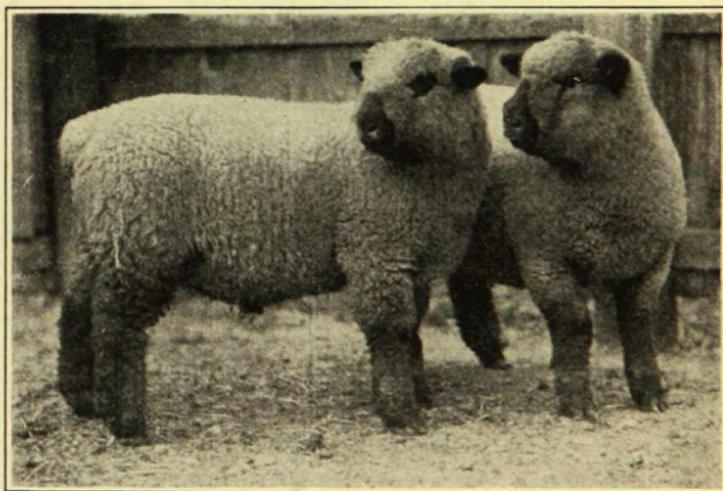


PRODUCTION AND FEEDING OF LAMBS

(For Colorado Sheep Club Members)



Typy, thrifty, growthy lambs, the foundation of a good flock.

COLORADO AGRICULTURAL COLLEGE

EXTENSION SERVICE

F. A. ANDERSON, DIRECTOR

FORT COLLINS

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Foreword

This bulletin has been especially prepared for Colorado 4-H sheep club members. It deals with the common problems of selection, care, management and feeding of the breeding flock and market lambs.

Acknowledgment is given to Dr. C. I. Bray for the many extracts taken from Colorado bulletin No. 304, "Sheep Production in Colorado."

PRODUCTION AND FEEDING OF LAMBS

By L. H. ROCHFORD and E. J. MAYNARD

What Breed to Select

There are many good breeds of sheep and no one best breed. When you select the ewes for your club project, choose from the breed that you like and the breed that seems best adapted to your farm and community. It is usually desirable to select a breed that is popular in your community. Such a plan is an advantage in selling, buying or trading breeding stock.

Classes of Sheep

Sheep are sometimes classed into three groups. Because of the growing popularity of two new breeds, we will show four groups that should give you a general understanding of the various breeds.

Group I. Fine-wooled Breeds—Rambouillet, Merino, Delaine.—This group produces fine, dense, uniform fleeces, heavy in grease. They are very popular on the range because of the excellent quality of wool and inherent herding instinct.

The Rambouillet is the most popular range sheep in Colorado. In fact, most range flocks are of Rambouillet foundation. The popular Rambouillet today is one that is smooth bodied except for folds on the neck. It is a sheep of excellent mutton type, has a deep body, heavy bone, and well-developed back, loin and leg of mutton. Its dense, heavy fleece does not tear out badly in the brush. Having the herding instinct characteristic of this group, the Rambouillet is easier handled on the rough mountain ranges. Rambouillet lambs will take a good finish in the feedlot.

The Merinos are not so popular in Colorado but are very popular in some sections of the United States. The Spanish Merino is the foundation stock from which the Rambouillet was developed. The American Merinos are divided into the following three types:

A Type—Heavily wrinkled over the entire body.

B Type—Wrinkled on the neck and legs but free from wrinkles on the body.

C Type—Practically free from wrinkles except for a fold or "apron" on the neck. This type corresponds closely to the Rambouillet.

The Delaines of the Merino group, vary from the B and C type to smooth bodied.

Group II. Medium-wooled or "Down" Breeds—Hampshires, Shropshires, Southdowns, Oxfords, Dorsets, Suffolks.—These are designated as the mutton breeds and are very popular for farm flocks. This group produces what is known as medium wool, not so dense and

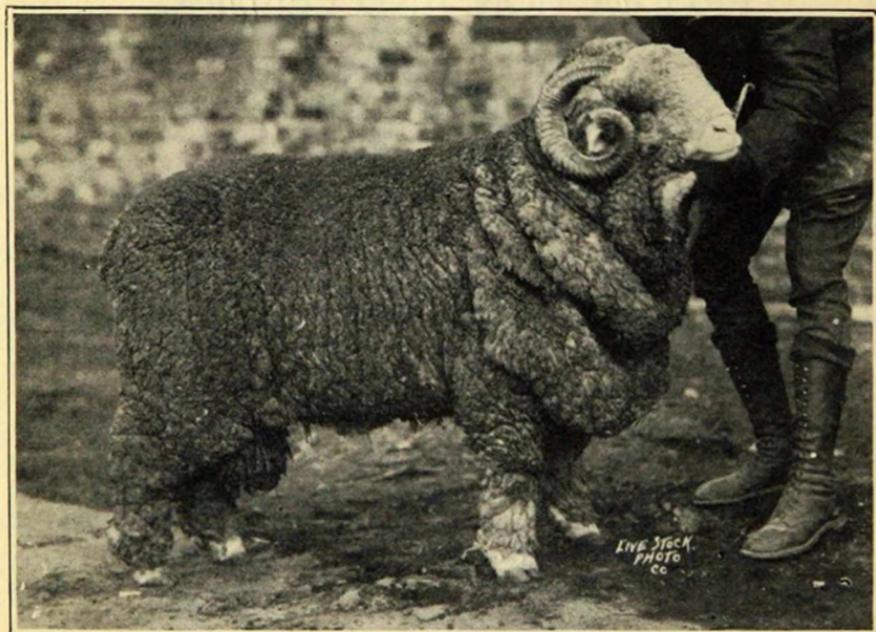


Fig. 1.—Champion Rambouillet ram, International Livestock Exposition, Chicago, 1927.

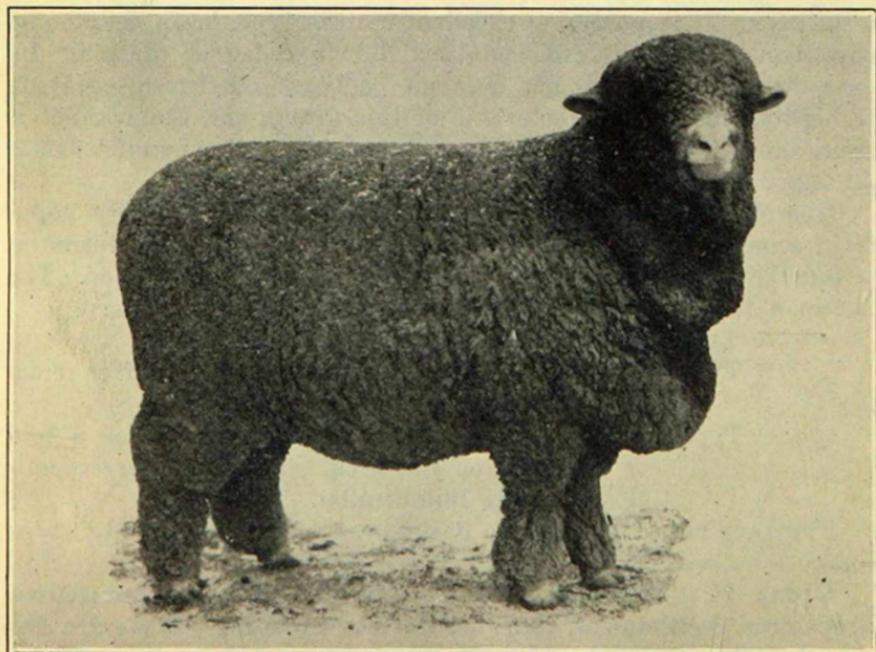


Fig. 2.—Champion Rambouillet ewe, International Livestock Exposition, Chicago, 1928.

uniform as the wool from the breeds in Group I. Most of the sheep in this group have black or gray faces with similar markings on the legs below the knees.

Hampshires are the most popular farm-flock sheep in Colorado. They have excellent mutton type, are blocky, wide and deep. Hampshires are prolific and the lambs grow very rapidly. This is an advantage in the production of early market lambs. The ewes weigh from 150 to 225 pounds and the rams from 225 to 300 pounds. The Hampshire has a large head with black nose, legs, and rather long, drooping, black ears. The breed is also very popular for crossing on range sheep. Hampshire rams have the ability to stamp quality and improved mutton form on their lambs. Straight bred Hampshires are not popular as range sheep because they do not herd together as do the Rambouillets, nor do they produce as heavy or as valuable a fleece as the fine-wooled breeds or crossbreds.

