Samples may be taken from individual animals to run objective measurements. Fig. 3 shows the correct area to take sample. Each sample should be 2" square in area to provide adequate test material.

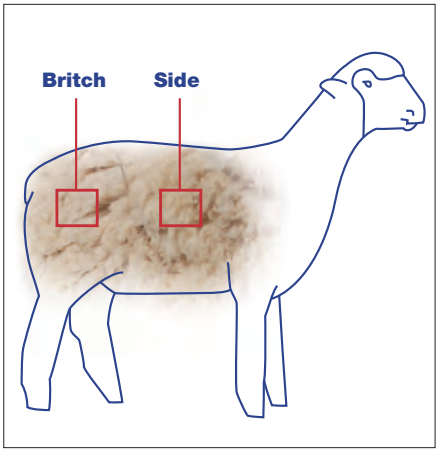
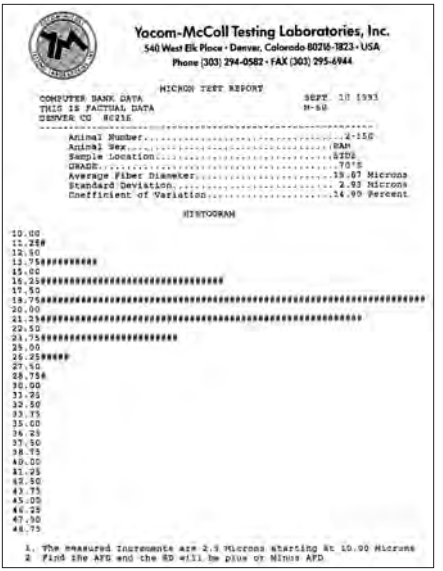


Fig. 3. Side and britch sample sites



Yocom-McColl Testing Laboratories, Inc.
540 West Elk Place • Denver, Colorado 80216-1823 • USA
Phone (303) 294-0582 • FAX (303) 295-6944

MICRON TEST REPORT

COMPUTER BANK DATA — SEPT. 10 1993
THIS IS FACTUAL DATA — M-50
DENVER CO 80216

Animal Number	X-150
Animal Sex	RAM
Sample Location	SIDE
GRADE	70'S
Average Fiber Diameter	19.07 Microns
Standard Deviation	2.93 Microns
Coefficient of Variation	14.99 Percent

HISTOGRAM

```
10.00
11.25#
12.50
13.75#########
15.00
16.25#################################
17.50
18.75##################################################################
20.00
21.25#########################################################
22.50
23.75#########################
25.00
26.25######
27.50
28.75#
30.00
31.25
32.50
33.75
35.00
36.25
37.50
38.75
40.00
41.25
42.50
43.75
45.00
46.25
47.50
48.75
```

1. The measured increments are 2.5 Microns starting at 10.00 Microns
2. Find the AFD and the SD will be plus or Minus AFD

Fig. 4. Individual animal micron test report

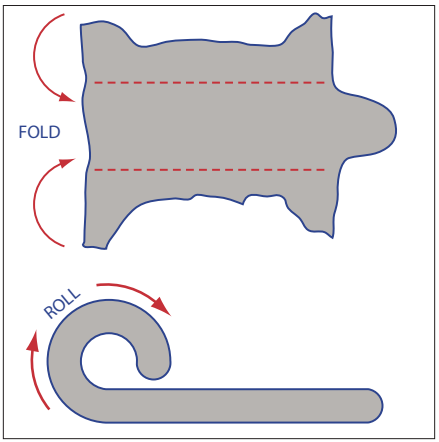
Harvesting the wool

Code of practice for wool preparation

To enable Canadian wool growers to achieve better wool preparation and higher financial returns the following are the recommended guidelines:

1. All sheep need to be emptied out before shearing. I.e., no feed or water to be administered to the sheep for a minimum of 12 hours prior to shearing. By carrying out this practice, the sheep's stomach and bladder will be empty and therefore the wool does not become contaminated with dung and urine. The sheep will also sit better for shearing as they do not struggle the same, which enables the shearing process to be easier for both the shearer and the sheep. Never shear wet wool or pack wet wool.
2. The belly wool needs to be kept completely separate from the fleece wool. The shearer should remove and throw the belly aside as the sheep is being shorn. Belly wool is to be packed separately.
3. All short, stained wool and tags need to be removed from the crutch area as the sheep is being shorn. This wool is kept completely separate from all other types of wool and packed separately.

