

Improving Your Wool Clip



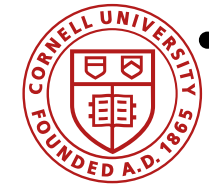
13th October 2020
Dr. Christian Posbergh
Assistant Professor of Sheep Production





About Me

- ASI Certified Level 1 Classer



- Ph.D. at Cornell University – Animal Science
 - Small Ruminant Genomics
 - Aseasonality, Mature Body Size, Coat Color
- Assistant Professor of Sheep Production
 - Montana State University
 - Genomic & Genetic tools
 - Optimized Management Techniques
 - Wool Quality



Wool Quality

Begins while the
Wool is still on
the Sheep



Wool Contamination

Natural contaminants

- Colored fibers
- Kemp/hair fibers
- Yolk/canary stain



Acquired contaminants

- Vegetable Matter (VM)
- Sheep Keds
- Polypropylene twine
- Dirt/soil/mud
- Sawdust/bedding

BALING TWINE...



**ABLE TO TURN EVEN THE SIMPLEST
FARMER INTO MACGYVER**

Applied contaminants

- Paint brands
- Copper Sulfate stain
- Wax/grease marking crayons



Sort sheep before shearing

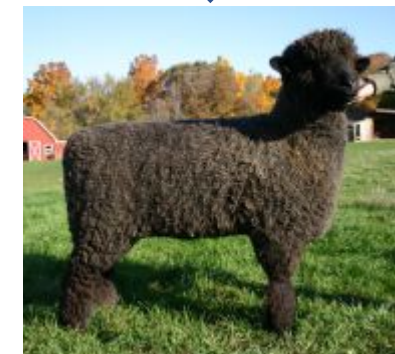
- Shearing order will help keep wool clip clean

1) White Fine wools -> medium -> long

2) Blackface

3) Black/Natural Colored

4) Hair sheep/double coated



Keeping Fleeces Clean

- Coats
- Feed on the ground
- Avoid sawdust/shavings



Preparing Sheep

- Keep Dry!
 - Shearing wet sheep isn't fun and is a hazard
- Fast sheep at least 12 hours prior
 - Easier to maneuver/bend
- Easy to move





Shearing Day

- Clean Dry Surface
- Sweep between
- Separate bags per ewe - handspinners
 - NO FEED BAGS!!
- Otherwise separate lots for like wool
- Bag belly wool, tags separate



