



Judging Wool and Mohair

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Judging Wool and Mohair

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Texas produces about 20 percent of the total wool clip and more than 97 percent of the total mohair clip of the United States. These two products contribute about 50 million dollars annually to the agricultural income of Texas.

A producer with a good knowledge of wool and mohair encounters fewer problems in production and marketing. Reliable information on the grades and quality of wool and mohair helps ranchers calculate the true value of these products. They also are better able to plan and execute breeding programs through which they can produce the most popular and profitable types of wool and mohair.

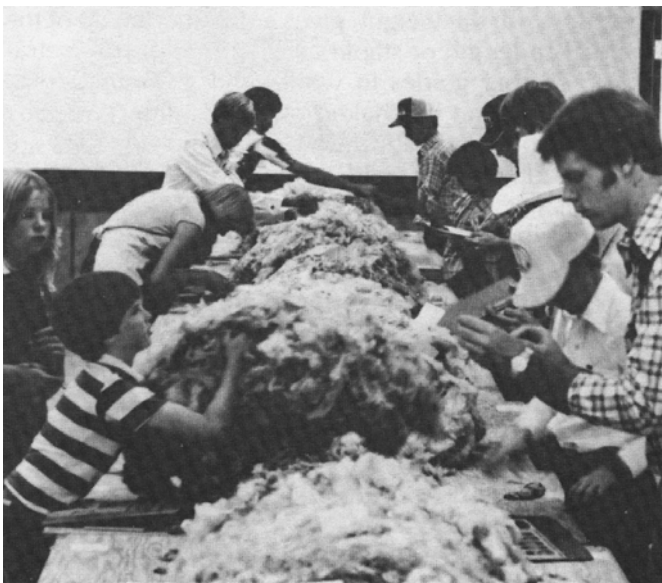
Wool

There are approximately 20 popular breeds of sheep, together with a great many less important breeds and crossbreds, in the United States. The wool produced by these sheep varies from very fine to extremely coarse and from 1 inch to as much as 12 inches in length for a growing period of 12 months.

For yarn to be uniform, the wool from which it is made must be uniform, particularly as to length and fineness. The wide variation in the wool produced, plus the need for uniform fiber, gives a basis for present-day grades of wool. These grades are arbitrary divisions made primarily according to fineness and length. Less important points that may have some influence on the grade include soundness, purity, character, color and condition. A wool grader considers all these points when grading. Clean wool content, fineness, length of staple and strength are the main characteristics considered in arriving at the value of wool.

Grading means the placing of entire fleeces in their grade piles according to fineness and length. When fleeces contain more than one grade of wool, the grader places the fleece in the grade pile representing the majority of fineness and length. Therefore, each fleece has to be examined in several places.

There are six grades of wool according to fineness: fine, 1/2 blood, 3/8 blood, 1/4 blood, low 1/4 blood and braid. These are only names of grades and do not indicate the breeding of the sheep.



Learning to judge and grade wool and mohair helps ranchers to implement breeding programs that produce the most profitable types of wool and mohair.

The length of staple is measured from the base to the tip of the unstretched fiber. There are three main grades according to length: clothing, French combing and staple. Clothing wools are the short-stapled wools within a grade that are too short to be combed and are used in the woolen system of manufacturing. French combing wools are of medium length within a grade and may be combed on the French combs. The staple wools are the longest wools within a grade and are suitable for combing on the Noble combs. As a general rule, clothing wools bring the lowest price per clean pound, with French combing slightly higher and staple wool bringing the highest price per clean pound within a certain grade.

Various combinations of grades for fineness and length can now be made, for instance, fine clothing, fine French combing and fine staple.

Following are the grades of wool according to fineness and length in inches. These lengths do not correspond with the ones suggested in the USDA standards, but come closer to meeting the requirements of the wool trade and manufacturer.

GRADES (Fineness)	GRADE (Length)	LENGTH IN INCHES
Fine	Clothing	2 and under
	French combing	2 – 3
	Staple	3 and over
½ blood	Clothing	2 ½ and under
	French combing	2 ½ – 3 ½
	Staple	3 ½ and over
¾ blood*	Clothing	Under 3 ¼
	Staple	Over 3 ¼
¼ blood	Clothing	Under 4
	Staple	4 and over
Low ¼ blood	Clothing	Under 4 ¼
	Staple	4 ¼ and over
Braid	Clothing	Under 4 ½
	Staple	4 ½ and over

*In the coarser grades of wool, the French combing length grade usually is dropped because coarser, short wools are seldom combed with the French combs.

