

## Use soluble branding fluids

**Only soluble branding fluids, which are available at all wool growers' supply houses, should be used for branding.** A minimum number of brands should be placed on the sheep and the fluid used as sparingly as possible. Materials such as tar, lead paint and crankcase oil should never be used.

Many ranchers prefer to spray for ked control while the ewes are still in the corrals. However, if this is done too soon after branding, blurring will occur and the flock may have to be rebranded. The best procedure, weather permitting, is to spray first and then, after the ewes are dry, to brand.

## The marketing of wool

**Wool is graded to assist in determining its value and use, and to facilitate its sale.** All wool marketed by CCWG is core tested and objectively measured for yield and micron after grading, and packaged into 500 kg bales (see Fig. 18).

 <p><b>Yocom-McColl Testing Laboratories, Inc.</b> 540 West Elk Place • Denver, Colorado 80216-1823 USA PHONE (303) 294-0582 • FAX (303) 295-6944 EMAIL: ymccoll@ymccoll.com</p> <p>Wool Core Test Report</p>	
<p>Canadian Co-operative Wool Growers Ltd P.O. Box 130 Ontario, K7C 3P3 Canada</p> <p style="text-align: right;">12/20/08 Test No: 613947</p>	
<p><b>Description and Weight Data</b></p> <p>Shipper's Lot No.: 4B Buyer's Lot No.: 89549 Sale No.: XXXXX Description: XXXXX No. of Bales or Bags Weighed: 78 No. of Bales or Bags Core'd: 78 Gross Weight of Wool: 45,757 lbs 20,755 kgs Net Weight of Wool: 45,601 lbs 20,684 kgs Tare: 156 lbs 71 kgs Sampled by: Client On: 12/22/08</p>	
<p style="text-align: center;"><b>Laboratory Yield Data</b></p> <p>Wool Base: 52.09 % Vegetable Matter Base: 1.2 % Schlumberger Estimated Commercial Top and Noil Yield: 59.7 % Total Clean Wt: 27,224 lbs 12,349 kgs</p>	
<p style="text-align: center;"><b>Laboratory Micron Data</b></p> <p>Mean Fiber Diameter: 30.1 microns Standard Deviation: 8.0 microns Coefficient of Variation: 26.6 % Fibers Greater Than 30 microns: 42.5 %</p> <p style="text-align: right;"><i>By Angus R. Bell</i></p> <p style="text-align: center; font-size: small;">These Tests Performed According to ASTM D564, IWTO Method 19 and IWTO Method 47</p>	

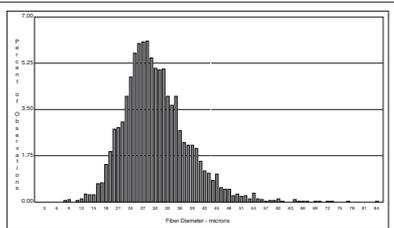
 <p><b>Yocom-McColl Testing Laboratories, Inc.</b> 540 West Elk Place • Denver, Colorado 80216-1823 USA PHONE (303) 294-0582 • FAX (303) 295-6944 EMAIL: ymccoll@ymccoll.com</p> <p>Optical Fiber Diameter Analyser (OFDA100) Micron Test Report</p>	
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Fig. 17. Commercial micron test with histogram and yield report

## Markets for Canadian wool

The main market for Canadian wool continues to be China, which is the destination for a significant percentage of global wool production. Canadian wool has been marketed to China for a number of years and is well established there. **China accounts for upwards of 70% of Canadian wool production and the balance is marketed to the United States, India, Western Europe and domestic mills.**



Fig. 18. Graded wool bales at CCWG warehouse in Carleton Place, ON.

## Grading of wool

In the wool trade, the fibre thickness determines the grades (see Table 2). Fineness, the most important characteristic, is determined either visually or by exact measurement. The degree of fineness is expressed in grades, which also can be in correspondence with the spinning count, and thickness expressed in microns. The spinning count indicates the number of hanks of yarn obtained from 450 g of clean wool. A hank of yarn is 512 m long. The higher the spinning count, the finer the wool fibres, and the longer the yarn from 450 g of wool. Wool with a spinning count of 64s would yield  $64 \times 512 = 32,768$  m of single-ply yarn.

**The grower's price per kilogram of fleece is determined on the basis of the various grades and yield classifications.** An example of the form for a Wool Grading Statement is shown in Fig. 20.

