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Sheep in South Dakota : A Manual for 4-H Club Members

I. B. Johnson

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SHEEP in South Dakota

A Manual for 4-H Club Members

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South Dakota Ideal for Sheep

South Dakota is ideally situated for sheep production. Sheep thrive best under climatic conditions such as found in our state—a maximum number of days of sunshine with a minimum of damp wet weather. Geographically the range area of the state is located nearer to the corn belt feed lots than the other sheep producing areas of the west. The range area in the western half of the state provides an abundance of grazing, while the farms in the eastern and southeastern portion of the state come through with the feeds with which the lambs may be fattened most economically. South Dakota sheep producers have a choice of several livestock markets within the state or nearby terminal markets.

More and more interest is being taken in sheep production and in fattening of lambs for the market by our stockmen and farmers, but there is still opportunity for greater expansion of the industry within the state. 4-H club members have been demonstrating these possibilities through their sheep clubs and their lamb feeding clubs. Range sheep production has shown an increase and in the farming area of the state there is a place for a band of good producing ewes on most every farm. No expensive equipment is needed, but there should be at least an open shed for shelter and adequate fencing of pastures.

Because of the increasing interest in sheep production and the demand for facts concerning sheep management, this circular is being offered to the members of the 4-H clubs.

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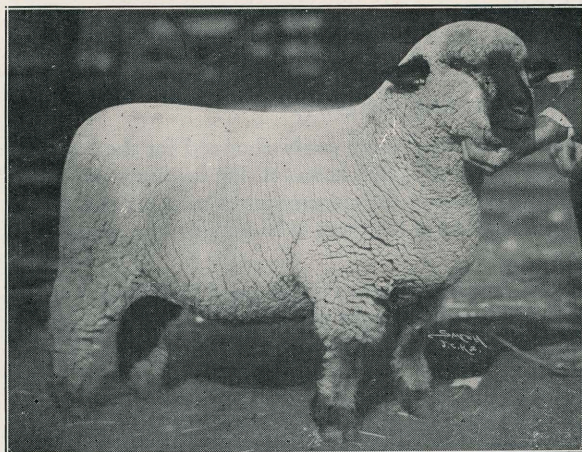
Sheep in South Dakota

By I. B. Johnson, Animal Husbandman*

Sheep production in South Dakota has been increasing from year to year until in January 1941 there were 1,925,000 head of sheep on South Dakota farms and ranches. The more recent development has been in the farm flocks in the eastern part of the state, farmers realizing that sheep are coming through with two cash returns annually—one on wool and the other on meat.

Establishing a Flock of Sheep

There are three satisfactory plans by which one may start a farm flock of sheep, depending upon one's familiarity and experience with sheep and one's financial limitations:



A Hampshire Ewe. Note the short legged, low set mutton type with straight top and underline, deep chest and body denoting strength and constitution.

1. Purchase a few ewe lambs of good type which may be developed into thrifty vigorous yearling ewes to be bred for lamb production.
2. Purchase a few vigorous ewes of good breed type from 1 to 4 year of age.
3. Purchase a larger number of ewes of good type, the number depending upon the available pasture, feed and facilities for properly handling the ewes. Under range conditions anyone starting in the sheep business would start with a larger number of ewes, usually with anywhere from 200 to 500 head.

* This circular was written by Mr. Johnson in 1937. Small revisions to bring the circular up to date were made in June, 1941, by G. A. McDonald, extension animal husbandman.

Classification of Breeds of Sheep

Mutton Type Breeds are what the name indicates, the sheep being bred primarily for mutton, although the ability to produce a good quality fleece is also important. There are two classifications of the mutton type sheep, namely:

1. Medium wool: These breeds are of medium size, blocky conformation, with medium length of fleece. The breeds are:

(1) Shropshire	(4) Oxford	(7) Cheviot
(2) Hampshire	(5) Corriedale	(8) Suffolk
(3) Southdown	(6) Dorset	(9) Tunis
2. Long wool: These breeds are more upstanding, have larger deeper bodies and more open fleeces than the medium wool breeds. They are not as active and are more adapted to localities of abundant grass and feed. They are our largest breeds of sheep consisting of:
 - (1) Lincoln
 - (2) Cotswold
 - (3) Leicester
 - (4) Romney Marsh.

Fine Wool Type Breeds are finer of fleece than the mutton type breeds; in fact the emphasis is placed upon wool production rather than upon mutton type. The two general breeds are:

- (1) American Merino
- (2) Rambouillet

Selecting the Ewes

Grade ewes are quite suitable and more easily obtained for the beginner in sheep production. In the 4-H sheep club, however, the beginner may want to start with purebred ewes. Whatever the circumstances may be, one should have in mind certain requirements for the ewes to be obtained for foundation stock, such as:

1. Healthy, vigorous ewes of good mutton type or good breed type.
2. Uniformity in size and type with straight body lines.
3. From 1 to 4 years old.
4. Sound in udder and teats.
5. An even covering of dense fleece of good marketable quality.

Ewes of the mutton breeds should be replaced as six-year olds unless they are outstanding producers. It is a good practice to mark the lambs so that more definite records of performance may be kept of each of the ewes. In this manner the more profitable producing ewes and their ewe lambs can be retained for the breeding flock and the meat and wool producing qualities for the flock developed to a higher degree. For every 100 ewes it is well to keep from 16 to 20 of the best ewe lambs for replacement of the breeding flock annually. Such a practice would allow for a closer culling of the ewes and for possible death losses.

Selecting the Ram

The saying that "A sheepman pays for a good purebred ram even though he uses a cheaper grade ram" is only too true. Greater care should be used in



A Shropshire Ram. This ram exemplifies breed type, masculinity, vigor and strength; in short the type of sire desired.

selecting the right type of purebred ram for the flock than may have been exercised in selecting the ewes, as each lamb sired by him will carry 50 percent of his blood lines. With good purebred rams improvement in the flock is possible, while with grade rams or inferior purebred rams such improvement is not possible.

Emphasize the following points in selecting a ram:

1. A good purebred ram that is active, vigorous, with a bold masculine appearance.
2. One to three years old.
3. Good body type, low set, straight and strong of leg, and straight in body lines.
4. An even covering of dense fleece, long enough to be classed as combing, free from dark fibres and fine in quality.
5. Well fleshed and pink of skin.
6. Guaranteed as breeder.



Upper Right—A Yearling Mouth.
Lower Right—An Aged Mouth.

Upper Left—A Lamb Mouth.
Lower Left—A Three Year Old Mouth

Determining the Age of Sheep

It is not difficult to determine the age of sheep up to four years. Lambs have 4 pair of small narrow teeth known as milk teeth. At 12 to 14 months the center pair of lamb teeth is replaced by a pair of larger, broader and whiter teeth, known as permanent incisors. At approximately 24 months of age two more permanent teeth appear, one at either side of the center pair. At three years of age another pair of permanent teeth appear, and at four years of age the last pair or corner teeth appear. As the animal advances in age the teeth become shorter and wider apart, usually beginning to spread at 6 years of age and at 7 years the teeth will begin to drop out, although the normal number of teeth may be retained until the animal is 8 or 9 years old. Change of teeth is influenced by the type, the grazing or feeding and the breed.

Marking Ewes and Lambs

There are two common methods in general use in marking sheep; these are the use of branding paint for the larger bands on the range and metal tags for purebred flocks. When branding paint is used it should be of the best quality, being durable enough to retain its identification for a year and of such composition that it will be removed from the wool in the scouring process. In using the branding paint, a mark or number may be stenciled on the back or side of the animal.

In purebred flocks, metal ear tags (sheep size) are essential for proper identification. Such tags carry owner's initials and a numbering system for identification. Metal tags should be inserted on the underside of the ear, close to the head.