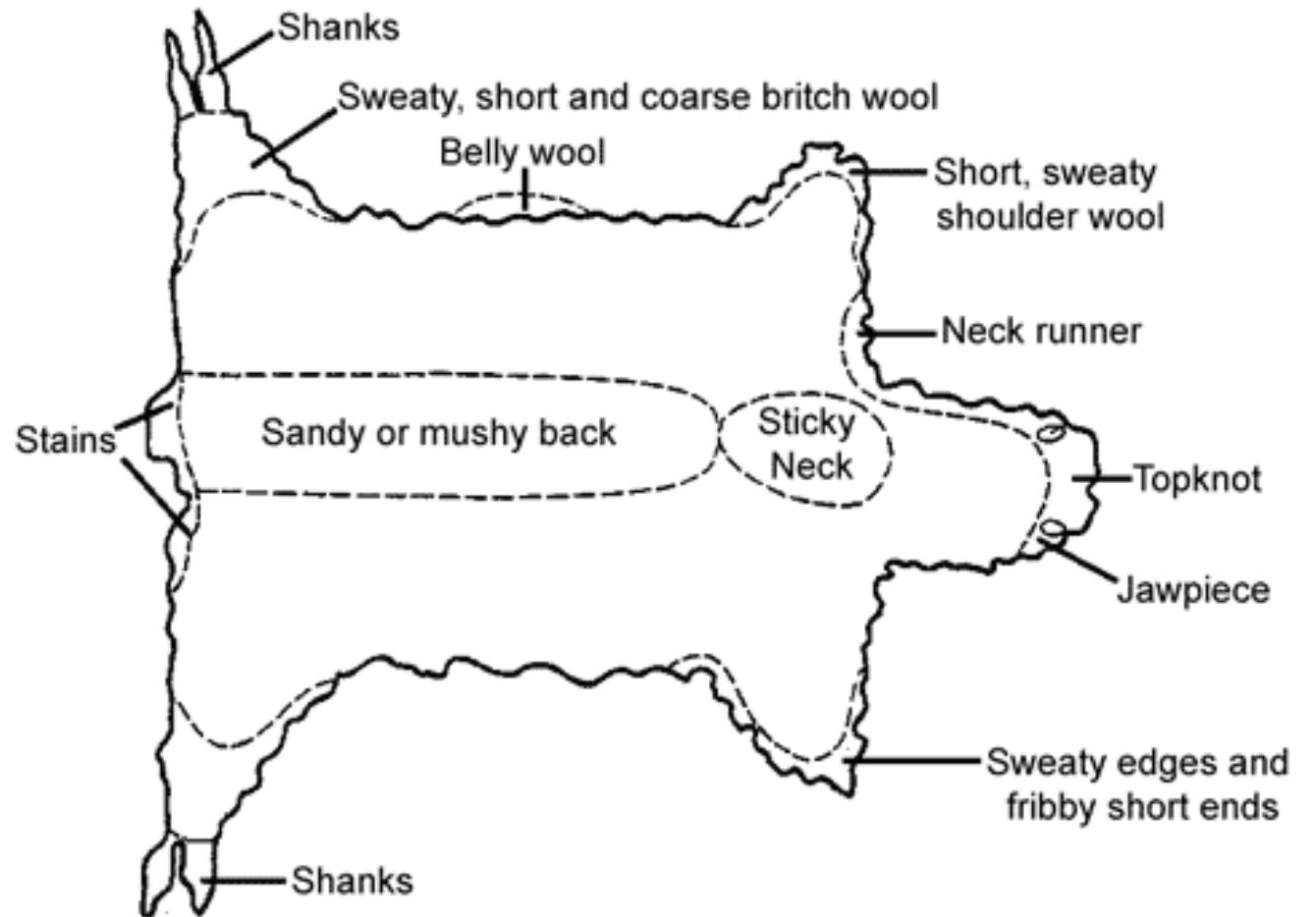
Tags & Bellies out

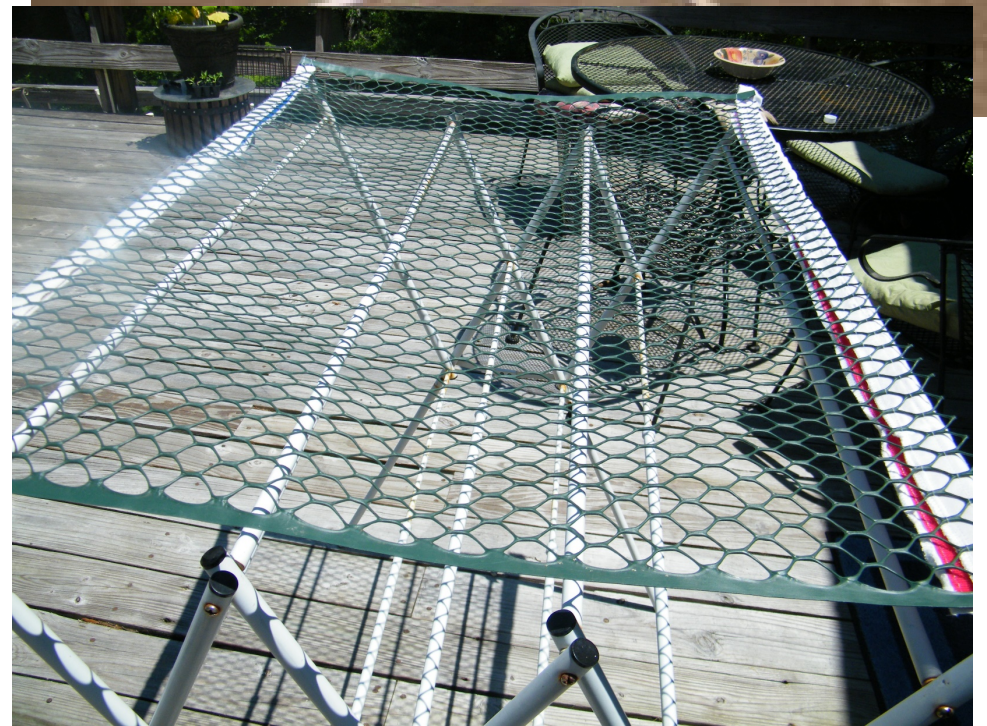
- Separate belly wool when shearing
- Remove tags (wool with feces)
- Remove top knots