Shropshires are very good mutton-type sheep. They are not quite as large as the Hampshires, but are very compact and blocky. Shropshires are distinguished by a dark brown nose, brown legs and small, round, upright ears. They are fleeced well over the face and legs. They are sometimes crossed on leggy, open-wool range sheep. Such a

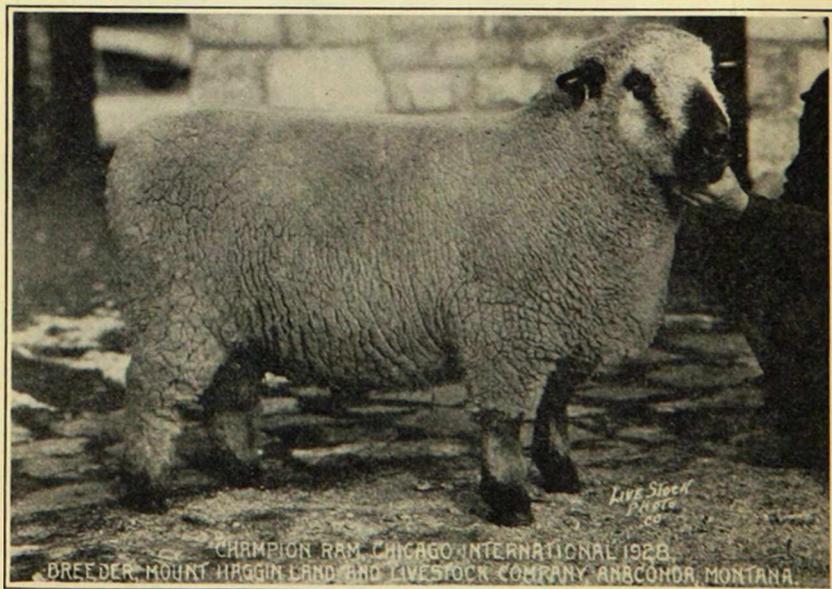


Fig. 3.—Champion Hampshire ram, International Livestock Show, Chicago, 1928.

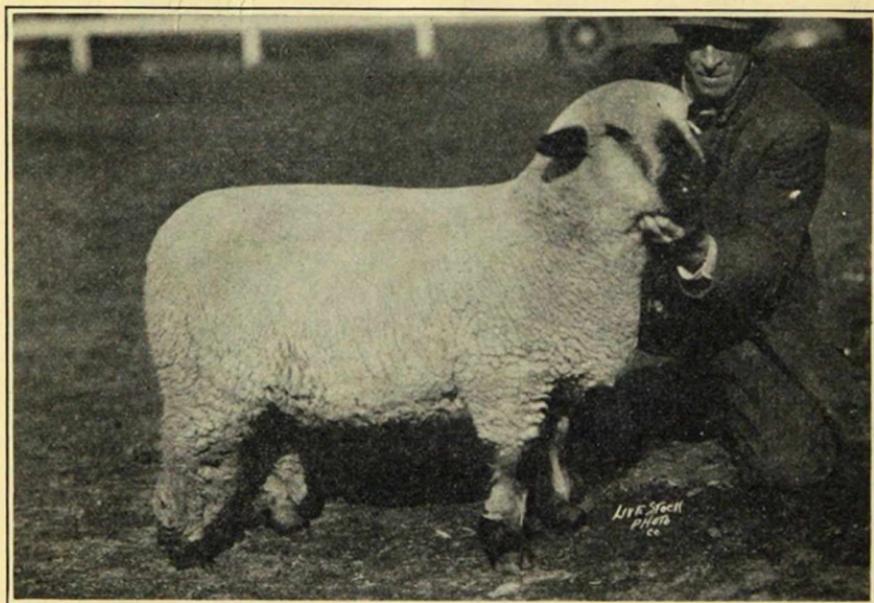


Fig. 4.—Champion Hampshire ewe lamb, International Livestock Show, Chicago, 1927.



Fig. 5.—Champion Shropshire ram, National Western Stock Show, Denver, 1928.

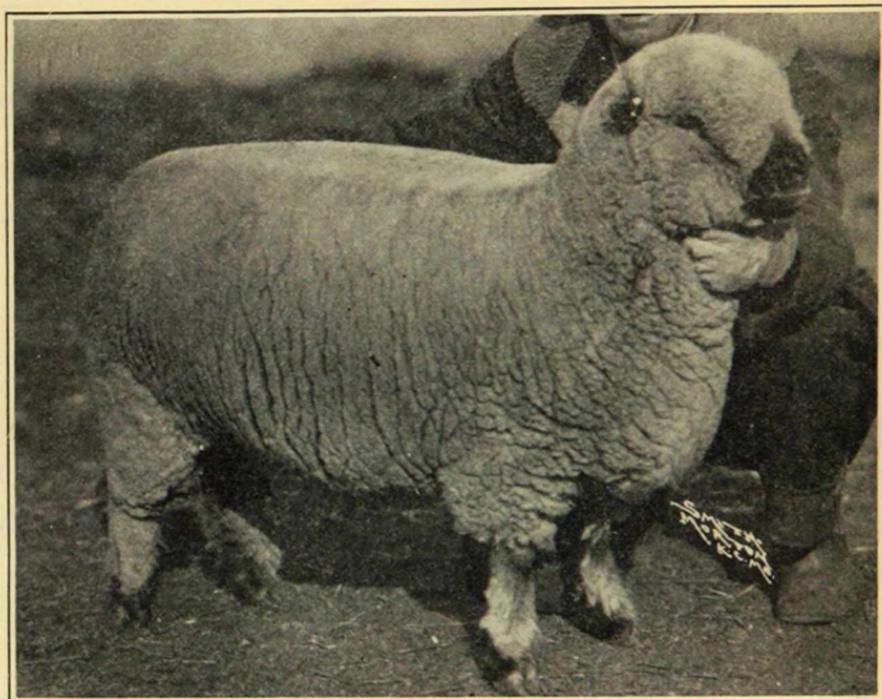


Fig. 6.—Champion Shropshire ewe, National Western Stock Show, Denver, 1928.

cross produces excellent feeder lambs of smooth bodies. The ewes weigh 100 to 150 pounds and the rams from 200 to 250 pounds.

Southdowns are probably the most ideal mutton-type sheep. They are fattened very easily, and are especially blocky and compact. Their carcasses are noted for high dressing percentages. The Southdowns are not as large as the Shropshires. They have brown faces and legs and are not woolled as heavily on the legs as the Shropshires. Southdown ewes weigh 130 to 150 pounds and rams from 135 to 225 pounds.

Oxfords are large mutton-type sheep with heavy, open fleeces, somewhat coarser than the Hampshire and Shropshire wool. They have brown faces and legs. The ewes weigh 180 to 225 pounds and the rams from 275 to 300 pounds.

The Dorsets are a little heavier and more rangy than the Shropshires. They have white faces and horns, will raise lambs at any season of the year and for this reason are popular for producing winter market lambs.

The Suffolks resemble the Hampshires but have more black on the face and legs.

Group III. Long-wooled Breeds—Lincolns, Cotswolds, Romney Marshes, Leicesters.—The sheep in these breeds are large and some-

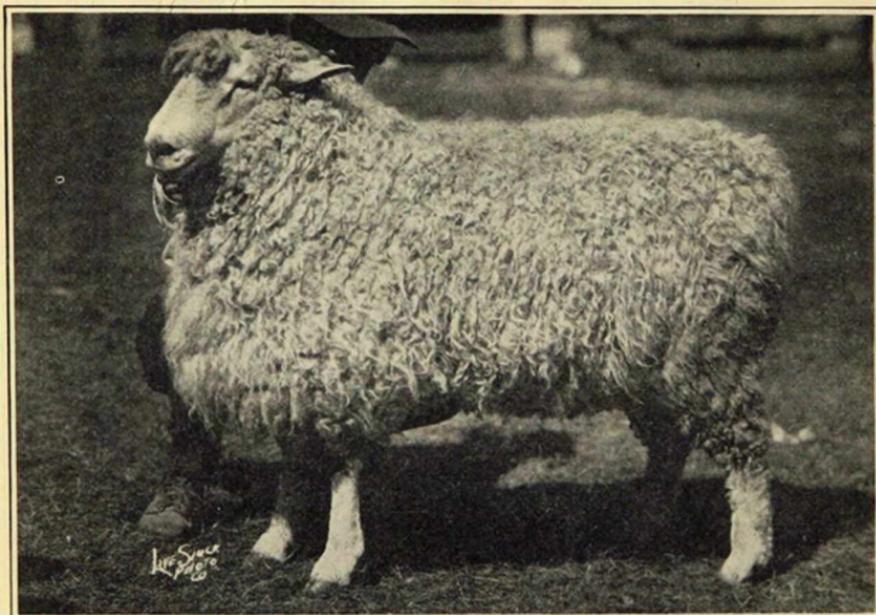


Fig. 7.—Champion Lincoln ram, International Livestock Show, Chicago, 1928.

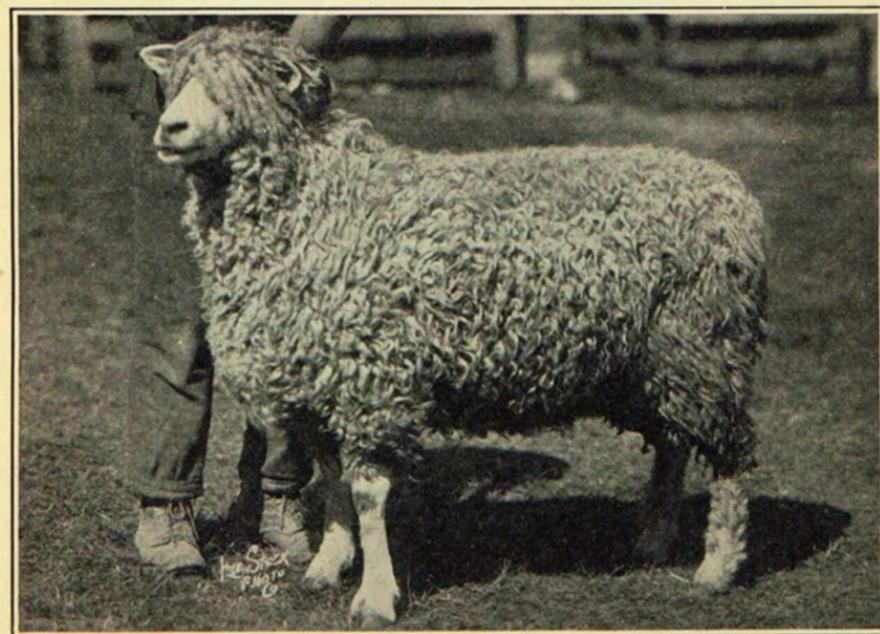


Fig. 8.—Champion Lincoln ewe, International Livestock Show, Chicago, 1928.

what rangy. They produce wool of long fibre, coarse, and sometimes rather hairlike in appearance. The long-wooled breeds are popular farm sheep and the Lincoln, Romney Marsh and Cotswold are used to cross on range stock.