Feeds for Sheep

Sheep respond readily to good care and feeding, and such treatment helps to prevent some of the common ailments that might otherwise be experienced. Care should be exercised at all times to keep the feed troughs and bunks clean and to have the feed clean and free from mold. Sheep should have access to fresh water and what salt they need. They can utilize feed and pasture on which no other livestock can thrive, but more satisfactory results are secured where the sheep receive a balanced ration.

A balanced ration is a day's feed containing the right proportion of nutrients (protein, carbohydrates, fat, minerals and vitamins) to properly nourish the animals to which it is fed. Protein produces growth of muscular tissues and wool, and makes repairs in the animal's body; large amounts of it may be found in alfalfa leaves, wheat bran, linseed oil meal and cottonseed meal. Carbohydrates and fats supply heat and energy, and are stored in the form of animal fats in the body; corn and barley are rich in both. Minerals are necessary for the building of bone and in the performance of vital functions within the body; they may be found in legume hay, bran, steamed bone meal and finely ground limestone. Vitamins are necessary for growth, reproduction and protection against ailments and diseases; they may be found in sufficient amounts for the animal's body in such feeds as whole milk, yellow corn, legume hay, pasture and green forage.

Concentrates

Only the more important grains are here considered. Grinding grain for sheep is unnecessary as they thrive best when doing their own grinding.

Oats is more of a growth producing than a fattening grain; therefore it is more desirable for growing and breeding sheep although it can be successfully used for starting feeding lambs on feed.

Corn is a fattening grain. It is excellent for fattening lambs. When fed to breeding sheep it is more desirable to feed it with oats or in a grain mixture.

Barley is also a fattening grain, although not as palatable as corn. For sheep it has a feed value of approximately 13 percent less than corn. When it is used as the sole grain in the ration for fattening lambs, feeders have often experienced their lambs "going off" feed toward the close of the feeding period.

Wheat as a rule should only be fed when it is about equal to corn in cost per pound. It is not as palatable as corn as it tends to form a pasty ball in the sheep's mouth. It is comparable to barley for fattening lambs and when used it is desirable to mix it with other grains in the ration.

Sorghum grain is about equal to corn in fattening value while the grain from sweet sorghum is worth 15 percent less than corn. The heads of unthreshed grain sorghum can be fed as successfully as the threshed sorghum grain.

Rye will usually not prove a satisfactory grain feed if used alone, but in combination with other grains in the ration it can be satisfactorily and economically used. In feeding trials for sheep it is considered about equal to barley.

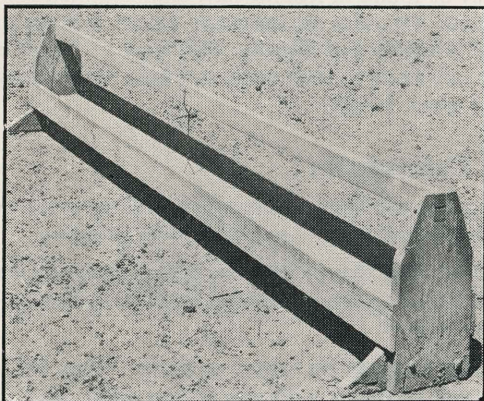
Emmer and Spelt have a feed value of 25 percent less than corn.

Beet and Cane molasses have about the same feed value for sheep. Molasses can be fed up to $\frac{1}{2}$ pound per head daily. It is generally mixed with the roughage or can be poured in the grain trough as "broad ribbon." The fleeces may become smeary and matted when molasses is fed.

Protein Supplements

Linseed oil meal, cottonseed meal or cake, and soybean oil meal are the protein supplements most generally used in the rations for sheep.

The pea or sheep size cake is relished more than the meal. All are of about equal value for fattening lambs when used in balanced rations. Wheat bran is sometimes used as a protein supplement. The determining factor as to



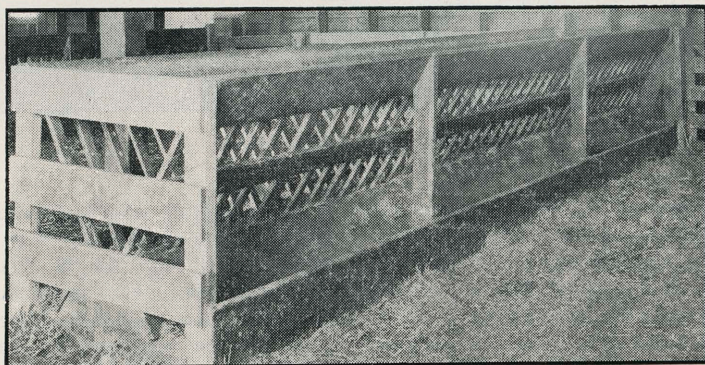
A Serviceable and Practical Type of Grain Trough for Sheep. The bottom of the trough is a board 1 foot wide and 16 feet long; the sides are made of 1 x 4 inch material and a 2 x 4 extends the full length above the trough.

which one of the four protein supplements is to be used should be the cost per pound of the digestible proteins in each of the feeds. The linseed oil meal contains approximately 33 percent digestible protein, the cottonseed 35 percent, the soybean oil meal 37 per cent and wheat bran 13 per cent. Bear in mind that these percentages are for digestible protein, not crude protein, as not all of the crude protein is digestible.

Roughages

Alfalfa or clover hay is superior to prairie or timothy hay. The latter is unsatisfactory as a roughage for sheep as it is unpalatable and constipating. Legume hay is of greater importance for the breeding flock than for fattening lambs, although alfalfa hay is the standard hay for sheep to which all other forms of hay may be compared. Legume hay is rich in protein and calcium and vitamins A and D and proves to be a good supplement for the grain in the ration. Sheep are rarely affected by sweet clover disease which is a livestock ailment caused from eating spoiled sweet clover hay. The hay from grasses gives better results when combined in the ration with a legume hay. Millet hay is worth less than corn stover as a roughage for sheep. Sudan hay is 56 percent as efficient as alfalfa hay. If it is not possible to provide alfalfa or clover hay as the roughage, it would be advisable to add a protein supplement such as linseed oil meal or cottonseed meal to the grain ration when prairie hay, sudan hay, sorghum or corn fodder constitute the roughage.

Grain hays are not fed as the sole winter feed for breeding ewes and the bearded varieties of grain hay should be avoided as the beards often cause sore mouths. In the farming sections of the state, oats should preferably be cut for hay when the grain is in the milk stage. When bright corn fodder is fed, it may constitute the only roughage for wintering sheep, but better results are secured if feeding it with a legume hay. Corn silage, free from mold, may be profitably used but it should not constitute the only roughage in the ration.



A Practical Feed Bunk for Both Roughage and Grain.

Frozen and moldy silage should not be fed as this kind of silage causes digestive troubles. Corn silage has $\frac{1}{3}$ the value of alfalfa as roughage for sheep. When feeding it to breeding ewes it may be fed in the amount of 2 pounds daily per 100 pounds of live weight of the ewes. After lambing the ewes can be fed all the silage they can eat. If it is the only roughage that can be fed, a protein supplement should be added to the ration and the sheep ought to have access to finely ground limestone for the necessary calcium. The sorghum crop when ensiled has a higher feeding value for sheep than when fed as dry fodder. Beet pulp may be used in some sections of the state; ewes have been wintered successfully on 6 pounds of wet beet pulp per head daily combined with 2 pounds of legume hay. It may also be used in the ration for fattening lambs along with alfalfa hay and a limited amount of grain.