**Table 3. Micron chart: specifications for grades of wool**

Grade	Range for average fibre diameter (microns)	Standard deviation <u>microns</u> maximum
Finer than 80s	Under 17.70	3.59
80s	17.70 - 19.14	4.09
70s	19.15 - 20.59	4.59
64s	20.60 - 22.04	5.19
62s	22.05 - 23.49	5.89
60s	23.50 - 24.94	6.49
58s	24.95 - 26.39	7.09
56s	26.40 - 27.84	7.59
54s	27.85 - 29.29	8.19
50s	29.30 - 30.99	8.69
48s	31.00 - 32.69	9.09
46s	32.70 - 34.39	9.59
44s	34.40 - 36.19	10.09
40s	36.20 - 38.09	10.69
36s	38.10 - 40.20	11.19
Coarser than 36s	Over 40.20	–

**Sale of wool**

Before 1914, wool was marketed in Canada in a haphazard manner. Most wool was handled by dealers, junk merchants, traders and even butchers who acted as intermediaries between the growers and the manufacturers. The growers had practically no knowledge of the value of their wool and, consequently, had little or no alternative but to accept the price offered.

**Co-operative marketing**

As a result of recommendations made by a special commission appointed by the Canada Department of Agriculture to investigate the sheep and wool industry in Canada, Great Britain and the United States, grading of wool was begun by the Livestock Branch in 1913. The Commission also recommended that Canadian wool be marketed on co-operative lines. In 1914, wool growers began to organize associations for the co-operative marketing of wool and by 1916, 26 associations were handling the growers' wool.



value of wool; thus it is relatively easy to select for high wool production, particularly when replacing breeding stock. **The characteristics to observe, in descending order of importance, are fleece weight, fineness, length of staple and density of fibres on the skin.**

### **Fleece weight**

**Raw fleece weight is a good index of total wool production, since it measures the combined effects of fineness, length and density.** As a result, satisfactory improvement can be made by selecting on this basis. The most accurate culling can be done at shearing time by actually weighing the fleeces and marking the low-producing ewes for shipment. If this is not practical, an alternative method is to cull by handling the ewes through a chute and picking out the ewes with short-stapled open fleece, hairy breeches, and those that are off-type and of poor quality. Also ewes with too much face cover should be culled to eliminate wool blindness because this condition markedly affects lamb production.

### **Fineness of fibre**

**Fineness of fibre determines the grade of wool produced and thus the price received by the grower.** Normally finer type wools bring a higher price than the coarser types, although in rare instances this may not be true because of an abnormal demand. It is important that growers select a breed of sheep that will produce the type of wool that is most acceptable to the market and will also protect the animal from the rigours of winter. In a wool improvement program, uniformity of fineness between different body areas (i.e., breech and shoulder) is an indication of good breeding, is also important as it eliminates extensive sorting before processing.

### **Staple length**

**Staple length is another fleece characteristic that is related to economic value since all wool within a particular grade must be of a certain length to obtain the highest price.** Also, staple length is related directly to the amount of wool grown – that is, sheep with longer stapled wool will have heavier fleeces. Length of wool is a highly heritable characteristic and considerable improvement in fleece weights can be obtained by selecting for it. Uniformity of fibre length on the different body regions should also be considered because it reduces losses in combing processes and ultimately means a greater return to the grower.

## Density of fibres

Selection on the basis of density (the number of fibres growing on a given skin area) is essential in a wool improvement program. **The greater the density, the greater the amount of wool produced.** Large differences exist between sheep in the same flock, and with experience it is possible to detect the superior sheep. This may be done by grasping the fleece at two or three points along the side and back and, based on the quantity of fleece held in the hand, judging which sheep produces the larger amounts of wool.

## Final highlights for production of good fleece

**Good fleece is not produced at the time of shearing but during the whole year.** The following should be kept in mind:

- Breed for increased fleece weight, finer fibre and no coloured fibres. Breeding for a finer and heavier fleece gives Canadian wool a more competitive position on both domestic and world markets.
- Use proper health and nutritional practices. Consult an ag rep or sheep specialist for help and advice.
- Use approved feeders that allow sufficient feeder space for the flock and which protect the fleece.
- Handle all forage and bedding carefully to prevent it from entering the fleece. Immediately remove and dispose of baler and poly twines.
- Use sufficient clean bedding. Increased care in feeding and bedding translates into a cleaner more saleable product.
- Brand with a scourable marking substance. Paint makes fleece worthless as a marketable commodity.
- Practice proper weed control. Burrs and thistles will lower wool grade and market value.
- Crutch sheep before shearing, removing tags, burrs and chaff. More care in fleece preparation translates into better wool grades, more efficiency, a more valuable product and higher financial returns.
- Remove fleece in one piece and avoid second cuts.
- Never shear a damp sheep.
- Do not shear black face or leg fibres.
- Shear on a clean dry surface.
- Shear belly wool first and pack it separately.
- Shear dark sheep last and pack it separately.