The Lincolns are the best known of the group in Colorado. They are used on range stock of dense fleeces to increase the length of fibre. Lincolns are known to be excellent mothers and to lamb easily. The ewes weigh from 225 to 250 pounds and the rams from 300 to 325 pounds.

The Romney Marsh is a large breed used to cross on range stock. The wool is finer and thicker than the Lincoln but does not have as much luster.

The Cotswold is another large breed used to cross on range stock. The wool is finer and softer than the Lincoln but lacks luster.

The Leicester and Cheviot are other good breeds of sheep but are not well known in Colorado.

Group IV. Newer Breeds—Corriedales and Columbias.—The Corriedale is a breed developed in New Zealand as the result of crossing Lincoln rams on Merino ewes. They have been produced in the United States only since 1914. However, the Corriedales have grown in popularity all over the West. They are now an important range sheep in Colorado. The Corriedales produce a long, bright wool from a fleece of good weight. They are used extensively to cross on dense-

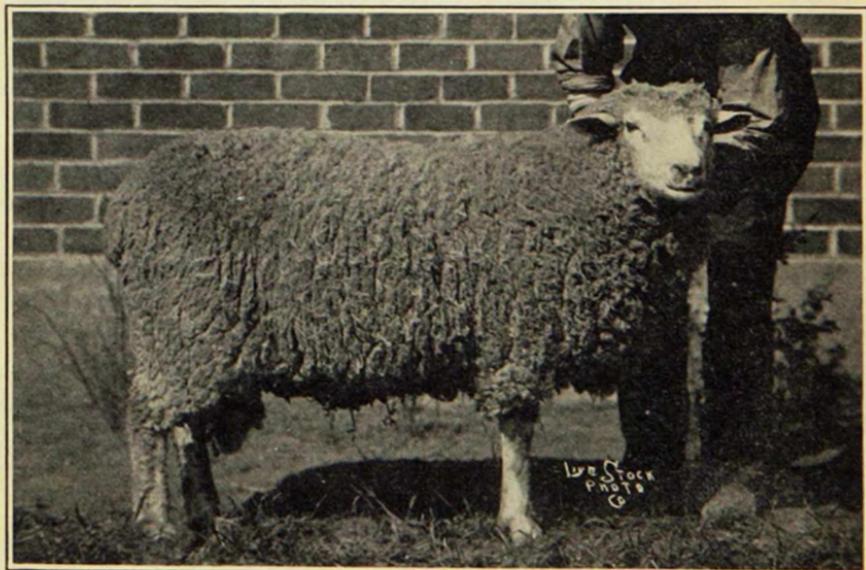


Fig. 9.—Typical Corriedale ram.



Fig. 10.—Typical Corriedale ewe.

wooled Rambouillets. The Corriedales are good mutton-type sheep and early maturing. Corriedale ewes weigh from 150 to 175 pounds and the rams from 225 to 275 pounds.

The Columbia is a breed developed from a Lincoln-Rambouillet cross at the United States Sheep Experiment Station, Dubois, Idaho. They are somewhat similar to the Corriedales, but have not yet become well known in this state.

Selection of Club Ewes

When Starting With Purebreds.—To start with purebreds you need considerable knowledge and judgment of sheep. For this reason ask an experienced breeder or your county agent to help you in selecting your ewes. Special attention should be given to the following points:

1. Type—Learn the characteristics of the breed you select; size, body markings and grade of wool desired for this breed.
2. Conformation—With all the breeds look for depth, width and balance of body. The mutton breeds should have exceptional width, depth, blockiness and compactness. A breeding ewe must have well-sprung ribs, straight top line, and a long level rump.
3. Size is important. Always select a well-developed animal.
4. Quality is indicated by general refinement. The ewe should

have a strong yet feminine head showing breed and sex characters.

5. Constitution and capacity are very important. If you select a ewe with the right conformation, that is one with width, depth, blockiness and a well-sprung rib, you will have a ewe with a strong constitution and plenty of capacity. Other points to notice are wide nose with not too long a head, and wide floor to the chest.

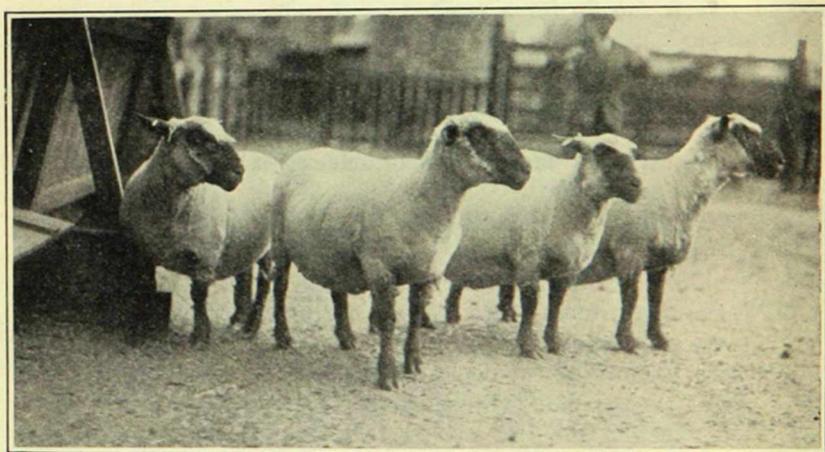


Fig. 11.—Purebred Hampshire ewes. They show breed type, good size, deep bodies, desirable quality, strong constitution and plenty of capacity.

Starting With Grades.—Many club members have started the foundation of a good flock by beginning with grade ewes. With such a plan there is the advantage of less investment than is necessary for purebreds. In a few years, after you have learned more about sheep, you can add some purebreds.

It is not expected that grades will at first show definite breed type like purebreds. However, good conformation, quality, constitution and capacity are just as important with grades as with purebreds. It is usually advisable to buy ewe lambs, yearlings or middle-aged ewes. By middle-aged ewes we mean those that are 3, 4 or 5 years old. Such ewes still have good teeth, are hardy, and really in their prime. Furthermore, young or middle-aged ewes are more apt to be free from parasites and diseases than old ewes.

Sometimes old ewes can be bought at a low price and are a good investment. It must be remembered, however, that old ewes require greater care than young ones. They have generally been culled from some other flocks because of broken mouths, light fleeces, bad udders,

or other undesirable qualities. With old ewes you can expect a lighter wool clip; there is greater danger of death loss, and more trouble from parasites.

Selection of the Ram

Since one ram may sire 50 to 100 lambs in a season, you can easily see the importance of having the right type of ram.

A purebred ram of the right type should always be used even if the ewes are grades. It is economy to pay considerably more for the good ram than you do for a ewe.

Points to consider:

1. The ram must be a true representative of his breed.
2. He must have plenty of size and be well developed for his age.
3. He must show masculine characteristics, but should not be coarse and rough.
4. The right-type ram is thick, low set, blocky, well fleshed, with a strong head, good bone, straight wide back, wide loin, and well-developed hind quarters.
5. A young, growthy ram will appear a trifle rangy. He must have considerable length if he is to develop into a big ram.
6. The fleece should be dense, uniform and of good length. Particularly see that the ram is well fleeced all over the belly. In selecting the fine-wooled ram, special attention is given to the quality and weight of fleece.

Telling the Age of Sheep

Lambs have small narrow teeth known as milk teeth. At about 12 months of age the 2 center teeth are replaced by 2 large, broad permanent teeth. At about 24 months of age, 2 more teeth appear, 1 on each side of the first pair. Another pair comes in at about 3 years of age, and the corner pair come in at about the end of the fourth year. The sheep is then said to have a full mouth. After a sheep is 4 years old, the age can only be estimated. The kind of feed and the type of soil over which the sheep graze determine largely the appearance of an aged sheep's mouth. Normally a sheep does not lose all its teeth until the eighth or ninth year, when they are called "gummers."

Age to Breed Ewes

As a general rule, it is better for ewes to lamb for the first time as 2-year-olds. Sometimes large, growthy ewe lambs are successfully bred to lamb as yearlings. Breeding ewes to lamb as yearlings may stunt their growth unless they are well developed.

Breed For Early Lambs

Early lambs dropped in February or March are desirable, if club

members are prepared to take care of them. For early lambs you must have shelter, and special attention will be necessary to keep the lambs growing until grass is available. Early produced lambs grown and fed right can be placed on a midsummer market weighing 75 to 85 pounds. Remember that early stunted lambs will have no more size in the fall than May lambs. You must give careful attention to their feed and shelter, especially, for the first 2 months after they are dropped, if you want to be successful with early lambs.