Pastures

Either permanent or temporary pastures are a source of a cheap and satisfactory feed for sheep. Permanent pastures may consist of blue grass or legume pastures in the farming sections of the state, while in the range area the pastures will consist of native grasses, such as buffalo grass, grama grass, wheat grass and blue stem. Temporary pastures may be secured from the seeding of winter rye, Sudan grass and rape. Winter rye offers a late fall and early



Sheep Always Enjoy a Field of Rape.

spring pasture. Sudan grass when seeded at corn planting time may be pastured in the summer when the plants are about a foot high and from then on up until frost. Caution should be used in pasturing it during drought or after a frost, as it may develop a prussic acid that may poison the sheep. Rape (dwarf essex) is often grown in the eastern and southern part of the state as a supplement to a permanent pasture; it is an excellent roughage for sheep. It may be seeded in the spring and after the plants are at least 6 inches high it can be pastured until late in the fall even after frost, providing the sheep

have been accustomed to it before frost, otherwise the frozen rape may cause a few deaths. The grazing of immature or wet rape may cause bloat or scours in lambs. At the South Dakota Experiment Station the average gain on lambs in a two year experiment on pasturing rape was better than $\frac{1}{3}$ pound per head daily. Oats and rape make an excellent pasture for sheep, seeding one bushel of oats to the acre following this with 6 pounds of rape per acre. The grain provides early pasture while the rape is getting well started.

The sheep club member will find it advisable to feed a little grain to the lambs while they are running on pasture with their dams. Under ordinary farm conditions this practice is not advisable unless there is scant grazing in the pasture due to drought or overstocking. A club member, however, is interested in getting his lambs for the breeding classes well developed and the lambs for the fat lamb classes in a finished condition in the late summer, and therefore the lambs should be fed some grain while running with their mothers on summer pasture.

Minerals

Finely ground limestone and steamed bone meal as well as salt should be accessible to the sheep at all times. Barrel salt is preferable to block salt. A good mixture of these would consist of 4 parts (by weight) of limestone, 4 parts bone meal and 2 parts salt.

Suggested Rations

Rations for fattening lambs are discussed on pages 31 and 32. Almost endless combinations of quality feeds may be used in making satisfactory rations for breeding sheep. The condition of the sheep must be taken into consideration. Thin sheep need more feed to get them back into proper condition. It is wise to feel along the backs of the sheep occasionally to make sure of their condition; the fleece may cause one to think that the sheep is fat when it is really thin. If ewes are thin, corn and barley should constitute the larger part of the grain fed. The following are a few suggested rations for a pregnant ewe during the winter season:

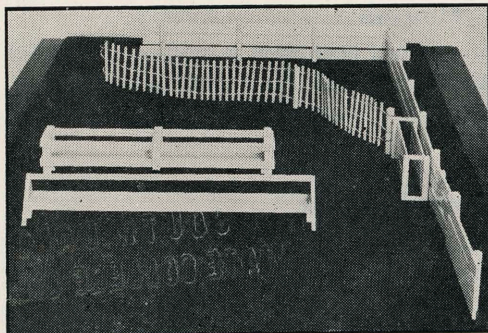
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|--|---|
| <p>1.</p> <p>3 to 4 pounds of alfalfa or clover hay</p> <p>2.</p> <p>3 pounds of hay
$\frac{1}{2}$ pound of grain</p> <p>3.</p> <p>$\frac{1}{2}$ pound grain
.1 pound cottonseed or linseed oil meal
3 pounds prairie hay, corn stover, oat straw or cane fodder</p> | <p>4.</p> <p>1 pound of alfalfa or clover hay
2 pounds corn stover
$\frac{1}{2}$ lb oats</p> <p>5.</p> <p>$1\frac{1}{2}$ pounds of alfalfa or clover hay
2 pounds corn silage
$\frac{1}{4}$ pound oats or barley</p> |
|--|---|

Care and Management of the Flock

Sheep should have adequate shelter from rain and snow storms. Such shelter would involve dry comfortable quarters, well ventilated yet free from drafts, where they will not be overcrowded, as overcrowding and poor ventilation often cause colds and pneumonia. The sheep should have plenty of exercise during the winter season and should have access to fresh water, to salt and possibly to minerals. During the winter season pregnant ewes must have exercise as well as feed to keep them in a good healthy condition. A good method to force them to secure this exercise is to scatter their hay or roughage over the ground some distance from the barn or shed.

Equipment

It is neither essential nor economically desirable to secure expensive equipment for sheep production or lamb feeding. Sheep producers are often handicapped because of inadequate equipment which may result in higher feed



A Sorting Chute in Miniature. It is shown set alongside the barnyard fence so that the gate in front of it may be used to turn the sheep into the pens on the right or left of the fence. The chute is 16 feet long, 18 inches wide, and 3 feet high with sides boarded solid.

and labor costs and a greater death loss. The barn or shed room should be sufficient to allow from 12 to 14 square feet of floor space for each breeding ewe and from 4 to 8 square feet of floor space for each lamb. A shed with an open front to the south, or with doors opening to the south, which can be closed at night or in cold weather, is very desirable for housing the sheep. The doors should be wide enough so that the sheep will not forcibly jam one another against the sides of the opening as they might be forced to do where smaller doors are used. The sheep yard and pastures ought to be well fenced with woven wire fencing.

Suitable feed racks should be provided as that effects a saving in the cost of the feed. Allow from 14 to 18 inches of rack space for each ewe and from 10 to 12 inches of space for each lamb. Suitable feed racks for sheep are illustrated on pages 10 and 11. A cutting chute for ease in sorting the sheep ought to be a part of the equipment. It may be portable and used in conjunction with a yard gate; if so used construct a chute 14 feet high and 18 inches wide with its two sides boarded up solid. Place it along the fence with one end along the gate opening as shown in illustration.

Flushing the Ewes

In the fall of the year the breeding ewes should, if possible, be turned into a good pasture where they may graze and gain in weight from 2 to 3 weeks before being bred. This practice is referred to as flushing the ewes, meaning the ewes are gaining in weight at breeding time which results in the ewes coming in heat during a shorter period of time and a larger per cent lamb crop because of a greater number of twin lambs. If suitable pastures are not available the same results can be obtained by feeding legume hay or if this is not available by feeding daily $\frac{1}{2}$ pound of oats or grain mixture along with the roughage to each ewe. Ewes should not be too fat at breeding time as they may not "settle" and will have to be rebred.

It is not advisable to breed ewe lambs as more trouble will be experienced at lambing time, more lambs may be disowned by them and if the practice is persisted in from year to year the average size and vitality of the flock will be reduced. Young ewes should be bred so as to lamb when they are two years old.

Winter Management

A great deal of the beginners' success with the lambs in the spring depends on the feed and care given the ewes during the winter. If the ewes are to develop good lambs they must have good feed and plenty of exercise. This does not mean that they should be fat. On the other hand, the aim should be to keep them in a good thrifty condition, gaining from 15 to 25 pounds during pregnancy.

If plenty of roughage is available, the ewes, as a rule, will not need a grain feed until about six weeks before lambing. Alfalfa hay is one of the best feeds for breeding ewes. The clover hays are also good and should be used when alfalfa is not available or they can be mixed with the alfalfa to a very good advantage. The run of stalk field in the fall and early winter and the use of corn stover and similar fodder fill help to lower the cost of winter keep, but as these feeds supply only a small amount of growth materials, the ewes should not be forced to subsist on them alone, as weak lambs would likely be the result. Used in connection with alfalfa or one of the clover hays, however, they make a very good winter ration. The successful flock owner is always interested in wintering his breeding ewes satisfactorily at the lowest possible cost. In working out a solution to the feed problem it is important to keep in mind that the care which sheep receive is practically as important as that feed consumed.

