **Fleece Grading Area**. *Where the single whole fleeces are separated and graded in different fineness categories.*

Step 2
Structural Needs
Rules of hygiene

A. **before the shearing**: *remove all rubbish and carefully wash the shed area when it is empty*

B. provide **shearing staff** *with the equipment to clean the shoes (scrapers, containers with cleansing and / or disinfectant liquid)*

C. forbid **smoking** *inside the clip area*

D. forbid **eating** *of food*

E. forbid the **grooming** *of Alpaca feet and especially the cutting of nails*

Step 3
Preparation for Shearing

- *All the alpaca must go without food for at least* **4 hours**
- *Alpaca must be presented at the shearing according to* **pre – determined categories**
  - ✓ **Type**
  - ✓ **Sex**
  - ✓ **Colour**
  - ✓ **Age**
- *The* **bags**, *will have to be checked inside in order to remove rubbish and contaminant materials*

Step 4
Shearing Process

I. *To be careful to* **separate firstly** *the less valuable fleeces fractions (feet and belly parts)*

II. *to keep the fleece as* **intact** *as possible, in order to make easier the next fleece grading*

III. *to avoid absolutely the* **double-cut** *during shearing. This causes a great variation in average length of the fleece fibre and results in a heavy depreciation in value of the products.*

IV. *After shepherds have to be careful to avoid exposing the alpaca directly to* **sunlight** *and currents of* **cold air**.



Step 5
I° Grading and Classification

The main actions to carry out in the present step are:

A. the fleeces must **not** be rested on the **floor**

B. once sheared, the fleeces have to be put immediately on the **grading tables**,

C. grading tables have to be **cleaned** after the grading of each fleece.




Step 5
II° Grading and Classification

- **Fineness**
- **Colour**
- **Length**
- *Presence of* **Medullated** *fibre or* **Kemp**
- **Stained**; *special category foreseen for dirty fibres*
- *Each fibre category has to be identified by suitable* **Codes**, *which have to be affixed on packaging.*

Step 6

Raw Material Packaging and Labelling

Each bag must also have an individual label

1. **Animal code number**
2. **Farm name**
3. **Farm Address**
4. **Telephone number**

and one refers to the fibre as follows:

a. **Fineness category** *(code)*
b. **Color** *(code)*
c. **Length** *(code)*
d. **Shearing year**
e. **The average diameter** *of fibres when laboratory analyses have been carried out*

Alpaca fibre Classification

Proposal 1

Fineness Category

- **Under 20 microns** (< 20 μm - **SF**)
- **Between 20 and 25 microns** (>20 μm and < 25 μm - **F**)
- **Between 25 and 30 microns** (>25 μm and < 30 μm - **M**)
- **Over 30 microns** (>30 μm **C**)
- **Stained** (**STD**)

Alpaca Fibre Classification

Proposal 2

Color	Code	Range	
WHITE	W		
BLACK	BLK		
BROWN	B	Dark	B - Dk
		Self	B - Slf
		Light	B - Lgt
LIGHT FAWN	LF		
GREY (Black)	GR	Dark	GR - Dk
		Self	GR - Slf
		Light	GR - Lgt
ROAN (Brown)	RN	Dark	RN – Dk
		Self	RN – Slf
		Light	RN - Lgt
PINK (Light Fawn)	PK	Dark	PK – Dk
		Self	PK – Slf
		Light	PK - Lgt

Alpaca Fibre Classification

Proposal 3

Length

• > 85 mm < 160 mm	A.A.A.
• > 40 mm < 85 mm	A.A.
• < 40 mm	A.
• > 160 mm	O.G.

Conclusion

ICAR would like to approach the Alpaca fibre heterogeneity problems in order to support end users. In order to:

1. define **common objective of selection**
2. Produce more accurate **animal fibre recording method**
3. Organize **genetic selection plan**
4. Define **guide lines** representative of the ICAR service for alpaca breeders at international level.

Conclusion

Next steps of the ICAR South American Camelid Alpaca fibre Working group

A. Objective **definition of Huacaya and Suri** fibre/type;
B. Definition of the **objective and criteria in Alpaca fibre selection** program world wide;
C. Contribution to adequate **analytical performance quality** for Alpaca fibre recording purpose world wide;
D. development of reference document and standard on methods of **Alpaca fibre analysis and quality assurance in laboratories** applicable to animal fibre recording.


Thank you
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