Fineness in wool also can be designated by the Bradford spinning count or numerical system, such as 58's, 60's, and 64's. The spinning count is determined by the maximum spinning capacity of the wool. Theoretically, when wool is spun to the limit, the number of "hanks" weighing 1 pound equals the spinning count. A worsted hank contains 560 yards of yarn. Next, the hanks of yarn are placed on a scale until 1 pound of wool is represented. The hanks are counted to get the spinning count. The spinning count system is more accurate and more widely used than our system of grading. Length grades may be combined with these spinning sounds; for example, 64's staple, 64's French combing and 64's clothing.

Following are the tentative grades of wool with their spinning count equivalents according to the manual of American Society for Testing Material:

- Fine – 64's, 70's, 80's
- ½ blood – 60's, 62's
- 3/8 blood – 58's, 56's
- ¼ blood – 50's, 54's
- Low ¼ blood – 46's, 48's
- Braid – 36's, 40's, 44's

SHRINKAGE AND YIELD

"Shrinkage" is a term commonly used with wool and refers to the amount of foreign material found in grease wool, expressed as a percentage of the original grease weight. "Yield" is the amount of clean wool left in a lot after scouring, expressed as a percentage of the original weight. The average yield of fine wool in Texas is 50 percent.

Shrinkage is made up of wool grease, dried perspiration, sand, dirt, corral dust and vegetable matter such as burs, neddlegrass, chaff, seeds and twigs. The wool grease and dried perspiration combined are referred to as "yolk."

Yield is extremely variable and is influenced by factors such as the breeding of the sheep, manner of handling, amount of range cover, amount of wind, rate of stocking, soil type, type and amount of feed and other factors. Since yield is affected by so many factors, there is a wide spread in the yield of wools. A variation in yield affects the grease price; wool can have low yield and still be of excellent quality.

Yield usually is estimated by visual examination. For accuracy, it is necessary to scour the wool and of properly taken sample. Pressing the fleece together with the hands and observing the space occupied, together with the weight, gives a rough estimate of the yield. The length of staple and depth of dirt penetration are other guides to wool yield. Examination of the dirt that can be shaken out of the fleece usually gives a good indication of yield; sand and dirt are associated with low yield, while corral dust and vegetable matter, such as chaff, are usually light and do not contribute greatly to shrinkage.

State and national wool judging contests require that the yield be indicated as high, medium or low. High-yielding fleeces yield more than 53%; medium-yielding fleeces, 45 to 53%; and low-yielding fleeces, less than 45% clean fiber.

SCORING

The state wool judging contests include the classification of 20 fleeces of wool according to fineness, length and yield. Each fleece should be checked in three different places on the form provided. Strength is of tremendous importance in wool manufacture, but is not considered in placing the grade for length on the 20



Sheep and goat specialists and local warehousemen select fleeces for judging and determine score value.

fleeces. It is more important to look for fineness, length and yield than to spend time hunting for breaks. Scoring is on the basis of 5 points for fineness, 3 points for length and 2 points for yield, or 10 points per fleece. A sample score card is shown on page 6.

The state contests require the placing of two classes of wool of four fleeces each. The placings should be made and the numbers inserted. Scoring is based on 50 points for placing and 50 points for reasons. This gives a total of 200 points for the two classes.

A score card (page 8) helps evaluate the various points



Fleeces are evaluated to determine placing order in a group-of-four class.

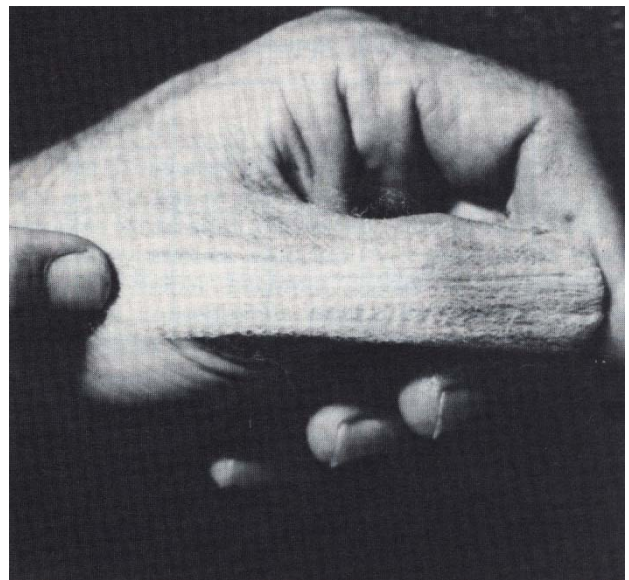
to consider in judging wool. Estimated weight of clean wool is given the largest number of points. Ranchmen get paid for the number of pounds of clean wool they produce. A high-grease fleece weight does not necessarily mean a high-clean fleece weight. Ranchers should be able to estimate the amount of clean wool in a fleece.