Ewes carry their lambs from 145 to 150 days. Breed in September for February lambs and October for March lambs. Shropshire ewes will not usually breed until the cooler fall weather. Hampshires, Rambouillets and Corriedales will usually breed at almost any season. Some ewes do not breed until they have weaned their lambs.

Number of Ewes to the Ram

In farm flocks 50 or more ewes can be bred to one ram if the ram is at least 1 year old, well developed, active and taken from the flock half of the time. In range flocks, the standard is 3 rams to each 100 ewes. Do not use ram lambs for breeding unless they are well developed. Where growthy ram lambs are used they should not serve more than 15 or 20 ewes.

Flushing the Ewes

Ewes should be gaining in weight just previous and during the breeding season. This is called flushing and results in more certain breeding and production of more twins. This does not mean that ewes should be fat at breeding season, but they should be on good feed and be in thrifty condition.

Marking Ewes

When you have several or a flock of ewes, they should be ear tagged. This will enable you to keep a record on each ewe, the lambs produced, and the ages.

Fall and Winter Care of Flock

Clean Up Fields.—During the fall months, your flock can secure good feed at low cost by cleaning up feed in fields that would otherwise go to waste. The sheep will make excellent use of stubble fields, cornfields, beanfields, peafields and alfalfa meadows. Furthermore, they will eat up many weeds. In most parts of Colorado sheep can be grazed in fields all fall until December with little extra feed. It is best to change the flock from one field to another so that they will have a variety of feeds.

Keep Flock Thrifty.—Be sure that your breeding ewes go thru the winter months in good thrifty condition. Sometimes flock own-

ers are fooled by the appearance of breeding sheep. Do not just look at your ewes and decide that they are carrying enough flesh. A heavy growth of wool may deceive you. Catch the ewes and feel the fleshing over the back and sides.

Watch your winter feeding. Careful feeding of the right kinds of feed during the winter helps to determine your lamb and wool crop.

What Shall You Feed?

Sheep can use a wide variety of feeds to advantage. Utilize the feeds that you raise at home; know what your sheep need, and feed accordingly.

Legume Hays.—Alfalfa, sweet clover, pea hay and bean straw are common roughages in this class. Legume hays are palatable, rich in protein and mineral matter. They are very valuable to the thriftiness of breeding sheep.

Alfalfa is an excellent winter sheep feed. If of good quality, ewes winter very well on alfalfa alone. Alfalfa hay may sometimes cause bloat if wet or damp.

Sweet clover, if cut early and well cured, is considered as good as alfalfa hay.

Pea hay, peafields, pea and oat hay all make excellent winter feed. Bean straw and pea straw are good roughages but are low in protein and need other feeds in addition.

Grass Hays and Fodders.—Many farms and ranches produce some of the following feeds: Timothy and prairie hay, cane hay, sudan hay, oat straw and oat hay, corn, kafir or milo fodder. These are all good feeds to be utilized by breeding sheep. They are not high in protein, and should be fed in combination with one of the legume hays or protein concentrates such as cottonseed meal or linseed meal.

Bearded straws and foxtail hay should not be fed to sheep. The awns get into the eyes and mouth and may cause trouble. Furthermore, the beards are objectionable in the wool.

Succulent feeds add variety to the ration and imitate summer conditions. They usually reduce the cost of wintering. They are especially valuable to be used a few weeks ahead of lambing and during lambing, to stimulate the milk flow of the ewes. Succulent feeds should not be fed alone but in combination with protein feeds. They are particularly valuable for old ewes.

Silage.—In experiments at the Colorado Agricultural College alfalfa and corn silage produced an average of 8 pounds increased gain on ewes over alfalfa alone, covering a period of 1 month before lambing, on to the end of the lambing season. Furthermore, the lambs produced in the silage lot weighed one-fourth to one-half pound more

at birth. Sunflower silage is considered 85 to 90 percent as valuable as corn silage for sheep. Cane and kafir silage compare favorably with corn silage. Roots, beets, mangels and potatoes are all good succulent feeds that can be fed where silage is not produced. The cheapest way to utilize roots is to let the sheep harvest them in the field.

Beet pulp is an excellent succulent feed for breeding sheep, especially old ewes.

Shall You Feed Grain?—The quality of the roughage, whether or not succulent feeds are available, prices of feeds, weather conditions, and the condition of the ewes must all help you to decide whether to feed grain to your breeding sheep. Experience of successful sheepmen and the work at the Colorado Agricultural College show that it usually pays to feed one-fourth to one-half pound of grain to breeding ewes for a few weeks ahead of lambing and during the lambing period. Feed the grain that you produce at home. Oats, barley, wheat, corn, field peas, kafir, milo and other common grains can be used successfully, especially, where a legume hay is the roughage. When the grass hays, fodder, or succulent feeds are fed, cotton cake is the best concentrate to add. Cotton cake is usually fed at the rate of one-fourth pound per head daily.

Some Desirable Winter Rations—For a 125-Pound Ewe

I.		II.	
Alfalfa	3 Lbs.	Alfalfa hay	2 Lbs.
Ground barley	½ Lb.	Silage	3 Lbs.
Dried beet pulp	½ Lb.	Corn chop	¼ Lb.
		Oil meal	2 Oz.
III.		IV.	
Sunflower silage	4 Lbs.	Prairie or oat hay	Free choice
Oat straw	Free choice	Dried beet pulp	¼ Lb.
Ground oats	¼ Lb.	Oil cake	¼ Lb.
Cottonseed meal	¼ Lb.		
V.		VI.	
Corn fodder or cane hay....	Free choice	Bean or pea straw	Free choice
Sweet clover hay	1 Lb.	Corn	½ Lb.
Ground oats or barley	½ Lb.	Oil cake	2 Oz.
Oil cake	2 Oz.		

Your Flock Needs Exercise.—Too often farm flock sheep are kept confined closely during the winter period. Especially when ewes are fat, it is necessary that they be out each day unless the weather is entirely too stormy. If snow should prevent grazing, the sheep should be out picking up hay, fodder or other rough feeds. Plenty of exercise tends to avoid digestive troubles, and keep breeding sheep in thrifty condition.

Supply Fresh Water and Salt.—You may have heard that sheep do not need water when there is snow on the ground. True, some

range bands get along all right without water when they are grazing over snow and are away from water. For a farm flock, however, you should have fresh water all the time. It is still better if the water is not ice cold. When water has the chill off, sheep will drink more and do better.

Always keep salt before your sheep.

Lambing Time

As a sheep club member you should realize that lambing time is the most important season of the year for the flock owner.

Points to Remember.—1. Have your ewes in good condition for lambing. This will be done by furnishing the right kind of feed to them previous to the lambing period.

2. Know when your ewes are due to lamb. Watch them carefully for indications.

3. Provide shelter and protection against wind, snow and rain. This means a shed that can be kept warm enough in cold weather to prevent lambs from chilling. The open type shed shown in Figure

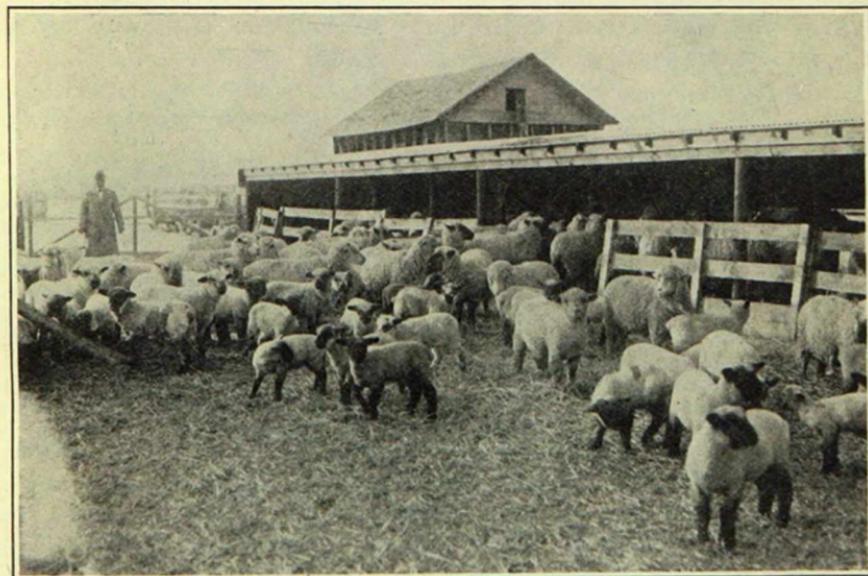


Fig. 12.—The open-type shed, inexpensive yet satisfactory. In cold or windy weather a canvas curtain can be drawn across the open side.

12 is satisfactory. A canvas curtain that can be drawn in cold weather should be supplied for the open side. At one end of the shed shown in the picture is a closed room where a small stove is located. Here new-born lambs dropped in extremely cold weather can be dried off and chilling prevented.

4. Do not allow your lambs to chill. A badly chilled lamb never has an even chance.

5. See that each lamb gets a feed of milk the first half hour. Clip wool from around the udder of the ewe if it is in the way of the lamb.

6. Convenient lambing pens can be made of panels 4 feet long and 3 feet high. Two panels are usually hinged together and furnished with hooks to fasten them to the wall of the shed or to other panels. When a ewe is ready to lamb she should be placed in a pen by herself and bedded down with clean straw. The ewe should be left in the pen until the lamb is claimed.

7. Sometimes a ewe fails to claim her own lamb. If so, try tying her to the side of the pen and see that the lamb sucks. After it has sucked several times, the ewe will usually claim the lamb.