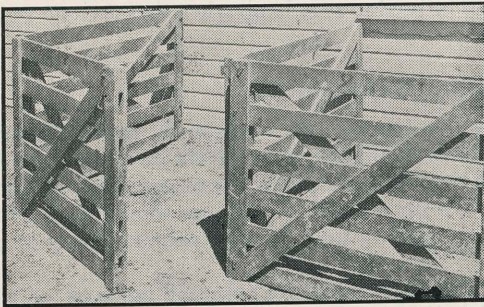
All of the ewes ought to be put on a little grain ration about 6 weeks before lambing. This helps to insure a good thrifty crop of lambs and puts the ewes in condition to provide the lamb with a good supply of milk. The unborn lamb is composed largely of water, protein and mineral matter. If feeds are fed to the ewes which are not high in mineral and bone producing nutrients, the ewe will have to supply these nutrients from her body which will naturally leave the ewe in a weaker condition. Suitable rations are suggested on page 13. An abundance of exercise for the ewes during the winter months is another

important factor for insuring a crop of strong thrifty lambs. Too much grain fed the ewes prior to lambing time stimulates the milk flow and may cause udder trouble.

Care at Lambing Time

Lambing time is one of the most vital of the entire year for the shepherd. His success or failure with the ewes will depend to a large extent on the number of lambs he saves or loses. If the ewes have been properly fed and given plenty exercise, there should not be much lambing trouble if the proper precautions are taken.

“Save every lamb dropped” is a goal worth working toward. A lamb saved in the spring will mean greater profits in the fall. It is good practice to put those ewes which are expected to lamb in the lambing pens where they will not be bothered by the other sheep in the flock. The lambing pens will also pre-



Lambing Pens are a Good Investment.
4 x 6 feet in size.

vent the young lambs from straying away from their mothers and being lost. The ewe recognizes her lamb only by its voice and smell. It often happens that a new born lamb becomes separated from its mother by the other sheep in the flock and she forgets its voice and smell and when she meets it again she does not own it. Most of this kind of trouble can be prevented by the use of the lambing pens. The ewe and her lamb should be kept away from the rest of the flock until they learn to know each other, after which they can be turned with the other ewes and lambs. It is a good practice to keep the ewes which have lambs, separated from the rest of the flock, as they will need more feed.

Another precaution should be to clip all loose locks of wool and tags from around the ewe's udder before lambing. Many seemingly strong lambs have been lost because they got hold of a dirty lock of wool and suckled it instead of the mother's teat and starved to death before the owner knew what was causing the trouble. One should be sure that every lamb gets nourishment as soon as possible after it is born. If a lamb should become chilled, it can be warmed and revived by placing it in warm water for a few minutes and then rubbing it dry with a warm cloth, after which it should be wrapped in a warm dry cloth and placed near a stove.

The ewe should receive but little grain for the first 2 or 3 days after lambing. Make sure that the lamb takes all the milk so that the udder will not cake.

At the end of the third day the ewe can be gradually brought back on her full feed. Be sure that the ewe has plenty of fresh water during this time. In severe cold weather, the water should be warmed so as to take away the chill. Put the young lambs where they can get sunlight, exercise and green feed if at all possible. If the ewes have been accustomed to being housed one should be careful not to leave them out in cold rains during early spring. Keep the shed in which the ewes and lambs are housed on stormy days or nights clean and properly bedded at all times.

Orphan Lambs

Occasionally one may have a number of orphan lambs as a result of ewe loss or ewes not claiming their lambs. Although considerable labor is involved, it is estimated that 80 percent of these lambs may be raised successfully. Feed fresh, whole cow's milk warmed to blood temperature. The lamb may be fed from a bottle at first, but should be taught to drink from a pan as soon as possible. One teaspoonful of milk at each feeding is enough the first day. Feed every two hours for the first two and a half or three weeks. By that time three feedings daily are sufficient. The amount of milk should be gradually increased so that at three weeks the lambs receive about one-half pint at each feeding and at two months a pint.

Creep Feed the Lambs

Lambs begin to eat when they are 10 to 15 days old and they should be afforded a place to eat where they will not be disturbed by the ewe. A creep or pen is simple and inexpensive to construct. Several upright openings, 8 inches apart, should be left for the lambs to pass through but they should be narrow enough so the ewes cannot follow. Place the creep in the sunlight if possible. Inside the creep there should be a trough for grain and a rack for hay.

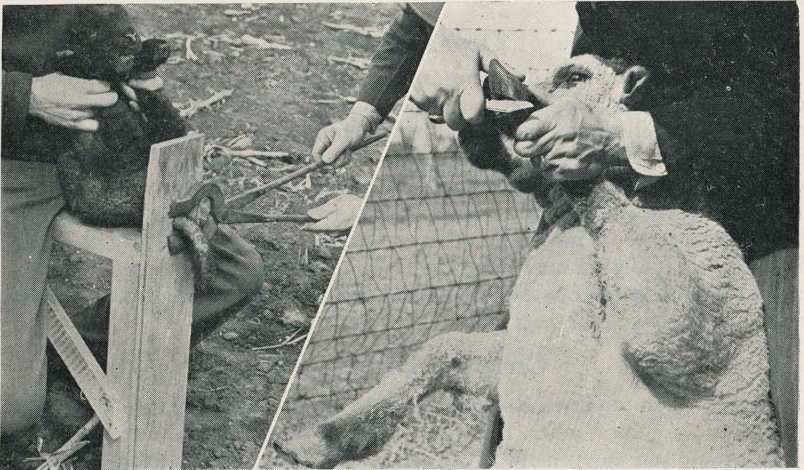
Lambs two and three weeks old should have their grain cracked or ground. An excellent grain mixture which might be used is one-third ground oats, one-third cracked corn and barley, and one-third bran. Remove all grain that the lambs do not clean up daily from the troughs and feed it to the older sheep. Lambs are very particular and should be supplied with fresh clean grain every day. Place a little bright leafy alfalfa hay in the rack for them to pick at. Lambs put on the cheapest gain during the first weeks of their life so should be given an ample supply of feed during this period. Lambs about a month old will usually take about one quarter pound of grain daily per lamb. The ewes must also be fed liberally to provide an abundance of milk for the lambs. After the lambs are six weeks of age, it is no longer necessary to grind the grain. By the time they are two months old they can go on the same ration received by their dams.

Docking and Castrating

It is best to dock lambs when they are about two weeks old. It adds to the appearance of the lamb, and prevents the collection of filth about the tail which may become a menace to the health for in warm weather it provides a breeding place for maggots which burrow under the skin causing sores, infec-

tions and ill health. The poor lamb cannot survive long under such conditions. Docked lambs present a neater, more attractive appearance on the market and bring a higher price.

The lamb's tail can be removed very easily by the use of a sharp knife or docking pinchers, which can be operated with one hand. Locate the joint in the tail which is from 1 to 1½ inches from the body and remove the tail



Docking the Lamb, Leaving a Tail 1½ to 2½ Inches Long. The Proper Manner of Trimming the Feet.

at this point with a quick cut. Many successful sheep growers recommend pushing the skin on the tail back toward the body of the lamb before the cut is made so as to have some surplus skin to grow over the stub. The lambs should be watched closely for a few hours after they are docked. If they bleed too much, tie a piece of cord tightly on the stub of the tail close to the body. This cord must be removed after a few hours.

Buck lambs do not fatten as quickly as wether lambs and sell at a lower market price. Experiments have demonstrated that lambs can be docked and castrated at the same time. When castrating the lamb, take the end of the scrotum firmly in the left hand and pull away from the testicles. Cut off the lower third of the scrotum, taking care not to cut into the testicles. This will leave both testicles partially exposed. Push back the membranes covering one testicle, grasp the cord at the upper end of the testicle and draw out, together with the testicle. Remove the second testicle in the same way. When both testicles have been removed wash the wound with a three percent solution of lysol. Any good disinfectant will be satisfactory.

After the lambs have been docked and castrated, place them in a clean, freshly bedded pen or a clean grass pasture and watch them for a few days, guarding against any infection that might occur.