4. All fleeces should be thrown onto a wool table to enable the skirting of the fleeces to be performed in a proficient manner. Chaffy or bury wool should be skirted from the fleece and packed separately.
5. The shearing board should be swept and kept clean between sheep as well as during the shearing of the sheep.
6. All fleeces should be shaken to remove any second cuts before rolling and pressing the fleeces.
7. When pressing the wool, all the different categories of wool are to be pressed separately. There should be no mixing of the different wool types during shearing, but when pressing at the end of shearing the different types of wool can be put into one bag. However, they need to be separated by sheets of newspaper.
8. All bags are to be sewn with cotton twine. Please do not use baling twine, wire, electric fence wire or polyprop twine to sew the wool bags.
9. All bags need to be identified as to their contents.
10. Where possible during shearing, the level of straw needs to be kept to a minimum and away from the shearing area to minimize contamination.
11. Coloured sheep are to be separated and shorn last so as not to contaminate the white wool with coloured fibres.
12. Fleece preparation incentives of up to 5¢/lb is applicable for bright, high-yielding fleeces that have been properly skirted and packaged (see Fig. 5).
13. Maintaining a clean shearing board and floor is an important and continuous process. It must be done before, during and after shearing to ensure a quality clip.



- Spread skirted fleece on skirting table or clean wool handling area, flesh side down.
- Fold fleece into thirds.
- Roll fleece from rear of animal to front.
- Roll fleece flesh side out.

Fig. 5. Rolling the fleece (all wools)

Time of shearing

Years ago, most sheep in Western Canada were kept on the open ranges almost year-round, and it was the practice to shear them once a year. Shearing time was before the arrival of warm weather and after the danger of late spring storms to avoid the risk of heavy death losses. Nowadays, **most sheep in Canada are located on farms where adequate shelter and housing are available, and shearing can be done any time.** However, sheep with long fleece tend to become itchy in warm weather and this causes them to rub. If they roll on their backs and are unable to get up, death may result. Thus, the most suitable time for shearing is fall, winter or spring. The most critical factors in determining the time of shearing are the availability of shearers and the time of lambing.

Crutching

Sheep are crutched before lambing, if they are to be sheared after lambing. However, if the sheep are sheared about 4-6 weeks before lambing, the need for crutching is eliminated. Crutching involves the removal of wool from the udder, the belly area immediately in front of the udder, and between the hind legs up to the tail.

Crutching or shearing before lambing has advantages:

- Reduced danger of infection of the ewe at lambing. If difficulty occurs during lambing, assistance may be rendered much more easily.
- Reduced losses caused by bacterial infection of the digestive tract in newborn lambs sucking on sweat locks or dung tags, instead of on the teats.
- Minimized lamb losses from wool balls causing blockage in the digestive tract.
- Reduced eye soreness in nursing lambs.

Fundamentals of good shearing

Sheep producers with large flocks usually hire experienced professional sheep shearers. However, in small flocks, shearing is often done by the owner or by a neighbour who has acquired a certain amount of skill through practice. Skilled operators are essential because good shearing requires that a sheep be handled carefully and not be injured while the wool is being removed. If the shearer is experienced, the sheep will not struggle while being shorn. An unskilled shearer will have considerable difficulty in preventing the animal from struggling.