Bulkiness

Bulkiness of fleece generally indicates a high yield of clean wool. Squeezing the fleece together with the hands may help you estimate clean wool. If you are able to compress the fleece so that your hands close together, the yield of clean wool will be low.

Length

Length is given the second largest number of points. Longer stapled wools are more valuable and staple length adds weight to a fleece more than any other characteristic. Staple length is determined by measuring the unstretched length of the locks from base to tip. The length should be measured at several places over the fleece.



The staple length of wool is estimated by comparing it to the known length to the joints of the thumb.

Soundness and Purity

Soundness and purity rank high in number of points. Soundness refers to the strength of the wool fiber. Two types of defects affect the strength of wool. One is termed **tender wool**, which is wool that is weak throughout the length of the fiber. The other is wool showing a **break**. When a lock is stretched and all the fibers break squarely across at the same point, it is termed a "break." Breaks usually are caused by fevers or sudden changes; for example, difficulty at lambing time, a bad case of screw-worms, udder trouble, a sudden change to concentrated feed, severe storms and freezing temperatures.

NAME OR NO.

AS3-4.055
(Senior)

WOOL GRADING SHEET

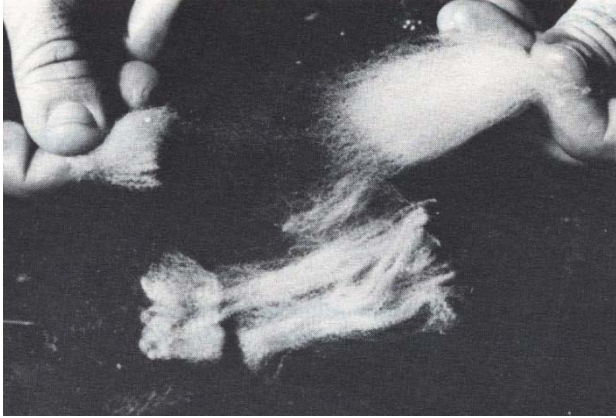
Fleece Number	Fineness				Staple Length			Yield			Score
	Fine	1/2 Blood	3/8 Blood	1/4 Blood	Staple	French Combing	Clothing	High	Med.	Low	
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Score: 200 total possible points

Total Score _____

Correct checks receive 4 points for fineness, 3 points for length and 3 points for shrinkage.

Yield: High – over 53% Medium – 45 to 53% Low – under 45%



When all the fibers break at the same place in the staple of the wool, it is called a "break".

Purity refers to kemp and black fibers, both of which cut down greatly on the value of wool. A large amount of kemp increases the loss through breakage and uneven dyeing while black fiber limits the use of the wool to the manufacture of dark-colored fabrics.

Quality

Quality or fineness is next in importance. Fleeces should be uniform in fineness over the entire fleece. Fleeces lacking uniformity require more preparation for manufacture, thus increasing the cost.

Character

Character refers to general appearance and crimp. Crimp refers to the natural waviness of the wool fiber. Wool that has good crimp usually has more strength and goes through the manufacturing processes with less breakage.

Color

Color is important to the manufacturer because if wool is to be made into white or light-colored fabrics, it must appear white to creamy white. A large amount of stained wool decreases the value of the fleece.

Color of wool should not be confused with color of the yolk. Fleeces may appear yellow because of the color of the yolk, which varies from almost clear to a dark yellow.

The score card on page 8 has been prepared to serve as a guide in wool judging.

A sample placing and reason card is shown on page 9. The placing of the class is indicated at the top of the page. Under the number column, insert the fleece number that best represents the fleece description. That is, longest fleece number – number 2, shortest fleece number – number 4, etc. Only one number should be inserted in each blank. In case of tie, the official judge will permit credit for more than one answer for fleeces very similar in quality.

Mohair

There are not as many different uses for mohair as for wool, but mohair must meet the same general requirements as wool to be suitable for manufacture.

The quality of mohair varies widely within flocks and within individual fleeces. This brings up the need for grades so that it may be separated according to fineness and length. The trade has developed a set of grades that is well recognized, however. The grades are based primarily on fineness and length, with minor attention given to character, luster, condition, strength and purity. These grades have been derived from the American Society for Testing Materials tentative specifications for mohair top.