When a ewe loses her lamb another one should be given her to raise. This may be an orphan, or a twin may be taken from some ewe that gives only enough milk for one. Since ewes recognize their lambs by smell, it may be necessary to try several methods to get a ewe to adopt a lamb not her own. First, try tying her to the side of the pen and rubbing a little of her own milk over the head of the lamb to be adopted. If this does not work, sometimes skinning the pelt from the dead lamb and tying it over the live one will be successful. Be patient and most ewes can be induced to adopt lambs other than their own.

Care and Feeding After Lambing.—Feed lightly for 2 or 3 days after lambing. Supply hay and plenty of fresh water. A little succulent feed is also desirable. After a few days a little heavier feed with approximately one-half pound of grain can be fed. Get the ewe and lamb out-of-doors unless the weather is stormy. They need the sunshine.

Feeding Lambs for Growth

Now that you have your lambs, keep them growing. For fastest growth lambs need some grain. They will usually start to eat from a trough when 10 days or 2 weeks old. Later it will probably be advisable to fix a creep for the lambs as shown in Figure 13. Cracked corn, crushed barley or oats, and a little bran are good growing lamb feeds. For growth, about one-fourth pound of grain per lamb daily will be sufficient. If you wish to crowd your lambs for an early summer market, after a few weeks of age they will take one-half pound of grain.

Care of Orphan Lambs

Many boys and girls have started into the sheep business with "bum" or orphan lambs. Then, too, a club member may have the mis-



Fig. 13.—Construct a lamb creep so that lambs can be fed separately from the flock.

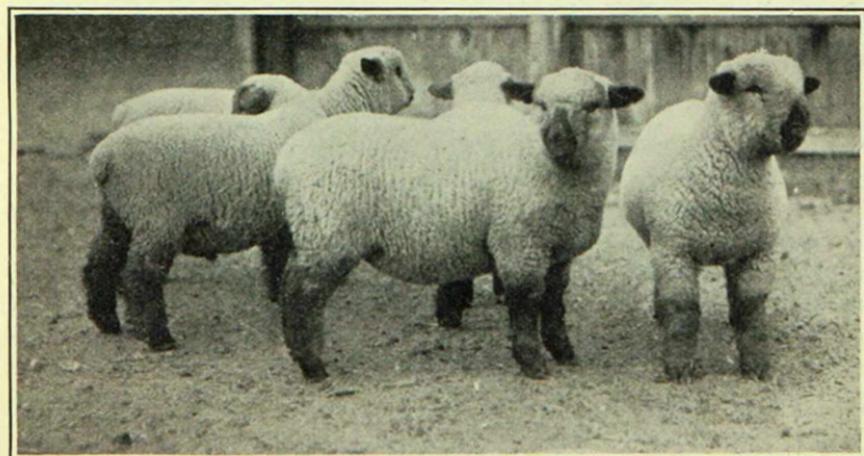


Fig. 14.—Well-developed Hampshire lambs. Do not stunt your lambs. Keep them growing rapidly.

fortune to lose a ewe or have one fail to claim her lamb. In any of these cases, you must know how to care for orphans. Dr. C. I. Bray, formerly of the Colorado Agricultural College, gives the following practical suggestions on the care of orphan lambs.

"In all cases try first to put the orphan on some ewe that has lost her lamb. Good cow's milk is the best feed. A little lime water in the milk will help to prevent indigestion. The following table will prove a guide to the right amounts to feed and the number of feeds daily for best results. Size of feed is given both in fluid ounces and pints, to suit whatever measure is handier.

Feeds for Orphan Lambs

Age	No. of Feeds Daily	Milk per feed (in ounces)	(in pints)	Pints of milk per day
1 to 6 days	6 to 8	1 to 2	1 to 10	$\frac{1}{2}$ to $\frac{3}{4}$
2d week	4	4 to 6	$\frac{1}{4}$ to $\frac{3}{8}$	1 to $1\frac{1}{2}$
3d week	4	6 to 8	$\frac{3}{8}$ to $\frac{1}{2}$	$1\frac{1}{2}$ to 2
4th week	4 to 3	9 to 12	$\frac{3}{4}$	2 to $2\frac{1}{2}$
6th week	3	16	1	3
8th week	3		$1\frac{1}{3}$	4

"A large (Hygiea type) nipple that will fit on an ordinary milk bottle can be used, with the opening enlarged with a small knife-blade. A swan-bill nipple can be put on an ordinary 8-ounce bottle or small nursing bottle. Bottles with the ounces marked on the sides are handy with which to measure.

"The lamb must be the final guide as to amounts. A 6-pound lamb and a 14-pound lamb will not take the same sized feed. The lamb will let the feeder know if it is not getting enough, but should not get all it will swallow at one time.

"Milk should be clean and sweet, fed at blood heat, and the utensils scalded daily. A handy way to warm a bottle of milk is to set the bottle in a pan of almost boiling water. Dip the bottle in quickly a few times till it gets well warmed, then let it stay till the water cools to near the right temperature. Milk can be fed fresh from the cow to good advantage. More than 6 feeds a day are rather inconvenient. Lambs soon learn to do with 3 or 4 feeds a day. In case of scouring, cut the amount of milk in half for a day, then gradually increase."

Castrate and Dock Lambs

Every lamb should be docked by the time it is 2 weeks old. The

operation is a simple one, with little danger of bleeding if performed when the lambs are young.

Every ram lamb that is not to be saved for breeding purposes should be castrated. In large flocks, docking and castrating are done at the same operation. For farm flocks of grade sheep both operations can as well be performed at one time. In purebred flocks, it is desirable to delay castration until a few weeks longer when ram lambs can be better selected. Do not save any grade lamb rams for breeding. There are plenty of good purebred rams on the market.

Reasons for Docking.—1. Docked lambs sell higher on the market.

2. They are neater, cleaner and more attractive.
3. The operation is not serious, if lambs are docked when young.

Reasons for Castrating.—1. Whether lambs sell higher on the market.

2. Wether lambs fatten better than ram lambs.
3. Wether lambs produce a higher quality of meat than ram lambs.

How to Dock and Castrate.—Select a bright clear day for the job. It is best to dock and castrate lambs in the morning so that they can be watched during the day.

Pen up the lambs and do not excite them during handling.

There are several kinds of tools used for castrating and docking. The simplest and most successful one is a good sharp knife. It can be used for both operations.

The operator should have an assistant to hold the lambs. The lambs should be held tightly against the body with the head up. Grasp the right front and rear legs in the right hand and the left front and rear legs in the left hand. This gives a good position for the operation. The operator's hands and the knife should be washed in a good antiseptic.

Castrating.—Wash off the scrotum of the lamb with the disinfectant. With the long blade of the knife, cut off the lower third of the scrotum at one stroke. With the thumb and forefinger of the left hand grasp the cord of the testicle nearest, close up to the body; then with the fingers of the right hand pull out the testicle, cutting the cord where held by the left hand, then take out the other testicle. It is well to apply disinfectant to the wound. If the weather is warm pine tar can be applied to repel flies.

Docking.—The docking can be done with the same knife that is used to castrate. Push back the skin of the tail. After the cut has been made the skin comes back into place and this aids early healing

of the wound. The tail is usually cut from the underside at the third joint. This leaves a dock of from one to one and one-fourth inches. Be sure you cut the tail at a joint. It will be easier, simpler and there will be less bleeding. Very little bleeding should result in docking young lambs. If there should be excessive bleeding a string can be tied around the end of the dock. This string should not be left on more than one day.

Provide Good Summer Pasture

Do not neglect your sheep thru the spring and summer or you will have small, undeveloped lambs in the fall. Ewes and their lambs



Fig. 15.—Colorado Agricultural college flock on Morton's pasture mixture. This pasture has been heavily grazed for seven seasons.

should, by all means, have good summer pasture, plenty of grass, shade, water and salt. When there is danger from dogs or coyotes, the sheep should be corralled within a dog proof fence at night.

Permanent Pastures.—In most irrigated sections of Colorado the Morton's pasture grass mixture does exceptionally well. It usually carries 10 to 15 head of ewes and their lambs per acre for the season. Many club members will also have good native meadows that supply excellent sheep pasture.

Sweet-clover Fields.—Supply good summer pasture for ewes and their lambs. There is very little danger from bloat on sweet clover.

Alfalfa fields have been pastured with success, especially in the spring, but there is always considerable danger of loss from bloat. If necessary to use alfalfa for pasture, the sheep should be turned on it early in the spring when the plants are small. Once started on the alfalfa, there is less danger by leaving the flock on the field all the time.

Orchards sometimes furnish good grass and shade. The sheep

will also help to keep down the weeds. When there is plenty of feed, the orchard is a good place for the sheep.

Grain creeps can be supplied for the lambs when fastest growth or fattening is desired.

Production and Care of the Wool

The way in which you feed and care for your ewes during the winter will determine largely the weight and quality of the fleeces that you shear.

A Few Points to Remember.—1. As stated before, you should avoid bearded straw as sheep feed, because the beards stick in the fleeces and lower their value.

2. Sheep that run out in the brush in the winter may lose considerable wool from their bellies and sides.

3. Keeping sheep constantly on good feed during the winter produces heavier fleeces of better quality. Poor feed or shortage of feed during a storm may cause a "break" in the wool.

4. Most Colorado farm flocks are shorn in April or May.

5. Most sheepmen prefer to "sweat" their sheep before shearing. This means crowding them together in a closed pen for a few hours before shearing. Such a practice brings out the yolk and gives life to the wool.