Tips for working with a custom shearer:

- Book well in advance
- Have sheep crutched beforehand
- Pen sheep close 12 hours prior to shearing with no feed or water

- Prepare a clean, well-lighted area with access to an electrical outlet
- Provide plenty of head room
- Have catch pen near the shearing area
- Have extra help for filling the catch pen and preparing the fleece for market

Tips for novice shearers:

- Get qualified instruction
- Shear only dry sheep on a clean, dry surface
- Shear belly wool first and pack separately
- Shear coloured sheep last and pack this wool separately
- Do not shear black face or leg fibres
- Avoid second cuts on the wool wherever possible

There should be no second cuts or short pieces of wool produced by cutting the staple twice. Second cuts reduce the length of fibre and, consequently, its economic value. Also, it is desirable that the fleece be removed in one piece so that it can be properly folded and rolled for market.

Great care must be exercised in shearing the udders, particularly of yearling ewes; it is very easy to cut off the end of a teat and permanently damage that portion of the udder. If a sheep is seriously cut with the shears, the wound should be treated with a disinfectant and, if necessary, sewn.

Methods of shearing

Several decades ago, hand shearing was the only method available to the producer. Power shearing is today's method. It is faster than hand shearing and is easier on the sheep because it is handled for a shorter time. With trained shearers using power shears, the wool is removed with a minimum number of second cuts, thus increasing the value of the wool clips. The danger of injury caused by power shears is no greater than that caused by hand shears; sheep may be cut seriously by either method if the operators are inexperienced or careless.

Researching new techniques

For the past several years, research has been continuing around the world to develop a method of shearing by injecting chemical compounds into the sheep. The chemical compounds would cause, first of all, breaks in the fibre and then, a few days later, the whole fleece to peel off. Such a technique might he useful to small flock operators because they would not then have to either shear the sheep themselves or hire professional shearers. However, this method could create health and reproductive problems to the animals and make the carcasses

unsafe for human consumption. Also, as shown in experiments, some chemicals do not form the breaks uniformly over the whole body within a period of time, thus causing an easy removal at some locations and difficult or no removal at other locations. It is hoped that a reliable and safe technique will soon be developed.

Shearing sheds

Where large flocks are kept, it is often desirable to have a separate, permanent shearing shed. However, any building that has a waterproof roof can he used. The lambing shed is usually the most suitable building available for shearing and is one that can be converted readily for this purpose. **Provision should be made within the shed for large pens to hold the sheep before shearing, a catch pen for each shearer, a smooth board shearing floor, and space for sacking and storing wool.** Slatted floors are desirable in the holding pens to keep the wool as clean as possible. Through the use of these slatted floors, the sheep are raised off the ground and, as a result, have no opportunity of coming in contact with litter or manure.

Preparation for sheep shearing

- Aim for a stress-free shearing day
- Be prepared
- Have an efficient set-up

Shearing facility goals:

1. Delivery of sheep to shearer with minimal effort for handler, sheep and shearer
2. Removal and preparation of wool with minimal effort – clean and careful fleece preparation
3. Skirting table and wool packer conveniently located

Shearing facility tips:

- A dry place – pens, shear floor, wool handling and storage area, all free of drips, leaks, excessive dampness
- Facilities do not need to be permanent – but arrange before shearer arrives
- Get ready the day before shearing
    - Put up temporary lighting in the shearing and wool handling areas
    - Shearing floor should be level to stand on
    - Provide for ventilation
    - Have good wiring to clipper outlet

- Sheep will be reluctant to move toward noise of shearing machine
  - In chute, use a stanchioned "decoy" sheep
  - If possible, have helper for moving sheep so shearer and wool handler can work without interruption
- Catch pens should hold 12-20 ewes (15 ideal)