Summer Care

The ewes and their lambs should be put on good pasture on bright sunny days at the very first opportunity in the spring. Continue with the grain feed as the grass is washy and doesn't contain much strength until later in the spring. A little hay fed to the flock each day is very good practice in early spring. After the ewes have been sheared, dip both the ewe and lambs to control ticks. A change of pasture every three or four weeks is sound practice in order to avoid trouble from stomach worms. If this cannot be done, the sheep ought to be treated for stomach worms once each month, using the copper sulphate treatment. When the weather becomes warm the ewes and lambs should have free access to a cool shady place during the heat of the day. Shade may be provided in the pasture, where necessary, by movable sheds. A movable low flat sun-shade 16 feet square and open at the sides should provide shade for 40 sheep.

Weaning the Lambs

Usually the lambs are weaned when four to five months old. If the ewes are in good condition and furnishing an adequate supply of milk for the lambs, and if there is ample pasture, the 4-H club member may profitably permit the lambs to run with their dams a while longer. The member should have the lambs weaned in ample time to finish fattening them in the dry lot prior to their being exhibited in the county or at the state fair.

Probably the best way to wean lambs is simply to take them away from their mothers, put them on good fresh pasture and not let them back to their mothers again. The practice of letting the lambs back to the ewes after a day or two is not a good one as it sometimes causes digestive disorders in the lambs. Care must be taken to prevent the udders of the ewes from caking after the lambs have been taken away. Some ewes may be giving very little milk at weaning time while others may be giving an abundance.

The day after the lambs have been taken away, all the ewes should be milked a little until their udders become soft. The milking should be repeated after two days time. This usually will be all that will be required for most ewes. Those which are heavy milkers, however, may require attention again in three more days. Putting the ewes on scant pasture at this time, starting two or three days before the lambs are taken away from them is a good practice as it tends to stop the milk flow. After the ewes are dry they should be kept in good pasture until fall. The lambs should be kept on a clean fresh pasture after they are weaned. The run of a meadow which has been cut and in which there is a good second growth of grass, a blue grass pasture, a sweet clover pasture, or a rape pasture is very good at this time of year.

Trimming the Feet

It is very important that the sheep's feet be trimmed at least twice a year. Probably the best times to do this are in the spring soon after shearing and in the fall, just before the beginning of winter. It is necessary to trim the feet of most sheep to prevent foot rot and crooked or broken down pasterns. It is

well to turn the sheep out on damp or wet ground for a few hours before the work is to be done as this softens the hoofs and makes trimming easier. Usually a good, strong, sharp jackknife is the only tool that will be required. In some cases a clipper, or prunning knife may be used to advantage. The hoof should be cut down until it is level with the sole of the foot. It should also be trimmed so the foot will stand straight when placed on the ground. One should be careful not to cut the hoof too short and thus cause soreness and lameness.

Dipping

Every flock of sheep should be dipped at least once and better twice a year for the eradication of ticks and lice. These parasites cause untold annoyance and loss of thrift to sheep, and an enormous money loss to their owners every year. Probably the best times for dipping the flock are in the spring, just after the shearing is done, and in the fall just before the beginning of cold weather.

Range Sheep

Of the 49,195,528 acres of land area in South Dakota approximately 17,000,000 are classed as range land. This represents practically the entire area west of the Missouri River. The distinction as between western and native sheep refers to whether or not they are produced under range or farm conditions. Range sheep produced in the state represent 45 percent of the sheep industry. Range sheep production is conducted for both the production of good quality wool and desirable feeder lambs. Cross-bred ewes of Rambouillet breeding most generally comprise the range bands. The number of ewes in each band ranges approximately from 500 to 1500. These cross-bred ewes have more or less fine wool blood in their breeding, since flocking instinct, hardiness and rustling ability are necessary in range sheep. Mutton breeds tend to scatter and are more difficult to herd in large bands.

Fall and Winter Management

In the fall of the year the lambs have been weaned, the ewe flock is culled for failing teeth, spoiled udders, lameness and any other weaknesses. They are usually transferred to a range reserved for fall feeding where the grazing is more abundant and where the ewes may be flushed prior to the breeding season. Sheep men ordinarily set aside part of the range for this purpose for the ewes should be gaining in flesh during the breeding season. The time of breeding depends on the range and the weather conditions at lambing time. In South Dakota it is customary to have the ewes lamb in May or early June. They are all bred to lamb within a short period of time thus insuring lambs of a more uniform age.

If the rams are not in good flesh at breeding time, they are conditioned for a month before being turned in with the ewes; this involves feeding the ram 2 pounds of oats in addition to the range grass. This feeding of the rams continues during the breeding season. Sheepmen usually feed the rams in the day time and turn them in with the flock of ewes at night or vice versa. Customar-

ily 3 rams are provided for each 100 ewes during the breeding season of from 30 to 40 days. Records indicate that early or late lambing over a period of years are practically equal insofar as annual net returns from the flock are concerned.

The sheepman must choose between wintering on the range or in the feed lot. If open winters prevail, sheep may range all winter. When deep snow covers the range, the sheep have to be taken to the ranch or winter quarters and fed regularly. The cost of wintering is one of the chief items of expense to the range sheepman. Winter grazing, whenever possible, is the cheapest and most satisfactory method of wintering the flock. If it is not possible to winter the flock the entire winter, the sheepman at least endeavors to graze the sheep as late as possible in the fall or as far as possible into the winter season, for when winter feeding is once started, it is most often necessary to continue it throughout the winter season.

There are three requirements for either a good winter range or a good winter feeding ground.

For the winter range they are:

1. Abundant feed on the range
2. Snow or other form of moisture
3. Shelter from storms

For the winter feeding ground they are:

1. Shelter
2. Accessible hay
3. Water

The shelter may consist of breaks (natural protection in broken country) or open sheds facing the south. Expensive barns are not practical, although stockmen producing purebred stock usually construct barns at a cost most economical per animal. For winter grazing the areas furthest away from the ranch or from watering places should be grazed first. When winter feeding, the roughage or hay of best quality ought to be saved for the last part of the winter feeding period.

Sheep on the winter range will utilize a coarser feed than at any other time of the year. If wintered on the range they may be fed some hay or grain or cottonseed cake in addition to the grazing, although if the mature sheep are in a thrifty condition this is not necessary until about six weeks prior to lambing time. When sheep cannot graze during the winter and have to be fed, alfalfa hay is regarded as the standard roughage. It is most generally fed on the ground. Care should be taken to see that the roughages fed are free from mold and that the feed ground is changed often so that it will not become unsanitary. The ewes should have sufficient feed to keep in a thrifty condition; the best feeds ought to be reserved and fed liberally three or four weeks before lambing time.

Blue joint hay is equal to alfalfa hay for wintering sheep. Grain hays are not satisfactory as the sole winter feed for breeding ewes. Wild barley or fox-tail hay is undesirable, as the heads get into the fleece, and may also cause sore mouths. The results of sheep wintering experiments indicate that:

- 1 pound of oats replaces 2 and $\frac{1}{4}$ pounds of alfalfa hay
- 1 pound of corn replaces 2 and $\frac{1}{2}$ pounds of alfalfa hay
- 1 pound of cottonseed cake replaces 2 and $\frac{2}{3}$ pounds of alfalfa hay

Spring and Summer Management

The most important spring problem for the range sheepman is presented during the lambing season. A month before the ewes will lamb they might well receive $\frac{1}{2}$ pound of grain or $\frac{1}{4}$ pound of cottonseed cake per head daily. The best lambing ground consists of a range with a supply of hay saved for lambing time. Where the lambs are born before green grass some shelter is necessary lambing sheds or tents may be used so that the ewe at first will be confined with the lamb in a small pen or enclosure. As the lamb grows older the ewes and the lambs are gradually combined with other ewes and lambs in large pens or in the band. Studies of 11 annual yearly records kept by sheepmen in one of the range states indicates that shed lambing resulted in annual net return of 13 cents more per head than range lambing.

