

Wool Quality and Parameter of Indian Sheep

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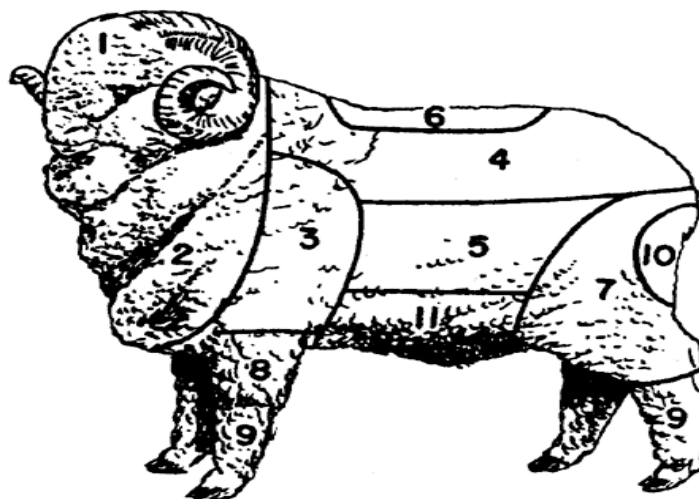
ABSTRACT

Indian ranks third in sheep population (61.469 million reports, 2008). There are 42 distinguished sheep breeds found in India. These sheep breeds are well adapted to specific environment and sustainably producing in specific agro- climatic regions of the country. Sheep is most docile and earliest domesticated among farm animals for basic need of food and clothing. Its converts food and roughage cheaply into good cash products and fertilize land. Sheep are small animals easy to manage. They are keeping by poor farmer and landless labourers for meat, wool, skin, manure and to some extend even milk. The yield of wool varies from 350 g to 1800 g per sheep per year. The material woven from indigenous wool is coarse and lacks and attractive finish. According to Government of India estimates, for fiscal year (FY) 2012-13 (April-March) raw wool production was 46.1 million kilograms (kg).

Key words: Indian Sheep, Wool Quality, Yield of wool.

INTRODUCTION

The potential range of end products that wool may be used for is dictated by many qualities, including fineness, clean wool yield, length, color, and uniformity. Fineness, or grade, is of primary importance in determining market value of raw wool. Finer (smaller diameter) wools usually are associated with more expensive, lighter weight fabrics, while coarser-fibered wools (larger diameter) usually are used in bulkier sweaters, blankets, and carpets. Skirting is done after shearing and prior to judging of the quality of the wool. It involves removal of the objectionable parts such as tags, leg pieces, face, neck pieces, bellies, locks and stained portions from the body of the fleece. In addition, any applied colour or pigmented wool should be taken out and kept separately. Similarly, heavy burry wool found below the jaw should be picked. This will help the farmer in realizing a better price for his wool [1].



The number and name of the corresponding parts for the drawing are as follows

- 1) **Top knot:** This area has inferior wool that is very light, short, and dirty.
- 2) **Neck wool:** This wool is very light conditioned and long-stapled. It often contains coarse, matted lumps of inferior wool on the folds.
- 3) **Shoulder wool:** The best wool grown by sheep is obtained from the shoulder. Sheep judges usually take the shoulder wool as a standard and see how the wool on the other portions of the sheep compares with it.
- 4) **Fleece wool:** This area contains good, average wool that is usually free from vegetable matter.
- 5) **Breast wool:** This wool is similar to shoulder wool, but is usually a little heavier in condition.
- 6) **Back wool:** This wool is inclined to be open, weathered, and musky.
- 7) **Britch wool:** This is coarser wool than the other portions of the fleece and is inclined to be kempy. This wool can also be matted and/or cotted with burrs and seeds.
- 8) **Arm piece:** This wool is very short and has very short, open fiber (fribby) edges; burrs or seeds collect heavily on this portion of the fleece.
- 9) **Hairy shanks:** Hairy or kempy fibers containing very little wool are found in these areas; when blended with other wools, they are used to manufacture low quality goods such as rugs.
- 10) **Stained wool:** This wool will not wash white and is very heavy in condition.
- 11) **Belly wool:** This is a bulky wool, heavy in condition, and usually very burry or seedy

In general, coarser fibers are stronger and are more resistant to breaking. Although there are no absolute rules, the following products can generally be manufactured from fibers with the associated micron diameters [2].

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

The Classification of Indian wool as per diameter is as below:

Sl. No.	Type	Mean fibre diameter (μ)
1	North India superior clothing white	≤ 30
2	North India clothing white	30 - 42
3	North India rug white	43 - 46
4	North India carpet type	≥ 46
5	South India blanket type	43 - 46
6	South India tannery type	≥ 46

There are three systems to measures of average fiber diameter and can be used interchangeably as shown in the table below, but the micron system is the system used internationally and preferred by wool buyers and manufacturers [3].