Skirting

- Removing the edges of the fleeces
- Removing second cuts & excess vegetable matter
- Remove anything that's not uniform





Classing



- Grouping wools with similar characteristics into lots for marketing
 - Fiber diameter – micron
 - Length
 - Strength
 - Color
- By trained professionals (ASI schools)
 - Levels I-IV

Average Fiber Diameter (AFD, MFD, FD)

- wool sample's thickness measured in microns
- 1 micron = One millionth of a meter
- Fiber diameter will vary along the staple length and vary across the sheep

Standard Deviation (SD)

- This is a measurement of the variation of wool fiber diameter.
- Statistically speaking, 2/3 of the fibers measured fall within +/- one SD of the Average Fiber Diameter.
- For example - a sample with an AFD of 22.5 micron and a SD of 4.5 micron would have 2/3's of the fibers measured between 18 and 27 micron. The other 1/3 of the fibers would be finer than 18 micron or coarser than 27 micron.
- The smaller the SD, the closer the fibers are to the Average Fiber Diameter, resulting in less variation among the individual fiber diameters for the entire sample.

Coefficient of Variation (CV%)

- This is a measure of variability of the fiber diameter, but is expressed as a percentage and is relative to the average fiber diameter.
- Determined mathematically using the equation: $CV\% = SD/AFD \times 100$
- This is a useful measurement as it allows one to compare wools of different fiber diameters.
- Ideally, the CV% should be 20% or less within an individual animal sample.

Comfort Factor (CF%)

- This is the percentage of fibers 30 microns in diameter or less.
- It has been shown that fibers greater than 30 microns are rigid and do not bend when they come in contact with the skin, resulting in the prickly feeling of wool and/or causing skin irritation.
- Wool that is going to be made into garments should have a CF% of at least 95%.
- Wool with a comfort factor of 95% is made into garments, so they do not feel scratchy or cause skin irritations

STANDARD = COUNTS

GREASY

SCOURED



LOANED BY
ELDER SMITH, GOLDSBROUGH MORT
GEE LONG



USDA Grade	Blood System	Fiber Diameter range (micron)	Max Std Dev (micron)
Finer than 80s	Fine	<17.70	3.59
80s	Fine	17.70-19.14	4.09
70s	Fine	19.15-20.59	4.59
64s	Fine	20.60-22.04	5.19
62s	½ blood	22.05-23.49	5.89
60s	½ blood	23.50-24.94	6.49
58s	3/8 blood	24.95-26.39	7.09
56s	3/8 blood	26.40-27.84	7.59
54s	¼ blood	27.85-29.29	8.19
50s	¼ blood	29.30-30.99	8.69
48s	Low ¼ blood	31.00-32.69	9.09
46s	Low ¼ blood	32.70-34.39	9.59
44s	Common	34.40-36.19	10.09
40s	Common	36.20-38.09	10.69
36s	Braid	38.10-40.20	11.19
Coarser than 36s	Braid	>40.20	

Montana Wool Lab

- OFDA 2000
- Measure micron diameter, length, curvature, CF, etc
 - \$3-4/wool sample
 - 2"x2" mid-side wool sample



Australian Alpaca Fibre Testing

ABN 86 524 490 768
Phone 02 48342132
Mobile 0409 550305
Fax. 02 48342132
Email. paulvalley@bigpond.com
PO Box 246
Crookwell, NSW. 2583