Where range lambing is practiced, the ewes begin lambing as soon as grass is available in the spring. The most favorable range is customarily set aside for this purpose. Where lambs are dropped during the day, they and their mothers should be brought together before night. Special care and attention must be given the lambs, the weak ones must be helped to suckle and as the lambs grow older they and their mothers are combined in small bands of ewes and lambs and closely herded. Small tents ought to be used as a protection for new-born lambs, especially during stormy days. Every attempt should be made to save all the lambs possible.

The summer range for the flock differs very little from other seasons except the need for shelter is not so great. After shearing the ewes, they are freshly branded and ought to be dipped before being turned out on the summer range. The sheep graze a few hours in the morning and then lie down to rest through the middle of the day. This gives the shepherd an opportunity to attend to his camp duties before the sheep start out to graze again during the middle of the afternoon until bedded down for the night. Experiments in one of the range states indicate that during a 100-day summer grazing period lambs handled under the bedding-out system were on the average 7 pounds heavier per lamb when weaned than lambs handled under the central-camp or permanent-bed ground system. Salting the band is a regular duty of the herder.

Poisonous Plants on the Range

A number of sheep are lost on the range every year due to eating poisonous plants. More severe losses occur in seasons of scant grazing or where the range is overgrazed. Very often heavier losses may occur in the spring when the sheep are first turned out in the range or when they come onto the range or off long trails and are hungry for green feed. Camas, chokecherry, locoweed, lupine and whorl milkweed are a few of the plants which may cause losses from poison on our South Dakota ranges. In the early stages of locoweed poisoning, the affected animals should be removed to a better pasture free from the locoweed, as there is a possibility of recovery from the poisoning.

Production of Stock Sheep and Feeder Lambs

The sheepman on the range must retain the number and desired average age of the ewes in the band. The ewes that are lost or culled out each year

must be placed by at least an equal number of young ewes. If the lambs produced on the range are of the same type as the breeding ewes the sheepman retains his own replacement stock. When black-faced rams are used on the flock both ewe and wether lambs are marketed, for black-faced ewes do not possess the flocking instinct so necessary in large range bands of sheep. Therefore, replacement purchases must be made of ewe lambs or yearling ewes from sheepmen producing stock rather than market lambs. Uniformity of type should be maintained.

Wool Production and Marketing

In South Dakota sheep are produced for both meat and wool, the latter representing from 30 to 40 percent of the total income from sheep. Every flock owner should, therefore, strive to produce wool that is in the best marketable condition, wool that is free from burs, chaff or foreign material, fleeces that are tied separately with paper twine and well packed into wool sacks. It takes 12 months to produce a clip and yet careless handling at shearing time may reduce its value from 10 to 25 percent. Never before has the demand for properly cared-for wool been as great as at the present time.

Suggestions for Greater Wool Returns

Sheep that produce black, gray or kempy fleeces ought not to be kept in the breeding flock as their fleeces are forced to sell several cents lower per pound. Ordinary paint should not be used for branding sheep as it lowers the selling price of the wool since it will not come out when the wool is scoured. Standard sheep branding paint is recommended for marking sheep. Sheep that are unthrifty or are not kept free from parasites and disease plainly show the results of such neglect in the crop of wool produced.

Hay thrown into the feed racks over the sheep's back or permitting sheep to have access to hay and straw stacks may reduce the labor cost in wintering the flock, but a seedy or chaffy wool clip will result, causing the wool to be classed as "rejects," thus netting the owner less money the same as burry wool. "Rejects" are valued about 20 percent less than the same grade of clear wool. The length, strength and to a certain degree the shrink of the fleece is influenced by feeding. As wool is composed largely of protein and mineral matter, feeds that are relatively high in the nutrients should show their effect on the wool produced. Feeding too heavily before lambing should be avoided, but on the other hand a starvation ration will cause sheep to shed their wool in the spring. Do not overcrowd the sheep as overheating will oftentimes cause a "break" in the wool, just the same as neglect in properly winter feeding the flock.

Shearing and Handling the Wool

Shearing is done in the spring as soon as the weather is warm, usually during May and June. Some flock owners shear late, their desire being to let the sheep run on grass for some time thus increasing the amount of yolk in the wool and adding to the weight of the clip. Any advantage of such practice may

be offset by the fact that the sheep may lose part of the wool on their bellies, necks, etc., as wool on a sheep will fall off when ripe. Do not shear when the fleeces are wet.

Shearing is done mostly with machines. Once familiar with the use of the machine, one can shear many more sheep a day and one can scarcely be induced to go back to the use of the hand shears. The machine method has the following advantages over the hand shears:

1. The work is done more rapidly than with hand shears.
2. It is a neater and smoother job.
3. It is easier to learn shearing with the machine.
4. It is not so hard on the shearers' wrist as using a hand shears.
5. A larger amount of wool is obtained because the sheep can be clipped closer.

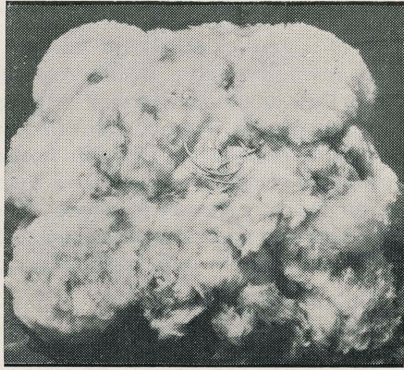
Shear the sheep on a smooth, clean, well swept floor or ground. All dirt and chaff should be swept out of the cracks on the floor, as it is difficult to keep the wool clean if dirt is constantly worked out onto the shearing floor. A large piece of canvas could also be spread where shearing is to be done, but it is not quite as satisfactory as a smooth board floor. Just how to hold the sheep in the many different positions necessary while shearing will be learned through actual practice. The best way for the beginner to learn to hold and shear sheep is to watch an experienced shearer at work. In every position, the sheep must be held so as to draw the skin where the shearer is working. It should be held in the most comfortable position instead of the cramped posi-



The Shearing Machine is Replacing the Hand Method of Shearing. Note the operator's method of holding the sheep while shearing.



The Approved Manner of Opening
The Fleece for Inspection



A Shorn Fleece Properly Folded,
Rolled and Tied.

tion in which some shearers hold sheep. By following the contour of the body, the operator will avoid many second cuts.

The shearing should be done in a clean, sweeping swath rather than in a number of short clips, for the latter leaves the fibre in short uneven lengths thus lowering the value of the clip. When the fleece is removed in approximately one piece it is much easier to pack and tie. Authorities advocate tying the fleece on the shearing floor rather than using a wool box or table. As the fleece lies on the floor after shearing, turn it over with the skin or flesh side down. Remove the tags, wet or badly stained wool around the breech, filth or other foreign matter and sack these separately from the good wool. Any wool around the head and neck that is loaded with chaff should also be removed.

Fold the neck wool back to the shoulders, then the breech and shank wool up to the point of the hips and turn the sides in until the better wool appears. Roll the fleece from the tail towards the shoulder, but do not roll it too tightly. Use paper twine for tying the fleece; never use sisal or binder twine for this purpose. Pass the twine lightly around the circumference of the fleece beginning at the point opposite the operator, bring the twine around from both sides towards the left hand, make a single hitch at the same time whirling up the bundle so that the point nearest the left hand is now uppermost, crossing the string at right angles, bringing it around and tying it.

After shearing it may be advisable to permit the fleeces to air out a day or two before packing; this permits the animal heat to escape and the fleece is less apt to discolor. Where the clip is large with quite a variation in the fleeces of the different sexes and ages, it would be advisable to sack the lamb, ewe, ram and wether fleeces separately.