Spinning counts are derived in the same manner as for wool; that is, the number of hanks of yarn that it takes to weigh 1 pound. Grades of mohair, together with their spinning counts equivalents, are: kid 1, d36's and 40's; kid 2, 30's and 32's; adult 1, 26's and 28's; adult 2, 22's and 24's; adult 3, 18's and 20's; adult 4, coarser than 18's. In addition, there are the usual off grades, such as burry, kempy, grey, cotted and stained.

GRADING

The designated grades are based on fineness and not on the age of the goat producing the hair. It is possible for an adult goat to produce kid hair and for a kid goat to produce adult hair. As a general rule, however, the mohair becomes coarser as the goat gets older and, consequently, most of the finer hair will be produced by kid goats.

Reference to flat and ringlet type of mohair has been avoided purposely. Many fleeces cannot classify as either of these two types. It is possible to produce high-quality mohair in both the ringlet and flatlock types. One of the objectives in mohair judging is to be able to determine the quality of the mohair regardless of the type of lock.

Following is a sample classification card for mohair. It is necessary for the contestant to check each sample in one column only.

SCORING

In addition to classifying 20 samples of mohair, the contestant is required to place two classes of four fleeces each and write the numbers. The score card, page 12, can assist the contestant in placing these classes.

Fineness and Uniformity

Fineness is given the largest number of points on the score card. When mohair is sold on a graded basis, the finer mohair sells for the highest price.

It is important to the manufacturer that mohair fleeces be as uniform as possible.

SCORE CARD FOR WOOL JUDGING

Points

Estimated Clean Wool Content (yield and shrinkage)..... 35

High yield per fleece is desirable. Small amount of light-colored yolk as free from adhering sand, dirt and vegetable matter as possible. Cut heavily if tied with any twine other than paper.

Length..... 25

Should be combing or staple length for the grade: i.e., fine, 3 in.; 1/2 blood, 3-1/2 in.; 3/8 blood, 3-3/4 in.; 1/4 blood, 4 in.; low 1/4 blood, 4-1/4 in.; braid, 4-1/2 in. Lengths more than 1/2 inch greater than this are of no additional value except increasing the yield and grease weight.

Quality or Fineness..... 10

Should fall clearly in one of the grades according to fineness; i.e., fine, 1/2 blood; 3/8 blood; 1/4 blood; low 1/4 blood; braid. Uniformity of fineness particularly desirable. Cut heavily for hairy britch.

Soundness (strength) 10

Fiber should be strong throughout and free from breaks.

Purity..... 10

Free from hair, kemp, black or brown fibers. Cut heavily for black or brown fibers and coarse, hairy britch.

Character and Color (crimp)..... 10

Evenly crimped or wavy from base to tip. Crimp should be distinct. Free from frowsy wool. Soft and springy to the touch. White to cream, bright color most desirable. Should be free from stains and with an even distribution of yolk.

TOTAL 100

NAME OR NO.

AS3-4.057
(Senior)

WOOL PLACING AND REASONS SHEET

Class No. _____

Placing order 1st _____ 2nd _____ 3rd _____ 4th _____

Reasons: list the number of the fleece which matches the fleece description below

Fleece Description	Number
Longest staple fleece	
Shortest staple fleece	
Fleece most uniform in staple length	
Fleece most uniform in fineness (fiber diameter)	
Coarsest fleece in class	
Heaviest grease fleece weight	
Lightest grease fleece weight	
Fleece with most pounds of clean wool	
Fleece with least pounds of clean wool	
Highest yielding fleece	
Lowest yielding fleece	
Fleece with the most character (color, crimp & condition)	
Fleece with the most vegetable matter	
Fleece with the most stained wool	
Fleece with the least fiber strength	
Fleece with no colored fibers	

Reasons scoring: 50 total possible points

Deduct 3 points for each incorrect answer

PLACING SCORE _____

REASON SCORE _____



Many livestock judging contests require evaluation of live animals as well as of fleeces.

percent. In recent years many breeders have bred Angora goats with fleeces containing much more oil than this. Some ranchmen have sprayed goats with oil to increase fleece weights. Fleeces with excessive amounts of oil, whether natural or artificially added, should be discriminated against.

Purity

Purity refers to freedom from kemp or colored fibers, or both.