## Glossary of common wool terms

### **Apparel wool**

Wool used in the manufacture of clothing, as opposed to carpet wool.

### **Blacks or black wool**

Grey, brown or black fleeces, which are graded fine, medium and coarse. Their value is considerably lower than white fleeces.

### **Blood**

The terms one-half blood, three-quarters blood, one-quarter blood and low one-quarter blood are American grades of wool indicating degree of fineness. Although the terms now have no relation to the breeding of the sheep from which the wool was shorn, originally they indicated the amount of Merino breeding present in the native sheep.

### **Braid**

The coarsest of American wool grades, equivalent to coarse in the Canadian system.

### **Breech wool**

Wool, usually the coarsest in the fleece, from the rear and lower parts of the hindquarters.

### **Bright wool**

Subclass of wool.

### **Bucks or buck wool**

Wool from rams. It has a characteristic odour and usually has a higher shrinkage than ewe wool.

### **Burry wool**

Wool that contains burrs. Such wool has a high shrinkage, must be carbonized before it can be used, and as a result, is worth less than burr-free wool.

### **Carbonizing**

A process by which burrs and other vegetable matter are removed from wool by chemical treatment (usually acids). Wool that requires this treatment is called “carbonized wool.”

### **Carding**

A process to disentangle and separate the fibres from the matted lumps formed in scouring, to remove vegetable matter, to complete blending of different wools, and to produce a web of fibres of uniform thickness.

### **Carpet wool**

A coarse wool used primarily in the manufacture of floor coverings but sometimes also used in coarse wearing apparel, e.g., Scottish Blackface wool.

### **Chaffy wool**

Wool full of small particles of straw and hay.

### **Character**

A term denoting a uniform and distinct crimp in wool fibres.

### **Clip**

Refers either to the wool produced from one flock or to the total annual national or world production.

### **Clothing wool**

Wool that is too short to be combed (less than 5 cm long), and hence is used in the manufacture of woollen and felt goods. This wool is not as valuable as combing or staple wool.

### **Coarse**

The coarsest (36s-40s) of Canadian wool grades and equivalent to “braid” in the American system.

## **Combing wool**

Wool at least 5 cm long that can be combed to remove the short fibres and to arrange the long fibres in parallel fashion.

## **Condition**

Refers to the amount of grease and dirt in wool. Wool that is heavy in condition will have a high shrinkage when scoured.

## **Cotted fleeces or cotts**

Fleeces in which the fibres have become matted or felted together while on the sheep. They occur more commonly in the coarser type wools than in the finer types. The condition may be caused by unfavourable weather conditions, sickness, or lack of yolk to protect the fibre.

## **Crimp**

The natural waviness of the wool fibre.

## **Crutching**

A process of removing the wool from the udder, breech and between the hind legs prior to lambing in order to improve the wool clip and reduce lamb losses. The wool removed is known as crutchings.

## **Dead wool**

Wool removed from sheep that have been dead for some time. It is usually defective, has a strong odour, and sells at a lower price. Murrain wool, from decayed carcasses, is useless and of no value.

## **Defective wool**

Wool that contains burrs or that has been sufficiently damaged by insects, disease, fire or water to lower its value after scouring.

## **Domestic wool**

Wool produced on farms in contrast to that produced on range.

## **Down wool**

Medium wool obtained from breeds of sheep originating in the downs of England.

## **Felting**

The interlocking of wool fibres caused by the action of heat, moisture, chemicals and friction.

## **Fine wool**

The finest grade of wool, normally obtained from the Merino or its sub-breeds.

## **Fleece**

The wool from one sheep.

## **Frowsy, or mushy wool**

Wool that is dry, weathered and wasty.

## **Grease**

See "wool grease."

## **Grease wool**

See "raw wool."

## **Kemp**

A short, brittle, chalky white fibre found mixed in some fleeces. Kemp is a serious defect because it lacks strength and will not take dyes the same as wool.

## **Lanolin**

Refined wool grease used in the cosmetic and lubricant industries.

## **Locks**

Pieces of wool that become detached from the fleece in shearing or handling.

## **Longwool**

Wool from certain British breeds (e.g., Lincoln, Leicester and Cotswold).