OFDA 2000 REPORT : SORTED BY TAG

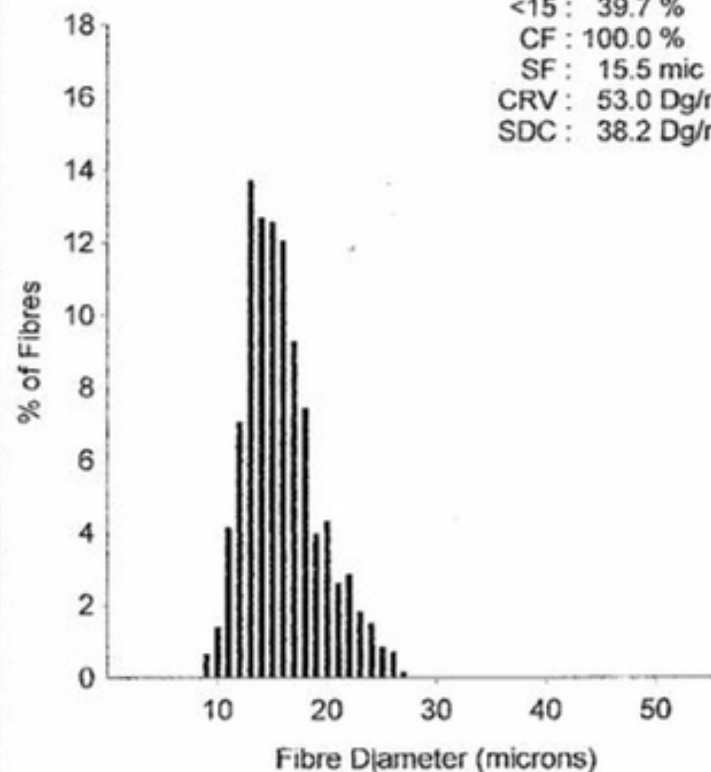
~~Alpaca samples~~ (2Records)