6. Provide a clean floor on which to shear. Nail cleat boards around the edge of the floor to prevent the wool from being kicked out in the dirt.

7. Small farm flocks are usually shorn with clippers or hand-power machines. Most range flocks in Colorado are shorn with motor-driven machines.

How to Shear.—Consult the bulletin in your club member's package entitled "Sheep Production in Colorado," see pages 34-37.

Preparing and Sacking Wool.—The following directions are given by George T. Willingmyre, Specialist in Marketing Wool, United States Department of Agriculture:

"Clip all tag-locks from each fleece and pack separately. Never permit them to remain in the fleece.

"Fleece should be prepared with the flesh side out, the weather side in.

"Fold, roll or use fleece box for tying up the fleece.

"Tie each fleece separately. Never tie two fleeces together or pack and market untied wool.

"Use only enough twine to tie the fleece securely.

"Paper or hard, glazed-surface twine should be used. Never use

sisal or binder twine. (The fibers get into the fleece and ruin any fabrics made from the wool.)

“Never permit the fleece to come into contact with chaff, hay, dust, or any other foreign material.

“Place the tied fleeces in regulation wool sacks or cover them with canvas or new burlap.

“Select a dry, clean place for storing the wool until sold. Never permit the wool to lie upon the ground or store it in a basement.

“Keep the white and black wool separate. Never permit any portion of black wool to be mixed through the white.

“Divide the burry, seedy, cotted, dead, black and gray fleeces from the clean, white well-grown wool, and pack separately. Never pack all grades together indiscriminately.”

Marketing Wool

As a club member, you will not expect to become an authority on wool. However, you should know something of the requirement of a desirable fleece and have a general knowledge of the various grades of market wool.

A desirable fleece is one that is uniform as to fineness, length and strength of fiber. When examining wool on the sheep's back, open the fleece at the shoulder, at the side, and on the leg of mutton. Many fleeces show fine over the shoulder but are coarse and hairy on the sides and the rear parts of the animal. This is objectionable.

Other desirable qualities of wool are luster and brightness. Wool with luster appears shiny. Luster is especially seen in the fleeces of the long-wooled breeds. The fleeces from the fine-wooled breeds show brightness but not so much luster.

Wool should be free from “kemp” or dead fibers. Black or gray fibers often found in fleeces from mutton breeds are objectionable.

Weak or “tender” wool is poorly grown wool with little strength of fiber. Sometimes the weakness is at one point and is known as “broken” wool. Weak wool may be caused by poor feeding, over feeding, sickness or any condition that affects the thriftiness of the sheep.

Burs, dirt or other foreign material in wool lower its value.

Branding sheep with linseed oil paint leaves an objectionable spot in the fleece. The stain from this paint does not scour out. When branding is practiced, soluble sheep branding paints should be used.

Market Grades of Wool.—The value of wool is determined mainly by the fineness and length of fiber.

According to fineness, wool in the United States is graded as

follows: Fine, half-blood, three-eighths blood, quarter-blood, low quarter-blood, common and braid.

According to length, it is graded strictly combing, French combing and clothing.

The requirements according to fineness and length as set forth by the United States Department of Agriculture are:

	Clothing	French Combing	Strictly Combing
Fine	Under 1¼ in.	1¼ in. to 2 in.	Over 2 in.
Half-blood	Under 1¼ in.	1¼ in. to 2¼ in.	Over 2¼ in.
Three-eighths	Under 1½ in.	1½ in. to 2½ in.	Over 2½ in.
Quarter	Under 1½ in.	1½ in. to 2¾ in.	Over 2¾ in.
Low Quarter	Under 2 in.	2 in. to 3 in.	Over 3 in.

(Example—This means that fine wool over 2 inches in length is classed as strictly combing.)

Outside the United States, other systems are used. The most common of these is the English system based on spinning count. For example, wool on the market scoured and ready for the manufacturer and graded as 60's, means that one pound of it will spin 60 hanks of yarn. There are 560 yards in one hank of yarn. Therefore, one pound of 60's would spin 60x560 or 33,600 yards of yarn.

It is well to know something of this system because the wool market is often quoted in terms of the English spinning count.

The present American comparative grading system set forth by the United States Department of Agriculture is as follows:

British System	American System
80's)	Fine
70's)	
64's)	
60's)	Half-blood
58's)	
56's	Three-eighths blood
50's)	Quarter-blood
48's)	
46's	Low quarter-blood
44's	Common
40's	Braid
36's	

The following list adopted from U. S. D. A. Bulletin No. 206

shows the general classification of wool produced from different breeds of sheep.

Merino (range states)	Fine	Combing and Clothing
Rambouillet	Fine with a small amount of half-blood	Combing and Clothing
Shropshire	Mainly three-eighths-blood	Combing and Clothing
Hampshire	Three-eighths and quarter-blood	Combing and Clothing
Oxford	Quarter and low quarter-blood	Combing
Columbia	Half-blood and three-eighths-blood	Combing
Corriedale	Half-blood and three-eighths-blood	Combing
Cotswold	Three-eighths-blood	Combing
Lincoln) Leicester)	Low quarter-blood or braid	Combing
Crossbred: Long Wool on Merino or Rambouillet	Half-blood, three-eighths-blood and quarter-blood	Combing
Crossbred: Shropshire or Hampshire on Merino or Rambouillet	Half-blood and three-eighths-blood	Combing and Clothing

Shrinkage of Wool.—In the process of scouring, wool shrinks from 50 to 70 percent with a usual variation of from 50 to 65 percent. You should know the approximate grade and shrinkage of your wool. The Colorado Agricultural College, thru the wool laboratory, is equipped to test samples of Colorado wools. For directions get in touch with Professor B. W. Fairbanks at the college.

Estimating Value of Wool.—Boston is the leading wool market of the United States. Supposing the market is quoted on a scoured wool basis at Boston; if you know the grade of your wool and about what it shrinks, you can estimate its value at the ranch.

For example; suppose the wool grades fine, strictly combing, and shrinks 60 percent. The market in Boston on such wool is quoted at \$1.05 clean or scoured basis. A pound of grease wool shrinking 60 percent would yield .4 of a pound of scoured wool. At \$1.05 per pound, it would be worth $\$1.05 \times .4$ or 42c per pound in the grease at Boston. It costs approximately 6c per pound for freight, insurance and commission to get the wool to the Boston market. Subtracting the 6c from 42c, the wool would be worth 36c at the ranch.

Preparation for Showing

Every sheep club member should have the experience of showing

sheep at the local, district or state fair. It is an experience that is worthwhile, and is part of the sheep club project.

All lambs should be grown for best development so that it is not usually practical for the club member to give special feed to a show pen until a few weeks ahead of the show. Select the most typy and best developed lambs for show.

If you are showing aged sheep, they should be given special care for 2 months before shearing. A mixture of corn or barley chop, oats, bran and a little oil meal makes a good grain feed. The sheep should have access to good pasture or other succulent feed.

Trimming.—The first trimming of the fleece should take place about 6 weeks ahead of the show.

Have a sharp pair of shears, stiff brush, wool card and bucket of water. Hold the sheep by the neck with the left hand, dip the brush lightly in the water and rub the fleece all over. The moisture should go into the fleece about one-fourth inch. Take the card and use vigorously to straighten ends of fibers. Be sure that the sheep stands squarely.

Lay the shears across the shoulders. Hold the lower blade with the thumb and operate the upper blade with the fingers. Tilt the shears to regulate the depth of cut. When the back is flat and level go around the sides, breast and hind quarters. Cut off tag ends and smooth the edges. After the last trimming it is well to blanket sheep lightly to protect the fleece and keep it smooth and clean.

Long-wooled sheep are not trimmed unless slightly, but are washed sometime ahead of the show. Fine-wooled sheep being prepared for show are usually kept inside as a protection to the wool.

At the Show.—Feed carefully. Do not over-feed. Feeding small amounts several times during the day is desirable. Give a succulent feed such as cabbage or turnips.

Let your sheep rest before dressing them up for show. Prior to the show train your sheep to stand squarely, head up.

In the show ring they should stand by merely placing the hand under the chin.

Diseases, Ailments, Parasites

Space does not permit a discussion here of the many diseases, parasites and ailments that affect sheep. We advise you, however, to write to the Extension Service, Colorado Agricultural College, for the following bulletins:

Colorado Bulletin No. 305—"Diseases of Colorado Feeding Lambs"

Farmers' Bulletin No. 1155—"Diseases of Sheep"

Farmers' Bulletin No. 713—"Sheep Scab"

Farmers' Bulletin No. 798—"The Sheep Tick"

Farmers' Bulletin No. 1330—"Parasites and Parasitic Diseases of Sheep"

You should have a copy of each of these bulletins. There are many practical suggestions in them that will help you to meet problems that may arise.

It is usually best to consult a competent graduate veterinarian about your sheep troubles. However, sometimes emergency treatment is necessary and the bulletins listed above will describe such treatments to you.

Selecting Feeder Lambs

In the fall many thousand grade lambs born in the spring come off the ranges of the west weighing between 50 and 80 pounds. These lambs are suitable to be fattened usually in from 90 to 120 days on different fattening rations.

As there are over a million of these lambs fattened by farmers in Colorado each year, there is an excellent opportunity offered for sheep club boys to use small groups from these lambs in a club project.

