

LPT-UNIT-III

DATED: 17/06/2021

# WOOL GRADING SYSTEMS...

**By: Dr. Gargi Mahapatra, Assistant Professor cum Junior Scientist**  
**Department of Livestock Products Technology**  
**Bihar Veterinary College**  
**Bihar Animal Sciences University, Patna-14.**





## **WOOL GRADING**

Primarily Done On The Basis Of Wool Fineness.

# FIBRE FINENESS



- Fineness Refers To Diametre Of Individual Wool Fibre
- Most Commonly Used Is The Micron System, Other Are The American Blood Grade System; Spinning Count System/ The English Count System, ISI Etc.
- 1 Micron=  $1/25400$  Inches.
- Fibre Diametre Tends To Vary Within A Fleece. A Fleece Typically Contains Wool Fibres Of 4-5 Different Spinning Counts.
- Sorting Reduces Variation And Consequently Optimises Marketing Potential.

## Other Parameters Determining Wool Quality Are...

- \* Colour
- \* Burr Content
- \* Staple Length
- \* Fibre Length
- \* Medullation Percentage
- \* Crimpiness
- \* Strength/ Tenacity



- Colour: Off white > Light Yellow > Heavy/Darker Yellow.
- Burr Content: Light Burr > Medium Burr > Heavy Burr.
- Staple Length: More is the length, better is the grade.
- Fibre Length: More is the length, better is the grade. It is measured in hanks.
- Medullation Percentage: Lesser the medullation better is the grade.
- Crimpiness: More the crimpiness better is the grade.
- Tenacity/ Strength: More the strength better is the grade. Unit: gm/tax.

$$\text{Tenacity} = \frac{\text{Mean Breaking Load}}{\text{Mean Linear Density}} \times 100$$

# THE ENGLISH/BRITISH SYSTEM OR SPINNING COUNT SYSTEM.

- Its measurement unit is spinning count.
- The wool is graded on the basis of diameter of yarn to which it can be spun from 1 lb of clean wool.
- Clean fine 1 lb wool of 80's (Svedberg unit) can be spun to 80 hanks of yarn whereas 1 lb of clean coarse wool of 46's can spin 36 hanks of yarn.
- Wool class is determined by length of the fibre. There are 3 classes of length; Clothing, French Combing and Combing.
  - Clothing: Wool too short to be spun into thread, but can be used to make woollen yarns.
  - French Combing: The thread length is longer than clothing and shorter than combing.
  - Combing: The range of wool thread length is 2.5"-7". It can be spun and woven into hard worsted yarns.

# THE ENGLISH/BRITISH SYSTEM OR SPINNING COUNT SYSTEM Contd....

- Has 12 different grades
  1. Diamond wool: Finest white British wool, 1"-1.5" long.
  2. Pick: Less fine than diamond wool, about 1" long.
  3. Extra-pick: Less fine than pick grade of wool, < 1" long.
  4. Shafted: Pick teg wool with extra length.
  5. Super: Less fine wool of 4"-5" length.
  6. Half-bred: Wool coarser than super but 6"-7" long.
  7. Deep half-bred: Wool longer and coarser than half-bred.
  8. Lusture: Long curly wool with natural sheen.
  9. Roller: Lusture hogg wool, 12"-15" long. It is considered as a speciality grade.
  10. Cottis: Matted wool.
  11. Arable: Wool containing dusty soil.
  12. Cash: Fleece with bad faults

# The American Blood System....

- The wool grade is defined as the percentage of the merino blood carried by the sheep.  
Coarse Wool Sheep X Pure Merino Sheep. ----- Intermediate wool sheep (1/2 blood)
- It has 7 grades and is expressed as Fine, 1/2 blood, 3/8 blood, 1/4 blood, low 1/4 blood, common and braid.

<u>Blood</u>	<u>Spinning Count</u>
1. Fine (Pure Merino).	64's and above
2. 1/2 blood.	58-60's
3. 3/8 blood.	56's
4. 1/4 blood.	48-56's
5. Low 1/4 blood.	44-46's
6. Common.	40's
7. Braid.	36's



# The Australian Wool Classification System ....

```
graph TD; A["The Australian Wool Classification System ...."] --> B["Usual Classification."]; A --> C["Merino Wool Categories."]; B --> B1["Spinners."]; B --> B2["Topmakers."]; B --> B3["Comback.**"]; B --> B4["Crossbred."]; C --> C1["Spinners."]; C --> C2["Topmakers."]; C --> C3["Carding."]; C --> C4["Carbonizing."];
```

Usual Classification.