Examples of layouts for shearing facilities

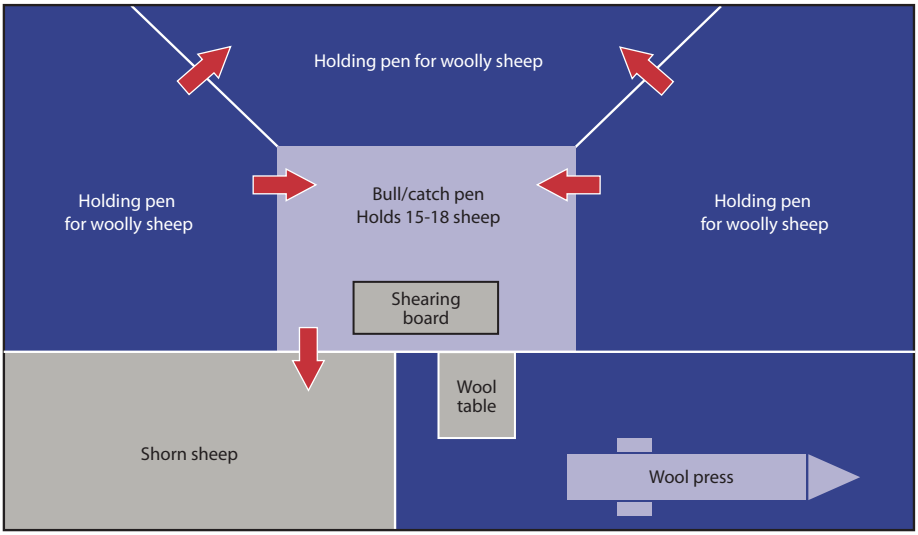


Fig. 6. Shearing board in "bull pen." Sheep are close to shearer for quick catching.

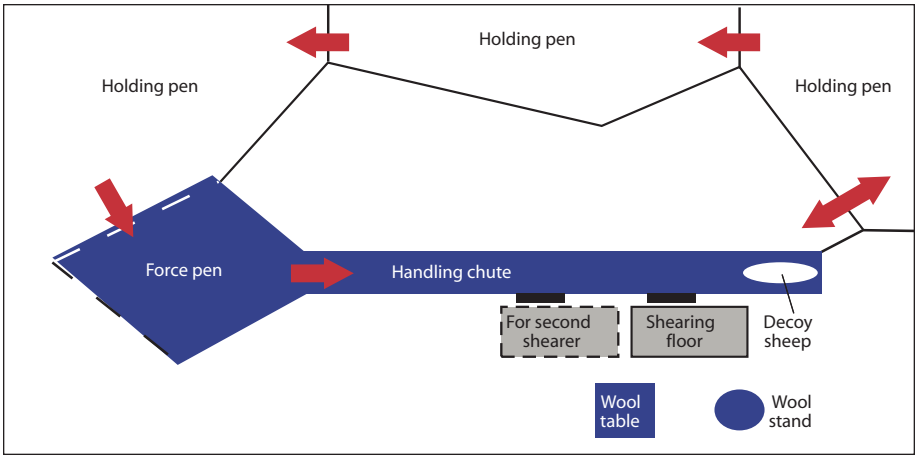


Fig. 7. Portable shearing chute – useful in larger (> 50 sheep) flocks. It is best to have a helper to keep chute full of unshorn sheep.

Preparation of wool for market

It must be kept in mind that the manufacturer makes use of the wool only, and not of the foreign material present in the fleece.

The manufacturer buys fleece wool on the basis of its clean wool content and with the exception of lanolin, everything else is waste material. Consequently, it is in the interest of the wool producer to keep waste material to a minimum by all possible, practical means. Careful preparation of the fleeces will result in higher returns from the wool.

Skirting

The ideal procedure is as follows: Spread the fleece skin side down on a slatted or wire-topped table (see Fig. 8 and 9). Remove all manure tags and stained pieces and pack them separately. Never roll damp tags inside the fleece because they cause discoloration of any wool with which they come in contact. Separate the face and leg pieces from the fleece. Much more emphasis is required on the removal of these parts of the fleece when sheep have not been crutched. In the black-faced breeds, the face and leg areas usually contain black or grey fibres that are particularly objectionable to the manufacturer because they cannot be used in white or pastel-coloured goods. Burry, chaffy or straw portions should also be removed and packed separately.