The Right Type.—The markets usually class feeder lambs as fancy selected, choice, good, medium and common. Usually a choice bunch of 5, 10, 15 or 20 feeder lambs for club work can be selected from a local feedlot. Great care should be used to select a group of lambs that are very uniform in size, weight, conformation, breeding and quality of fleece, for this uniformity constitutes an important factor when they are fattened. They should be "As alike as peas in a pod."

Choice lambs should be selected if possible from western flocks that have used purebred mutton rams on grade range ewes, as such lambs are usually wider, deeper and lower set than those from straight Merino blood.

There are four general types of these grade range lambs that may be used to advantage. Each of these types has come to be known by a general name designating its more important characteristics.

1. **Black Face.**—Usually a Hampshire, Oxford or Shropshire cross on grade Rambouillets. Lambs are smooth bodied, wide, deep and have a fairly close medium-length wool. They are characterized by a black or sooty face. A very desirable feeder and high dressing lamb, very hardy and thrifty.

2. **Corriedale.**—A white-faced, mutton-type lamb with smooth body quite similar in conformation to the black face and produced by the use of purebred long-wooled rams on grade range ewes. These lambs usually have a longer more open fleece than the black faces

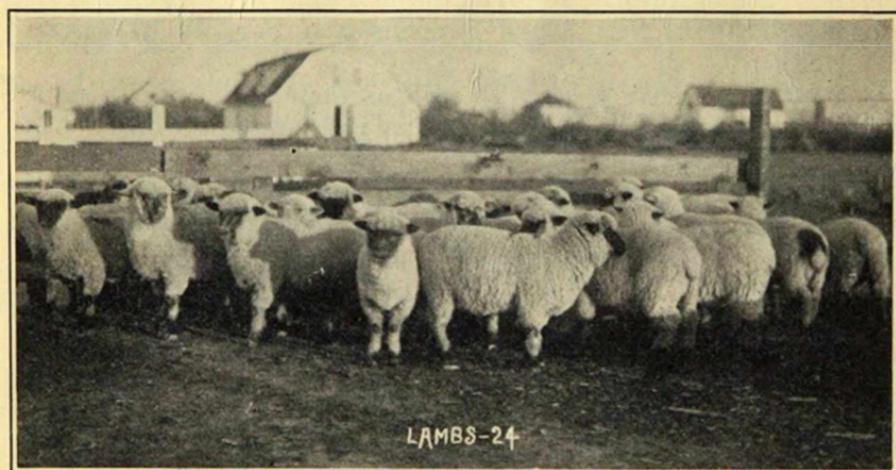


Fig. 16.—Black-face lambs. Mutton-type rams crossed with range ewes have produced a very desirable grade lamb with black or sooty face. Smooth, wide, deep and thick set, these lambs are ideal for the feedlot.

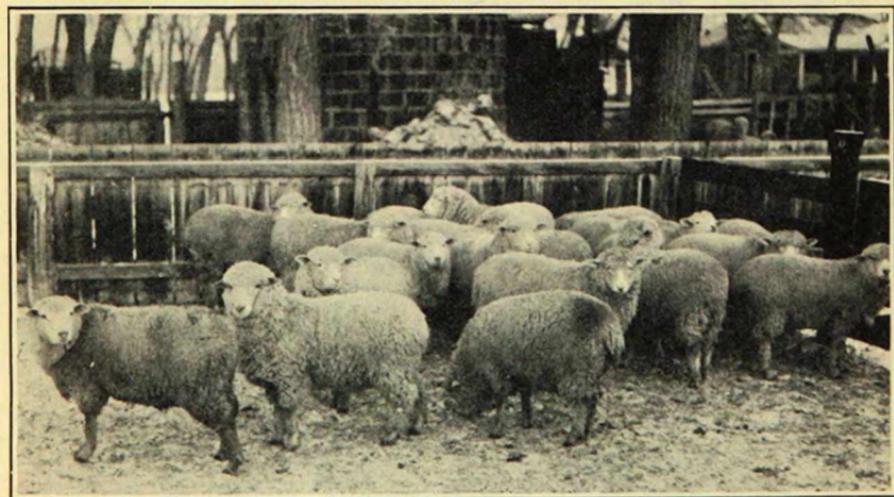


Fig. 17.—Purebred, long-wooled rams crossed with grade range ewes have produced this mutton-type lamb with rather heavy fleece.

They are hardy and apparently just as desirable from a feeding standpoint as the black-faced lambs.

3. **Rambouillets.**—Grade Rambouillet lambs are growthy and more angular in conformation than the mutton-type lambs. These lambs are white faced, fairly smooth bodied with wrinkles on neck

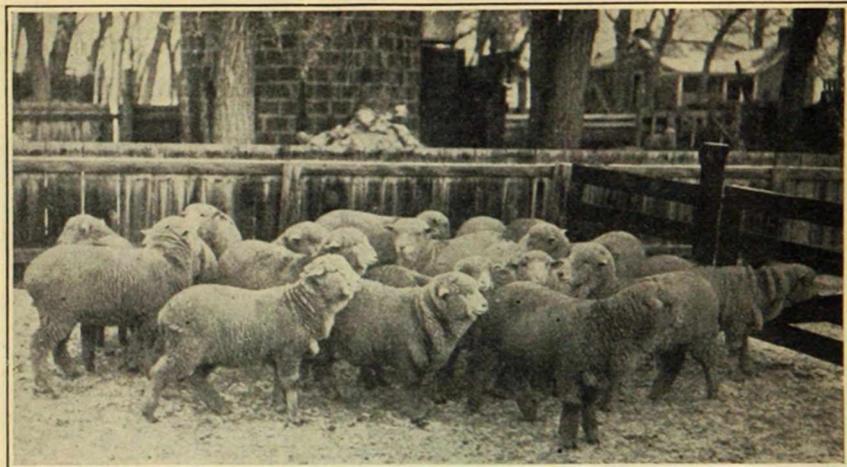


Fig. 18.—Grade Rambouillet lambs are hardy and thrifty and popular in Colorado feedlots.

and around the shoulders. They have a tendency to be more wrinkly than the mutton-type lambs.

4. Southern.—Purebred Rambouillet rams, crossed on the small fine-boned Navajo sheep developed originally by Indians of Southern New Mexico and Arizona, have produced a white-faced, light-pelted, rather narrow but smooth-bodied lamb called a Southern. These lambs are slower to fatten than the other types but make a very desirable dressing lamb.

Whatever type of feeder lamb is used in the club work the lambs selected should be uniform in size, type and conformation and should all be thrifty and free from disease when started on feed.

Pick the blockiest, thickest set lambs, those showing the most width and depth of body and shortest legs. Avoid leggy, narrow, rangy lambs and lambs lacking in constitution. Don't pick lambs whose legs appear to come out of the same hole. The widest, deepest bodied lambs make the best feeders and heaviest gainers.

After selecting your lambs the next job is to get them onto a full fattening feed without causing any indigestion or death losses. This is a difficult task and the greatest care must be used in selecting a ration, providing proper equipment for feeding and shelter, and then feeding the lambs regularly. Regularity of feeding is one of the most important points to observe. Lambs are usually fed grain twice daily at about 7:00 a. m. and 4:00 p. m. They should also have all the roughage they will clean up each day.

The fattening ration should be made up of feeds selected from

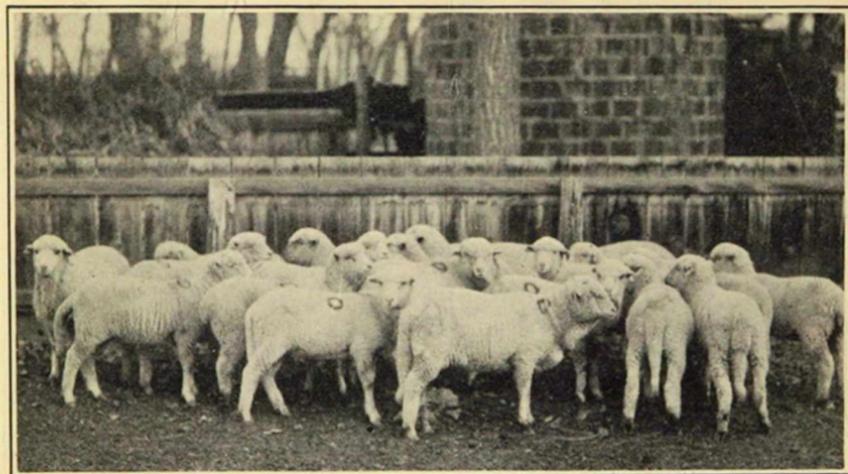


Fig. 19.—Rambouillet rams crossed with Navajo sheep, developed by Indians of New Mexico and Arizona, have produced this type of high quality, light-pelted and high-dressing lamb.

the following general classes. If possible, select at least one feed from each class. Variety is necessary in the ration for best results so get as much variety as possible with the feeds you have available.

1. **Carbohydrate concentrates** such as corn, barley, oats, millet, dried beet pulp and beet molasses are rich fattening feeds and must be fed carefully. Start lambs on about 1/10 pound daily and gradually increase the grain feed to 1 or 1½ pounds in from 30 to 50 days.

2. **Carbohydrate roughages or bulky fattening feeds**, such as wet beet pulp, corn silage, cull potatoes, stock beets, corn fodder or sugar beets are usually fed at the rate of from 1 to 3 pounds daily the lambs may take as high as 6 pounds of wet beet pulp daily with good results.