Spinners.

Topmakers.

Comback.\*\*

Crossbred.

Merino Wool Categories.

Spinners.

Topmakers.

Carding.

Carbonizing.

\*\*Comback wool is obtained from comeback sheep which is a cross between British long wool sheep and Merino breed.

# The Australian Wool Classification System

## Contd....

- Spinner wool is even and superior in every aspect. Based on length it is divided into 3 categories; **Warp, Half-Warp and Warp and a Half.**
- Topmakers are similar to spinners. They contain some burr content and irregularity. Based on length the Top makers are divided into 4 categories viz.; **Shafty, Good, Medium and Short.**
- Topmaker wool is sometimes referred to as **combing wool.**
- Both spinners and Topmakers are suited for processing on **worsted system.**
- Processing of Carding and Carbonizing category of wool is done on **woollen system.**

# The Australian Wool Classification System

## Contd ....

- With in the Clip, based on merit the wool threads are designated as **AAA**, **AA**, **A** and so on.
- A superior type of warp wool of 74 's is considered as “**Super AAA**”

# The Indian Grading System....

- Jaipur, Bikaner and Jodhpur are the wool grading centres of the country.
- Grading takes into account the length, fine-ness, colour and vegetable content/burr.
- The basic criteria of the Indian wool grading system are :
  1. Visual grading system with respect to length and diameter of fibre.
  2. It discriminates the wool on the basis of fine-ness.
  3. Grading practiced at the point of shearing
  4. Wool is graded separately after skirting them into coarse, fine and medium

• Grades used:	Super A- Super-Fine Quality.	> 58's.	< 25 microns
	A - Fine wool Quality.	54-56's	≤ 34.4 microns
	B - Medium Wool Quality.	46-50's.	34.4-37.4 microns
	C - Strong Wool Quality.	40-44's.	37.4-40.4 microns
	D - Coarse Wool Quality.	< 40's	≥ 40.1 microns

# The Indian Grading System Contd....

- Double letters indicate wool of long staple length.
- Colour: White colour of wool indicated by assigning the letters **ALB**. Whereas yellow colour is indicated as **LY** (Light Yellow), **MY** (Medium Yellow) and **HY** (Heavy Yellow). Black or brown colour has no place under grading.
- Vegetable Content: **LB** (Light Burr), **MB** (Medium Burr) and **HB** (Heavy Burr).
- Wool having 4 categories of length, 4 categories of Fine-ness, 4 categories of colour and 3 categories Burr.... Can be classified into  $4 \times 4 \times 4 \times 3 = 192$  Grades of wool.
- Wool Grading System of **Indian Standard Institute (B.I.S.)**

**Category A-** Fineness < 34.4 Microns, Length Above 75 mm, LB < 3.0%, Colour White.

**Category B-** Fineness 34.4-37.0 Microns, Length Below 75 mm, MB 3.0-5.0 %, Colour Tinged White(TW)

**Category C-** Fineness 37.1-40 Microns, HB >5.0%, Colour Light Yellow(LY)

**Category D-** Fineness > 40.1 Microns, HB >5.0%, Colour Heavy Yellow(HY)

# WOOL GRADING SYSTEM (F.A.O.)

- Followed in states like Punjab, Haryana, Jammu and Kashmir, Gujrat and Karnataka.

<u>Code No.</u>	<u>Style</u>	<u>Description.</u>
1.	Good	Wool with good colour, washed, skirted, light burr (0-3%) with reasonable quality and strength.
2.	Good Average.	Wool having yellow colour, well skirted, light burr (0-3%) with reasonable quality and strength.
3.	Average	Wool of average washing, well skirted, Medium burr (3-6%)
4.	Inferior	Wool of poor washed category, Heavy Burr content >6.0%.



**THANK YOU**

**BY: DR. GARGI MAHAPATRA**