Fig. 8.

Fig. 9.

Fig. 10.

Fig. 11.

Fig. 12.

Fig. 13.

Fig. 10-13. Preparing the wool for market. After the fleece has been spread skin side down on a slatted or wire-topped table and the low-grade wool removed, one side of the fleece is folded in one-third of the way, then the other side is folded in to cover the first fold. The fleece is then rolled tightly from breech to shoulder.

Folding and rolling

When the low-grade wool has been removed, the most valuable portion is now ready to be folded and rolled. Fold in one side of the fleece one-third of the way and then fold in the other side to cover the first fold. Roll the fleece tightly from breech to shoulder to expose the best portion for inspection when graded (See Fig. 10-13).

Packaging

Black or brown fleeces should be kept separate, as should the tags and skirtings from such fleeces. When the fleeces have been folded and rolled, they are ready for packing in large jute wool bags to permit the wool to breathe. A handful of wool tied in each bottom corner will facilitate handling of the bags when they are filled. Mount each bag on a sacking stand, with the upper end supported by a ring that holds it open (See Fig. 14). **Place the fleeces in the bag and tramp them in firmly. Tight packing permits maximum loading of shipping containers and facilitates handling.** When the bag is full, release it from the ring and sew it with bag needle and cotton twine. One bag will hold approximately 30 fleeces and when filled will weigh between 110-160 kg. Storing the packed wool is an important consideration if it is not shipped to market immediately. Although wool can be held in storage for relatively long periods of time (if kept dry and protected from insects), it tends to deteriorate or lose its life after about two years of storage.

Fig. 14. For filling, the wool bag should be suspended on a sacking frame and the fleeces tramped in as tightly as possible. This permits maximum loading of shipping containers. Note the "ears" at the corners of each bag to facilitate handling.

Another wool packaging option available to producers is high-density polyethylene square packs. The Canadian Co-operative Wool Growers Limited (CCWG) has a lot of information available on wool preparation and building plans for equipment on their website www.wool.ca.

Fig. 15. Horizontal wool press

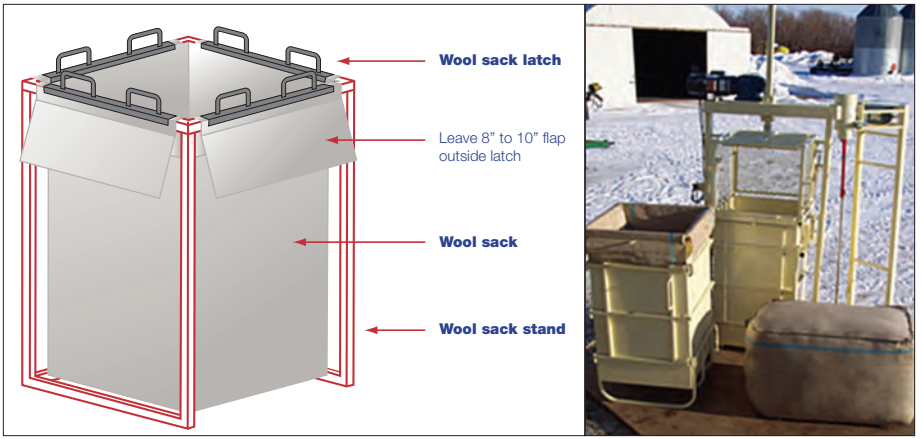


Fig. 16. Electric wool baler

Wool branding of sheep

Where branding is necessary, the sheep should be moved to holding pens as soon as they are shorn and marked with the owner's brand for identification. It is essential the sheep be branded with a material that will not only keep the brand clearly legible for at least one year, but will also scour out in the processing of the wool by the manufacturers. Considerable damage to both machinery and materials can result from the use of an insoluble paint. Such damage increases the cost of manufacture and reduces the price paid by the manufacturer for wool.