Neither black fleeces nor wool from dead sheep should be packed with the good fleeces. Sweepings should not be put in with the good wool, but should be sacked with the tags and sold as such. Tags usually sell for about one-third as much as good wool. Pack the fleeces in clean wool sacks of regulation size, namely 7 foot sacks holding from 20 to 23 fleeces, when properly tramped. Mark each sack with a description of the contents.

Market Grades and Classes of Wool

Wool is graded mainly for fineness or diameter of fibre, although such factors as length of fibre, shrink, color, character and soundness are also considered. First of all it is classified as fleece wool, territory wool or carpet wool. The fleece wool is obtained from the small farm flocks east of the Missouri river; the territory wools from the flocks west of the Missouri river; and the carpet wools consist of inferior wool containing kemp or hairy fibres which is used for the manufacture of carpets. The wool is further classified as bright, semi-bright and dark, depending upon its appearance, and for South Dakota this refers principally to the amount of dust and sand in the fleeces.

U. S. Descriptive	U. S. Numerical
Fine	80s, 70s, 64s
Half blood	60s, 58s
Three-eighths blood	56s
Quarter blood	50s, 48s
Low quarter blood	46s
Common	44s
Braid	40s, 36s

The descriptive system of grading as used in the United States and Canada does not have reference to the amount of Merino blood in the crosses of sheep such as it did when the system was first set up; as used today, it merely defines the grade of wool involved. The numerical (Australasian) system of grading is based on the hanks of yarn that can be made from one pound of scoured wool. A hank consists of 560 yards. One pound of scoured wool of 60s quality would make 60 hanks of yarn, hence the grade of wool is called 60s.

The fineness of the fibre denotes the grade of wool, while the length of fibre defines the class. Wool within the first four grades may be classed as clothing or combing; within the last three grades it is usually long enough to eliminate the necessity of making a clothing class. In the fine and half-blood grades there is a third class ranging between the combing and clothing classes known as the French combing or baby combing. It may be roughly stated that wool over 2½ inches in length is classed as combing or staple wool, while the wool shorter than this length is known as clothing wool. Combing wool is usually worth about 10 percent more than clothing wool, for it is longer and stronger and better adapted for the use of the combing or worsted mills, while clothing wools are used in the manufacture of woolens, flannels and felts.

As it comes from the sheep, wool contains considerable grease and dirt and must be scoured out before being used for yarns. The percent of weight lost in scouring is called shrinkage. To illustrate, if 100 pounds of one-half blood wool would weigh only 40 pounds when scoured, the difference in weight of 60 pounds would represent a shrinkage of 60 percent. Shrinkage is the most important factor affecting wool values, ranging from 45 percent to 80 percent for our South Dakota sheep, depending upon the breed of sheep and the individuals within the flock. South Dakota territory wool shrinks less than fleece wools due to the conditions under which the sheep are produced. Semi-bright wools will shrink about 2 percent more, and dark wools about 5 per-

cent more than bright wool. Clothing wool will shrink from 1 to 2 percent more than combing wool of the same grade. Ram fleeces shrink from 2 to 4 percent more than ewe fleeces of the same brand.

Wool Production by Breeds

There is a distinct variation in the grades of wool produced by the different breeds of sheep. Apparently there is a correlation between the type and size of the individual and the fineness of the wool fibre. One can not select too closely for fineness of fibre without sacrificing the length of the wool and the mutton quality of the animal. The following table shows the pounds of wool produced annually by average ewes of the breed and the grade and class of wool produced by the different breeds of sheep.

Breed	Pounds Wool Annually	Grade		Class
		U. S. Numerical	U. S. Descriptive	
Merino	11 to 15	80s-70s-64s	Fine	Combing
Rambouillet	10 to 18	70s-64s-60s	Fine to half	Combing or Clothing
Southdown	5 to 7	60s-58s-56s	Half to three-eighths	Combing or Clothing
Suffolk	5 to 7	56s	Three-eighths	Combing or Clothing
Dorset	6 to 8	56s-50s-48s	Three-eighths to quarter	Combing
Tunis	7 to 9	56s-50s-48s	Three-eighths to quarter	Combing
Hampshire	7 to 9	56s-50s-48s	Three-eighths to quarter	Combing
Shropshire	8 to 10	56s-50s-48s	Three-eighths to quarter	Combing
Corriedale	12 to 14	56s-50s-48s	Three-eighths to quarter	Combing
Cheviot	6 to 8	50s-48s	Quarter	Combing
Oxford	10 to 12	56s-50s-48s	Quarter to Braid	Combing
RomneyMarsh	12 to 14	46s	Low quarter	Combing
Cotswold	10 to 14	44s-40s-36s	Common and Braid	Combing
Lincoln	12 to 16	40s-36s	Braid	Combing
Leicester	9 to 12	40s-36s	Braid	Combing

Marketing the Wool

The wool crop may be marketed in one of the following methods:

1. Selling it to a local wool buyer or an itinerant wool buyer. Sometimes it may be contracted, that is sold before it is sheared, in which case a cash advance is made at the time of contracting and the balance of the purchase price is paid when the wool is delivered to the buyer.
2. Consigning the wool crop to a commission firm or wool broker. In this case the firm sells the wool for the shipper's account and makes a charge (commission) for its sale service. This practice may not always be for the shipper's interest, especially when such a firm buys wool as well as handling it on commission.
3. Marketing the wool crop through a cooperative wool marketing organization. In this state the sheep producers have such an organization, known as the Cooperative Wool Growers of South Dakota, owned and operated by them. The Association pools, stores or buys wool and operates large wool warehouses in different sections of the state. It is primarily interested in serving the wool growers by stabilizing and strengthening wool prices throughout the year, as well as fostering legislation and other activities that are helpful to South Dakota's sheep industry.

Common Ailments in Sheep

This section of the Manual dealing with the "Common Ailments of Sheep" has been prepared by Dr. G. S. Weaver, Extension Veterinarian at South Dakota State College.

One of the important limiting factors in sheep production is the matter of disease control. A disease among sheep may mean the difference between success and failure. Close observation of the sheep at all times and the prompt treatment of any unusual condition are ways to avoid loss of the animals. Only a few of the common ailments can be considered in this circular. If the need arises, one should refer to other literature which gives more detailed information concerning diseases.

It is well to keep in mind that most diseases are caused by germs. Of course, there are numerous parasites of different kinds which may infest the sheep externally or internally. Sanitation plays an important part in the control of all diseases. Germs may be killed by sunlight and disinfectants. Hygienic surroundings receive consideration at all times.

Bloat.—This condition is brought about in sheep by acute indigestion which causes the formation of gas in the large stomach. It frequently occurs when the sheep are pastured on wet alfalfa or some sudden change of feed. The gas in the stomach causes a pressure against the lungs and the sheep will have a quick distressing breath. There is also an enlargement on the left side due to the gas distending the stomach. One teaspoon of kerosene given in milk as a drench may help some cases. As a last resort it will be necessary to tap the sheep on the left side in order that the gas may escape. The condition should



When Drenching a Sheep Use Care in Not Getting Its Muzzle Above the Level of the Eyes.

Lambling Down Corn Is a Practice Successfully Followed by Many Lamb Feeders.

be prevented by cautious feeding and the elimination of sudden changes of feed.

The Blow Fly.—The failure to dock lambs when they are young predisposes them to the attacks of the blow fly. Following an attack of diarrhea the tail is a mess of filth which serves as an ideal place for the blow fly to lay eggs and these hatch out maggots. Wounds of all kinds may serve as a breeding place if not properly protected. If castrating and docking are performed in fly time the wounds should be protected by an application of oil of tar or equal parts of turpentine and lard. One of the best remedies to drive out maggots is equal parts of sweet oil and sulphuric ether. Clip the wool from the affected part and thoroughly wash the wound before applying this treatment. Turpentine is also good but be careful not to get the turpentine on the skin around the wound.