Job Details

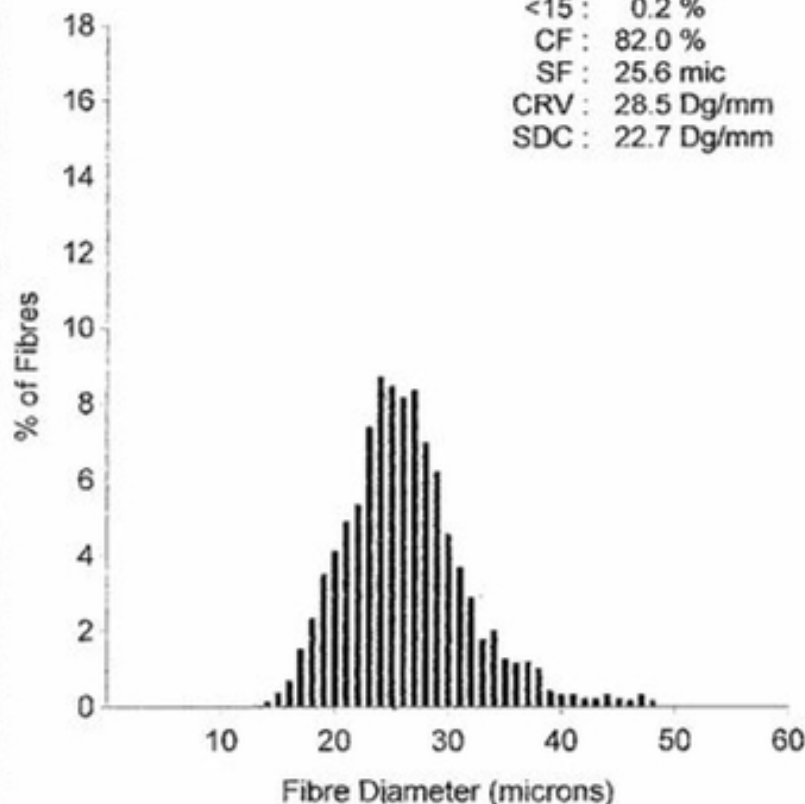
Alpaca samples

Reference: 0231 - 0250

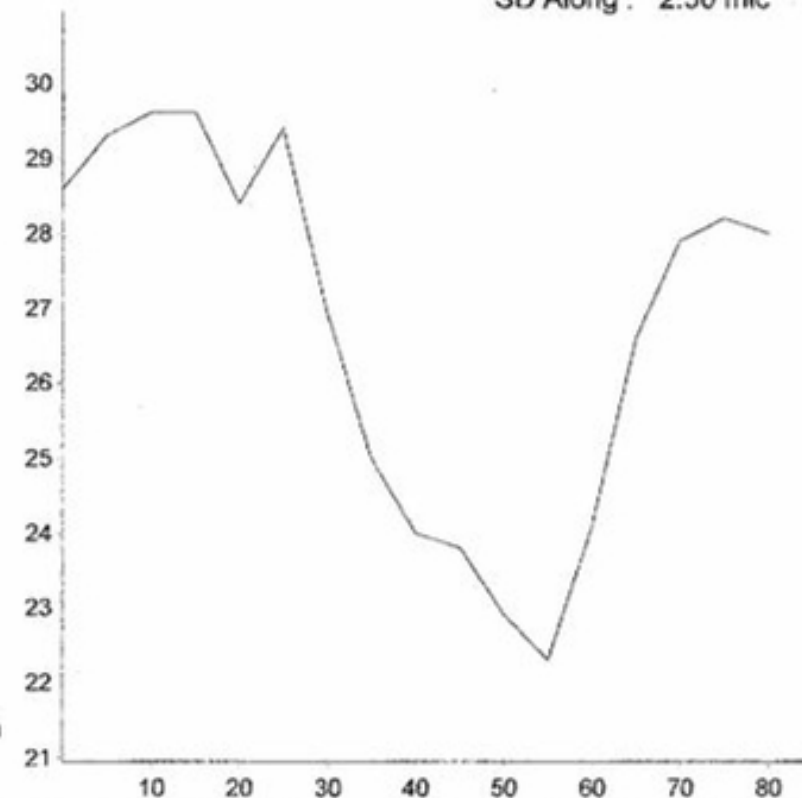
EarTag : 6B46
Micron : 15.8 mic
SD : 3.4 mic
CVD : 21.4 %
CEM : 7.2 mic
<15 : 39.7 %
CF : 100.0 %
SF : 15.5 mic
CRV : 53.0 Dg/r
SDC : 38.2 Dg/r



EarTag : 6Y40
Micron : 26.3 mic
SD : 5.5 mic
CVD : 20.8 %
CEM : 10.8 mic
<15 : 0.2 %
CF : 82.0 %
SF : 25.6 mic
CRV : 28.5 Dg/mm
SDC : 22.7 Dg/mm



Staple Len : 85.0 mm
Min Mic : 22.3 mic
Max Mic : 29.6 mic
Finest Point From Tip : 55.0 mm
Fibre Ends : 2.0 mic
SD Along : 2.50 mic



Sheep Breeds	Diameter (microns)	Grease Fleece Weight (pounds)
Border Leicester	30-38	8-12
Cheviot	26-33	5-8
Columbia	23-30	10-16
Corriedale	25-31	10-15
Delaine-Merino	17-22	9-14
Dorset	27-33	5-8
Finnsheep	24-31	4-8
Hampshire	25-29	5-8
Lincoln	34-41	11-16
Montadale	25-30	7-12
Oxford	28-34	8-10
Rambouillet	18-24	9-14
Romney	29-36	8-14
Shropshire	25-33	5-10
Southdown	24-29	5-8
Suffolk	26-33	3-7
Targhee	21-25	10-14

Primary factors on Fiber Diameter

- Breed
 - Certain breeds are finer/coarser
- Age
 - As matures, tends to get coarser
- Sex
 - Males tend to be coarser than females
- Level of Nutrition
 - Overfed leads to coarser fiber
 - Underfed leads to finer fiber

All wool has a use



Micron Range

Product

- | | |
|----------|---|
| 16 -19 | Fine worsted and intimate wear |
| 19 - 23 | Apparel, outerwear, quilt-batting, felts |
| 23 - 28 | Sweaters, light upholstery coatings, comforters |
| 28 - 32 | Upholstery, tapestries, some carpets |
| 32 - 38+ | Carpets, industrial use |



Resources

ASI Wool Quality

- <https://www.sheepusa.org/researcheducation-woolquality>

Australian Wool Innovation

- <https://www.wool.com/>

Montana Wool Lab

- <http://animalrange.montana.edu/facilities/woollab.html>