Kemp fibers are the chalky white hairs similar to the hair on the faces and lower legs that are found scattered through the fleece. Kemp fibers are usually found on the back and thighs. They are undesirable to the manufacturer because they add to the waste through breakage in manufacture and present a problem in dyeing.

Color

Good quality mohair should have a white color when scoured. Dinginess or dullness in color detracts from the value. A large amount of stained mohair in the fleece will lower the color rating.

Colored fibers are undesirable because they limit the use of the mohair. Mohair containing colored fibers must be used in the manufacture of dark-colored fabrics.

Staple Length

Staple length in mohair is important to produce heavy fleece weights and a fiber with sufficient length for combing. Good Angora goats should produce mohair at the rate of 1 inch per month or a 6-inch staple for each of the 6-month shearings. Mohair with a staple length of 4 inches is long enough for top making.

Character

Character usually refers to waviness and type of lock. Type of lock may be important to the registered breeder but is of little importance to the manufacturer. Character is important to the manufacturer because the fleeces with well-defined locks go through the manufacturing machinery with less breakage of fiber than fleeces lacking character.

Softness

Softness is often referred to as handle. Softer mohair makes softer-handling fabrics. Harshness is undesirable for the manufacture of high quality fabrics.

Luster

Luster is the brightness or shininess of the mohair fiber. Mohair with high luster, but otherwise equal in quality, is preferred over mohair with poor luster.

Condition or Yield

Condition or yield refers to the amount of clean mohair expressed as a percentage of the original grease weight. Mohair should have a shrinkage of approximately 15



This sample of high quality mohair has excellent character, luster and yield.

NAME OR NO.

AS3-6.051

MOHAIR GRADING SHEET

Fleece Number	Kid No. 1 36's – 40's	Kid No. 2 30's – 32's	Grown No. 1 26's – 28's	Grown No. 2 22's – 24's	Grown No. 3 18's – 20's and below	Kempy	Score
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

Score: 200 total possible points

TOTAL SCORE _____

Correct checks receive 10 points, checks within one place of correct receive 5 points.

SCORE CARD FOR MOHAIR JUDGING

Points

Length 20

Staple length is very important in mohair. Length should be 6-inch staple for 6-month growth.

Fineness and Uniformity 40

Should fall into one of the recognized grades: kid 1, kid 2, adult 1, adult 2, adult 3 and adult 4. Should be uniform in fineness throughout.

Character 10

Character is denoted by waviness and the degree to which the locks are separated. Avoid straight fluffy hair that has no waviness.

Softness 5

Mohair should have a soft handle, discriminate against mohair with a harsh handle.

Luster 5

Luster is the shininess of mohair. Good mohair appears bright and shiny.

Condition or Yield 10

Mohair does not have the wide variation in yield that is found in wool, Mohair should have a medium amount of natural oil and be free from adhering dirt and vegetable matter. Cut heavily for oil that has been added to the fleece artificially and for large amounts of vegetable defect.

Purity 10

Should be free from kemp and colored fibers. Cut heavily for large amounts of either.

TOTAL 100

NAME OR NO.

AS3-4.052
(Junior)

MOHAIR PLACING AND REASONS SHEET

Class No. _____

Placing order 1st _____ 2nd _____ 3rd _____ 4th _____

Reasons: list the number of the fleece which matches the fleece description below

Fleece Description	Number
Finest fleece in class	
Coarsest fleece in class	
Most uniform in fineness	
Longest staple fleece	
Shortest staple fleece	
Most uniform in staple length	
Fleece with brightest luster	
Fleece with least luster	
Fleece with greatest softness	
Heaviest grease fleece weight	
Lightest grease fleece weight	
Most pounds of clean mohair	
Least pounds of clean mohair	
Fleece with most vegetable matter	
Fleece with most stained mohair	
Fleece with the most kemp	

Reasons scoring: 50 total possible points

Deduct 3 points for each incorrect answer

PLACING SCORE _____

REASON SCORE _____

A score card for use in judging classes of mohair fleeces is on page 12. A sample placing and reason card is shown on page 13. The placing of the class should be indicated at the top of the page. Under the number column, insert the fleece number that best represents the fleece description; that is, longest staple fleece – number 2, shortest staple fleece – number 4, etc. Only one number should be inserted in each blank. In case of tie, the official judge will permit credit for more than one answer for fleeces very similar in quality.

Instructions for Grading

JUDGING CARD FOR WOOL

Each fleece is worth 10 points, with 4 points for fineness, 3 points for length and 3 points for shrinkage. Credit should be given for any part that is correct. In this way, it is possible to get scores of 10, 7, 6, 4 or 3.