## **Medullation**

Formation of empty spaces in the central portion of wool fibres.

**Pelt**

A woolled sheepskin.

**Pulled wool**

Wool that is removed from the skins of slaughtered sheep.

**Raw wool**

Wool as sheared from the animal, containing grease, salts and dirt. Also called “grease wool.”

**Scouring**

A process of removing dirt and grease from wool by means of a solution of soap and sodium carbonate.

**Sebaceous gland**

A wax gland at the root of each fibre.

**Second cuts**

Short pieces of wool produced by cutting the staple twice in shearing.

**Semibright**

Subclass of wool that lacks brightness because of the environment in which it grows. It has a higher shrinkage than bright wool but is just as white after scouring.

**Shearling**

English term for a yearling sheep after it has been shorn. Common method of naming age of sheep in Canada is one-shear, two-shear, three-shear and so on.

**Shrinkage**

The loss in weight due to scouring, expressed as a percentage.

**Skirtings**

The inferior and heavy shrinking portions of a fleece that are removed after it is shorn to improve the quality of the clip. Commonly practiced in Australia.

**Spinning count**

English system of wool grading based on the number of hanks of yarn obtained from 450 g of clean wool. One hank is 512 m long.

**Stained wool**

Wool that has been stained mainly by urine. As a result, it cannot be scoured completely white and is subject to a price discount.

**Staple wool**

Means the same as “combing wool” – minimum length of 5 cm. See “clothing wool.” Also refers to a bundle of wool fibres that cling together naturally in the fleece.

**Strawy**

Wool containing straw.

**Suint**

A hygroscopic mixture of the potassium salts of organic acids, such as oleic and stearic acids, and inorganic salts such as the carbonates, chlorides, phosphates and sulfates of calcium, sodium, potassium and magnesium. It is an excretion of sweat glands.

**Tags**

Heavy manure-covered locks of wool.

**Tare**

Weight of wool sacks deducted before settlement is made for the wool.

**Tender wool**

Wool that is weak and breaks easily. Tender wool is caused by either poor nutrition or sickness.

**Virgin wool**

Wool that is used in fabrics for the first time in contrast with wool that has been reclaimed from previously made materials.

**Wasty wool**

Wool that will lose much in manufacturing because it is weak, short or tangled.

**Wool grease or fat**

A greasy material, produced by the fat glands in the sheep's skin, that coats the wool fibres. "Wool grease" and "suint" combined are known as "yolk."

**Woolens**

Fabrics made from uncombed wool.

**Worsteds**

Any of various closely woven fabrics made from worsted yarns that were made from combed wool.

**Yield**

The percentage of clean wool after scouring: 100 minus shrinkage (percentage) equals yield (percentage).

**Yolk**

The natural secretions of sheep's skin, i.e., "suint" and "wool" grease combined.

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## Conversion factors

<b>Metric units</b>	<b>Approximate conversion factors</b>	<b>Results in</b>
<b>Linear</b>		
millimetre (mm)	x 0.04	inch
centimetre (cm)	x 0.39	inch
metre (m)	x 3.28	feet
kilometre (km)	x 0.62	mile
<b>Area</b>		
square centimetre (cm <sup>2</sup> )	x 0.15	square inch
square metre (m <sup>2</sup> )	x 1.2	square yard
square kilometre (km <sup>2</sup> )	x 0.39	square mile
hectare (ha)	x 2.5	acres
<b>Volume</b>		
cubic centimetre (cm <sup>3</sup> )	x 0.06	cubic inch
cubic metre (m <sup>3</sup> )	x 35.3 x 1.31	cubic feet cubic yard
<b>Capacity</b>		
litre (L)	x 0.035	cubic feet
hectolitre (hL)	x 22 x 2.5	gallons bushels
<b>Weight</b>		
gram (g)	x 0.04	ounces avdp
kilogram (kg)	x 2.2	pounds avdp
tonne (t)	x 1.1	short ton
<b>Agricultural</b>		
litres/hectare (L/ha)	x 0.089 x 0.357 x 0.71	gallons/acre quarts/acre pints/acre
millilitres/hectare (mL/ha)	x 0.014	fluid ounces/acre
tonnes/hectare (t/ha)	x 0.45	tons/acre
kilograms/hectare (kg/ha)	x 0.89	pounds/acre
grams/hectare (g/ha)	x 0.014	ounces avdp/acre
plants/hectare (plants/ha)	x 0.405	plants/acre



**Canadian Co-operative  
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**CSF•FCM**

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