Type of Wool	American or Blood Grade	English or Spinning Count Grade	Microns (average fiber diameter)
Fine	Fine	Finer than 80s	Under 17.70
Fine	Fine	80s	17.70 - 19.14
Fine	Fine	70s	19.15 - 20.59
Fine	Fine	64s	20.60 - 22.04
Medium	1/2 Blood	62s	22.05 - 23.49
Medium	1/2 Blood	60s	23.50 - 24.94
Medium	3/8 Blood	58s	24.95 - 26.39
Medium	3/8 Blood	56s	26.40 - 27.84
Medium	1/4 Blood	54s	27.85 - 29.29
Medium	1/4 Blood	50s	29.30 - 30.99
Coarse	Low 1/4 Blood	48s	31.00 - 32.69
Coarse	Low 1/4 Blood	46s	32.70 - 34.39
Coarse	Common	44s	34.40 - 36.19
Very Coarse	Braid	40s	36.20 - 38.09
Very Coarse	Braid	36s	38.10 - 40.20
Very Coarse	Braid	Coarser than 36s	Over 40.20

PARAMETERS OF JUDGING WOOL QUALITY [4-5]

- 1) Fineness/Grade: In general, grade refers to the average diameter or thickness of the fibers. Three systems of wool grading are commonly used: the American or Blood system; the English or Spinning Count system; and the Micron system.
- 2) Staple length: It is the total length of a fibre in its natural condition. It is obtained by measuring the natural staple without stretching the crimps out of the fibre.
- 3) Fibre length: It is the total length of a wool fibre after removing the crimps or waviness by straightening it.
- 4) Crimpiness: It refers to the waviness of the wool fibre. Its number varies from 2 to 12 per cm depending upon the quality. It is a valuable property in spinning and increases the elasticity of the yarn and fabric. Crimps are more pronounced in fine wool.
- 5) Elasticity: The property of wool fibres to return to their original or natural form after being stretched or compressed. Wool is quite elastic, and therefore, resists wrinkling, bagging and tearing.
- 6) Kemp: It is a chalky, white, lusterless and dead fibre growing with wool which resists dyeing. It should be rejected.
- 7) Heterotype: Fibres which occur in the fleeces of indiscriminately bred sheep. They show, at different parts of their length, the physical structure and characteristics of both wool and hair.
- 8) Lustre: It is the ability of wool to reflect light. Wool with lustre, when dyed, has a brighter appearance than wool without lustre. Coarse wool with fewer scales has more lustre than fine wool because of smoothness of fibre.
- 9) Strength: It is the property of wool fibre to undergo processing without breaking. Wool fibre and fabrics are usually strong and durable.
- 10) Conductivity: Wool is one of the best fibres for retaining body heat and also for keeping external heat out. This is because of its insulating nature i.e. it is a poor conductor of heat.

- 11) Dyeing properties: Wool is one of the easiest fibres to dye because dyes penetrate the fibre easily and remain permanently.
- 12) Softness: Softer fibres consist of numerous, small scales which fit over one another loosely and produce fabrics which are softer to touch.
- 13) Inflammability: Wool is slower to burn, and on burning, it gives off a pungent odour and forms a bead when burning ceases.
- 14) Action of chemicals: Alkalis weaken the wool and may even dissolve it completely. Dilute acids do not act upon wool, and wool is generally dyed with acid colours.
- 15) Moisture: Wool readily absorbs and gives off moisture. Under normal conditions, the moisture content varies from 12-17 %.

Wool Production And Quality In Different Regions Of India

Particulars	North	North Western	Southern Temperature	Eastern Peninsular
Sheep population (million)	20.36	3.45	'19.80	4.6
Percent contribution	42.23	7.15	41.07	9.54
Wool production (m.kg)	25.11	4.03	7.68	1.57
Percent contribution to total	'65.40	'10.50	20.00	4.10
Per capita production (kg)	1.23	1.16	0.38	0.34
Fineness (micron)	30.45	22.3	'40.60	'50-60
Medullation (%)	30.80	5.15	'60.80	'80-90
Burr content (%)	2-5	2-8	Below 5	1-3
Yield (washed) (%)	'80-90	'50-60	'80-90 (except Nilgiri)	'85-90

CONCLUSION

Sheep with its multi-facet utility for wool, meat, milk, skins and manure, form an important component of rural economy particularly in the arid, semi-arid and mountainous areas of the country. It provides a dependable source of income to the shepherds through sale of wool and animals. Realizing the importance of sheep in Agrarian economy the Central Government had established the Central Sheep and Wool Research Institute (CSWRI) at Avikanagar in Rajasthan. Numbers of sheep breeding farms were established during various plan periods throughout the country for evolving (i) new fine wool breeds for different agro-climatic regions capable of producing 2.5 kg. of greasy wool per annum. Sheep make a valuable contribution to the livelihood of the economically weaker sections of the society. Amongst the livestock owners the shepherds are the poorest of the lot.

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