There are arguments against this system mainly because if the grade for fineness is wrong, the grade for length also may be wrong. This grading system has been followed to allow the contestants to make higher scores and provide encouragement and confidence.

Total possible score would be 200 points for this part of the contest.

WOOL AND MOHAIR PLACING CARDS

The official judge should supply the scoring committee with cuts or points difference between first and second, second and third and third and fourth. Total cuts should

not exceed 15 points. All possible placings can then be scored in the usual manner on the basis of 50 points for placing.

In cases of a complete error, or where there is no justification for the placing, it may be desirable to score it as a bust with a score of – 12 for that particular column of reasons. This generally would be in cases where the lowest fleece was placed over the top fleece and in some cases where the third-place fleece was placed over the top fleece. In some cases it will not be desirable to use this plan.

The grading committee then can score numbers checked by the contestant. Deduct 3 points for each incorrect reason number.

Reason grades are figured on the basis of 50 points as perfect score. Deduct the total number of points lost from 50 to obtain the reason score.

JUDGING CARD FOR MOHAIR

Each fleece has a score of 10 points. Fineness is the only point considered in grading mohair samples. If the sample is graded correctly, give it a score of 10. If the grade marked is one place on either side of the correct grade, allow 5 points. If it is off more than one grade on either side of the correct grade, give a 0.

Kempy samples should be marked kempy only. If a grade is marked in addition to kempy, 5 points should be deducted.

Giving 5 points for missing the sample by one grade allows the contestant to make a somewhat higher score and provides some encouragement.



Learning to judge wool and mohair is not easy; however, the national 4-H wool judging contest held in Texas each year provides extra incentive.

Definitions

- Break**Wool that is abnormally weak in one spot in the staple length of the wool.
- Breech or britch**Coarse hair-like fibers on the lower hind legs and around the dock of some sheep.
- Character**General appearance of the wool or mohair with special reference to the possession of crimp.
- Clip**Wool or mohair produced by one flock of sheep or Angora goats.
- Clothing wool**Wool that is not suited to combing and is used in the woolen system of manufacturing. Usually, wool of short fiber length.
- Color**A bright white to cream is the most desirable color of wool. Other colors are referred to as “off colors.”
- Condition**Amount of yolk contained in the fleece.
- Crimp**Natural curl or waviness of the fiber.
- Defect**Vegetable content of wool and mohair.
- Fleece**Wool or mohair produced by one sheep or Angora goat at one shearing.
- French combing**Wool or medium fiber length and suitable for combing on the French combs.
- Grading**Separating entire fleeces into groups according to fineness and length.
- Hank**A standard length of yarn, sometimes called a skein. In worsted yarn, a hank is 560 yards.
- Kemp**Opaque, hair-like fiber which is brittle and chalky white. It is a serious defect.
- Lock**A group of fibers clinging together within a fleece.
- Luster**Shininess of the fiber or its ability to reflect light.
- Noils**The short fibers removed from the long ones in the combing process.
- Purity**Freedom from off-type fibers, such as hair, kemp and colored fibers.
- Quality**A term used in the wool trade to indicate fineness.
- Shrinkage**The weight raw wool loses when scoured, expressed as a percentage of the original weight.
- Sorting**Breaking up individual fleeces into various grades determined by their fineness and length.
- Soundness**Strength of the fiber or freedom from breaks and tenderness.
- Spinning count**The number applied to wool indicating the fineness of the yarn which can be spun from it. The numbers are derived from the number of hanks of 500 yards each that are required to weigh 1 pound.
- Staple wool**Wool with suitable fiber length to permit it to be combed on the Noble combs. Wools with excellent length within a grade for fineness.
- Tags**Heavy, dung-covered locks of wool or mohair.
- Tender**Wool this is abnormally weak throughout the entire length of the fiber.
- Top**A continuous band of wool fibers that have been made parallel and have had the short fibers, called noils, taken out by combing. Top is an intermediate stage in the manufacture of worsted yarn.
- Yield**Percentage of clean fiber left in a lot after scouring.
- Yolk**The natural secretions of the skin that cling to the wool or mohair fiber. Yolk is made up of natural oil and perspiration salts.

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Issued in furtherance of Cooperative Extension Work in Agriculture and Home Economics, Acts of Congress of May 8, 1914, as amended, and June 30, 1914, in cooperation with the United States Department of Agriculture. Zerle L. Carpenter, Director, Texas Agricultural Extension Service, The Texas A&M University System.

2M-8-93, Reprint