3. **Protein roughages** such as beet tops, alfalfa hay, sweet clover hay or mixed hay are necessary to produce a balanced ration and to furnish the growth-producing nutrients necessary. The lambs should have all the protein roughage they will clean up each day.

4. **Protein concentrates**, cottonseed meal or linseed oil meal, are the standard protein concentrates recognized thruout the West. It is usually advisable to feed about ¼ pound daily of one or the other of these feeds as they improve the quality of protein fed and noticeably increase gain. Experiments show that you can afford to pay 1½ to 2 times as much for cottonseed cake as for corn if ¼ pound per head daily is to be fed with corn.

Altho there is no one best ration to use, a good variety of feeds

will generally produce heavier and cheaper gains than a single grain and roughage.

Suggested Feeds for Developing a Lamb-Fattening Ration—Beet-growing Districts.—1. Corn, barley, oats, dried beet pulp or molasses fed separately or as a mixture.

2. Wet beet pulp, corn or cane silage, stock beets.
3. Cottonseed or linseed oil meal.
4. Alfalfa or sweet clover hay, beet tops.

Plains Districts.—1. Corn, barley, oats or millet, fed separately or as a mixture.

2. Corn or cane silage or fodder, millet or cane hay.
3. Cottonseed or linseed meal.
4. Alfalfa or sweet clover hay.

In case there is no protein roughage fed in plains districts it is advisable to use up to $\frac{1}{2}$ pound cottonseed or linseed oil meal per head daily.

In Fattening Lambs, Remember:

1. Feed them regularly, set your time for feeding, then hold to it. Irregularity of feeding can do as much harm as over feeding.

2. Start them on the bulky feeds alone. From the start, they should eat 1 pound of cut corn fodder or 2 pounds of silage or 3 to 6 pounds of wet beet pulp daily.

3. Start them on a small amount of grain, about $\frac{1}{10}$ pound per head, and gradually increase this grain feed until they are up to 1 to $1\frac{1}{2}$ pounds daily in from 40 to 60 days on feed.

4. Alfalfa hay, cane hay or some other form of dry roughage should be before them at all times.

5. If you feed molasses or some feed such as corn fodder or ensilage containing a grain equivalent value, don't feed as heavy on grain as where hay and grain are fed alone.

6. It is not necessary to grind grain, except millet, for fattening lambs. Sometimes, however, if a mixture of grains is fed grinding may facilitate mixing.

7. Unless you are self-feeding lambs, never feed more grain than they will clean up in 10 to 15 minutes after feeding. If they leave any grain in the troughs, cut the grain back at the very next feed.

8. Lambs must have clean grain troughs and water troughs with plenty of clean water always available.

9. Feed hay thru panels or in a hay self-feeder. Never throw it out before the lambs as they will trample and waste it.

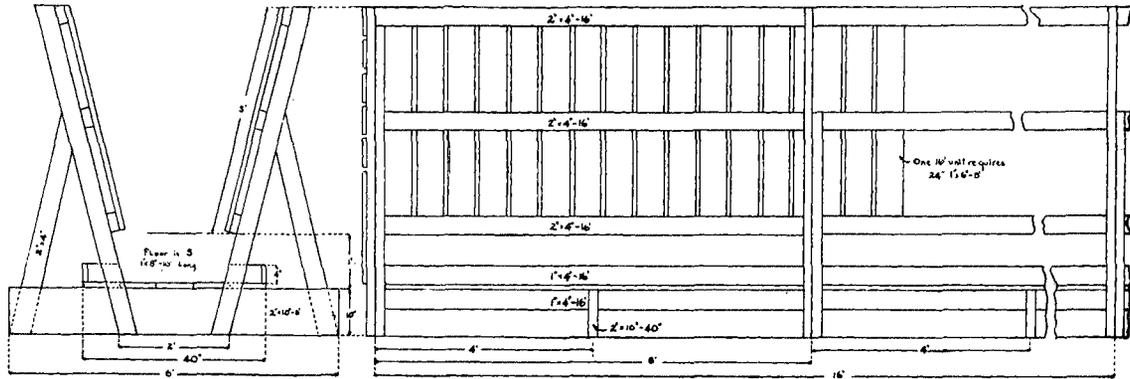
10. Never feed more hay at a feeding than the lambs will clean up before the next feeding. If there are trash, sticks or large stems

LAMB FEEDING EQUIPMENT

COLORADO AGRICULTURAL EXPERIMENT STATION
E. MAYNARD

FORT COLLINS COLORADO
H. BOSLAND

ALFALFA HAY SELF FEEDER



BILL OF MATERIAL

FOR		GRAIN TROUGH	
HAY FEEDER		GRAIN TROUGH	
1	2' x 10' - 18' Common	2	1' x 8' - 14' Common
1	2' x 10' - 7'	1	2' x 12' - 14'
3	2' x 4' - 16'	1	2' x 4' - 14'
3	2' x 4' - 10'	1	2' x 4' - 12'
6	2' x 4' - 18'	2	5' posts 88' Long
1	2' x 2' - 12'	2	10' penny nails
11	1' x 8' - 16'	3	0
4	1' x 8' - 10'		
24	1' x 6' - 10'		
3	1' x 4' - 16'		
15'	8 penny nails		
3'	16		

REVERSIBLE LAMB FEEDING TROUGH

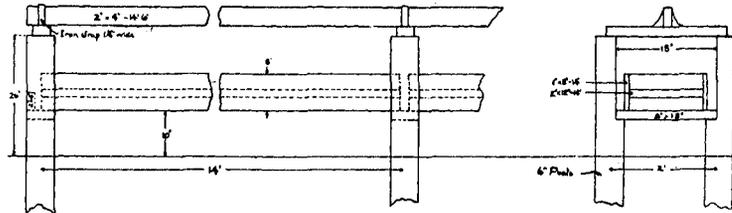


Fig. 20.—Plan for alfalfa hay self-feeder. Experiments at the Colorado Agricultural College show that this feeder is more economical than panel feeding.

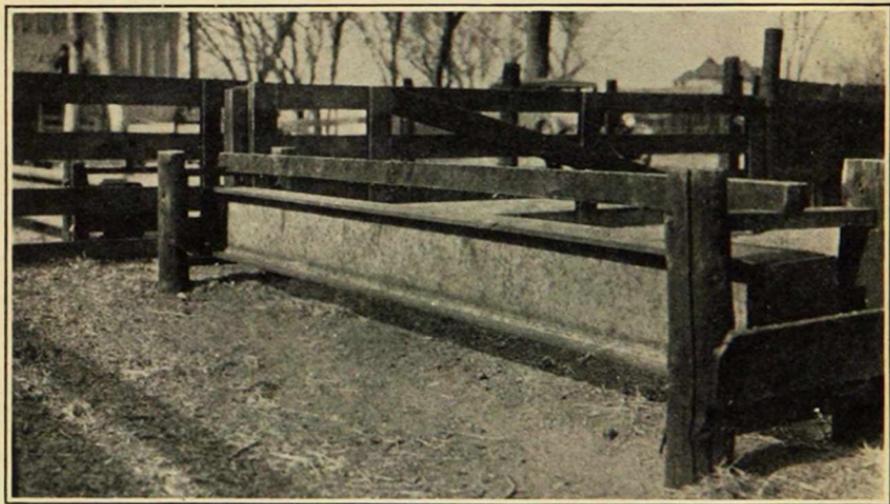


Fig. 21.—Reversible grain trough for feeding lambs. This trough is easily kept clean and dry. Lambs will not eat grain contaminated with dirt and filth.



Fig. 22.—Lambs will harvest a small patch of stock beets or mangels and with grain and a legume hay will make good gains.

in the hay, clean them out, but if you feed lambs more good hay than they will eat, they will nose over and refuse to eat it, no matter how good its quality.

Equipment for Feeding

The lambs should be kept in a well-bedded pen protected by a wind break, altho over-head cover is unnecessary. From 5 to 7 square feet of space per lamb is advisable in the main corral.

Self-feeders or panels for feeding hay are a part of this corral. Figure 4 lambs per running foot for a self feeder or 1 lamb per foot for hay panels.

In an adjacent corral, build reversible grain troughs, figuring 2 lambs per running foot. If wet beet pulp is fed, build a separate pulp pen with panels adjacent to the hay pen. Feed wet pulp once daily after the morning grain feed.

Do not have more space at the grain troughs than you have lambs to fill it, as with the cafeteria style of feeding some lambs may get more than their share with serious results. Spread the grain evenly in the troughs before the lambs are turned in to them.

Ordinary range lambs should gain from 7 to 10 pounds per month altho farm-raised lambs often exceed these gains. If lambs are fat, when they weigh from 85 to 100 pounds, their fleeces will crack open along the sides and their pelts will have a peculiar rolling motion when they walk or run. Grasp their loin and if they are finished properly, you will feel a hard, smooth surface that does not give. The tail is one of the best indications of finish. If it is perfectly smooth with no indication of the small bones apparent, the lamb is fat.

Run your hand over their ribs, if they feel like a picket fence, feed them a while longer but if you feel a smooth hard surface, they are fat and ready to ship.

If you plan to show your lambs when they are fat, they should be blocked out. The lamb is blocked with a shepherd's card and a pair of sheep shears. The card applied directly to the wool hooks out the long fibres which are then trimmed off. You have seen a man trimming a hedge. He snips off only the longer twigs and leaves. In blocking your lamb, don't disturb the fleece itself but just trim off the longer fibres.