Constipation in Lambs.—This condition produces a decreased appetite and a dullness which may bring on digestive disturbances as well, and there is a straining and distress. Treatment consists of giving the lambs one teaspoon of castor oil by way of mouth and also giving an enema of soap and water.

Hemorrhagic Septicemia.—(Sometimes called "Shipping Fever.") There is little occasion for this disease to occur among native sheep. It is necessary for the animal's resistance to be lowered by some other condition such as exposure before it becomes susceptible. The disease is characterized by cough, running at the nose, difficult breathing and frequently a diarrhea. Treatment consists of removing all conditions that tend to make the animal uncomfortable. Have veterinarian treat the flock with a bacterin.

Mammitis or Inflammation of the Udder.—This condition is brought about in many cases when the lamb either is sick or has died, or possibly the ewe will not own the lamb resulting in the udder becoming so full of milk that it becomes inflamed. The only treatment under the circumstances is to milk out the udder frequently and massage the udder with camphorated oil.

Navel Infection of Lambs.—The infection usually occurs at the time of birth, or at least it gets in shortly after birth. The germs enter through the navel and the condition becomes generalized and the liver soon develops diseased spots. In some cases the joints in the legs may enlarge. Many of the lambs die from two to ten days after they become infected. Good sanitary conditions in the lambing quarters help to prevent this infection. It is advisable to move the ewes which have not had their lambs to new quarters to lessen the chance of the new lambs becoming infected. Immediately after a lamb is born the navel cord should be treated with tincture of iodine. The most important point in controlling this infection is to get the ewes and lambs entirely away from the place where the infection exists.

Pneumonia in Lambs.—This is an inflammation of the lambs brought about by exposure and damp quarters. The lambs show symptoms of a bad cold. The condition frequently occurs where the lambs are closely housed and poor ventilation exists. The lamb appears sore and stiff and frequently develops a cough along with a discharge from the nose. Treatment of the sick

lamb is rather unsatisfactory. The main point is to keep the lamb warm even though it may be necessary to blanket the lamb or keep it in a building that is heated by all means close off the drafts.

Pregnancy Disease.—This condition is common among ewes immediately preceding the lambing season. Ewes may become too fat due to a lack of exercise, dry feed and no alfalfa. When affected with this condition they get weak and listless. They may stand around with straw in their mouths. Usually they get down and die within three or four days. The disease is neither contagious nor infectious and may be prevented by proper exercise and proper feed. The ration should be balanced and contain plenty of succulent feed. In case a ewe is noticed sick and before she gets down in a paralyzed condition it may be advisable to give her a physic in the form of $\frac{1}{4}$ pound of Epsom salts. The salts may be given by dissolving them in a pint of water, and a pop bottle may be used as a drenching bottle. A mineral mixture could also be prepared for the remainder of the flock, consisting of 1 pound of salt, Epsom salts, sulphur and baking soda. This should be kept before the ewes at all times.

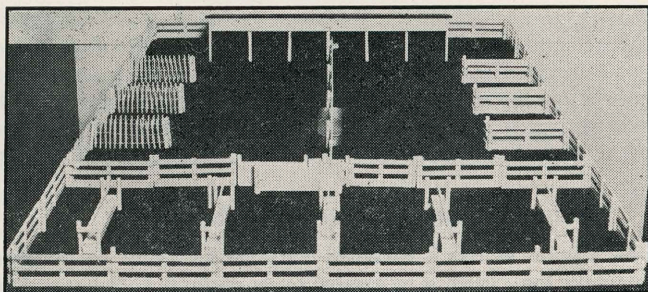
Scabies or Mange.—This is another parasite which is too small to be observed by the naked eye. The infestation is characterized by the sheep rubbing their sides, back or tailhead and finally a loss of wool on the infested skin. These mites set up an intense irritation. A moist yellowish dandruff substance develops on the skin and this is finally replaced by a scab. The wool loosens and drops from the skin and the sheep loses flesh. The only true method of diagnosing sheep scab is to demonstrate the mite and this can only be done by a veterinarian. The disease is transmitted by direct contact, and all scabby sheep should be kept entirely away from uninfested sheep. It is necessary to dip the sheep in a lime sulphur dip twice, ten days apart, and it must be an official dipping; that is, the control of scabies is a regulatory measure for the State Live-stock Sanitary Board to look after and all dipping must be supervised.

Scours.—There are numerous causes of a diarrhea in sheep and lambs. Anything that interferes with digestion may produce scours. Possibly the lamb gets too much milk or the lamb has been chilled. A teaspoonful of castor oil will usually give good results.

Sore Eyes.—This is a contagious condition which produces red and inflamed eyes, a watery discharge and in some cases blindness. The eye balls may turn white in some instances. It is most important to separate the sick lambs from the remainder of the flock. The sick lambs should be kept in a dark place. Boric acid solution (saturated) should be applied to the eyes twice a day by the use of a medicine dropper. Try to prevent the condition as much as possible by providing clean quarters.

Sore Mouth.—The mouth of lambs may become infected and small ulcers develop on the lips and in some cases inside the mouth. Wash the ulcers with soap and water and remove the scabs with a dull knife or the edge of a spoon. Then apply tincture of iodine to the ulcers and repeat the treatment if necessary.

Stomach Worms.—These parasites are very small thread-like worms infesting the fourth part of the stomach. Lambs become infested in the early part of



An Overhead View of a Modern Feed Yard for Lambs. The Cafeteria in which the lambs are fed grain is shown in foreground with two pens directly back of it in which they are confined for roughage with an open shed at the rear

the summer and exhibit dullness, scouring, droopiness and some a watery swelling under the jaw. Frequent changes of pasture help to prevent infestation. When lambs become infested they must be treated internally and probably the most common product is 1 percent solution of sopper sulphate (blue stone or blue vitrol). Dissolve one-fourth ($\frac{1}{4}$) of a pound of copper sulphate in three (3) gallons of water to make one percent (1%) solution. A dose of one to two ounces for lambs and two to four ounces for ewes is given and the dose is repeated in ten days. In badly infested flocks it may be necessary to again treat the sheep in about one month.

Tape Worms.—These parasites are long flat segmented worms which infest the intestines. The head of the worm is attached to the lining membrane of the intestine and the segments may extend for several feet. The worms produce an unthrifty, emaciated condition in the lambs characterized by diarrhea. The same treatment as for stomach worms is used to rid the lambs of tape worms.

Ticks.—These are flat brown parasites that suck blood through the skin. They may be observed easily if present by separating the wool with the hands. A lamb so infested will lose weight and in some instances the wool will drop out. The lamb becomes stunted as a result of the infestation. Very frequently the ticks will leave the old sheep and get on the lamb during the summer months. To control ticks it is necessary to dip the sheep with a coal-tar dip mixed according to directions. The dipping should be done just after shearing the ewes. Of course the lambs should be dipped also. It is necessary to have two dippings, 24 days apart. The dipping should be done on a warm day in order that the sheep may dry quickly and not become chilled.

Fattening Lambs for Market

Increasing interest is being taken in the feeding of lambs for the market in the eastern third of the state and in the irrigated area in the extreme western part of the state. South Dakota produces not only good feeder lambs but also an abundance of grain crops and roughage, so it is only natural that more of the lambs should be fattened within the state before shipping them to market.

A check-up with lamb feeders in the northwest during the past years shows that those who purchased their feeder lambs made greater profits than those who fed lambs on contract. Success in feeding lambs depends upon care in purchasing the lambs, economy in feeding and watchful management to avoid losses. Feeders indicate that it takes from 90 to 120 days to fatten a 55 to 65 pound feeder lamb, necessitating from 2 to 3 bushels of corn and 100 to 150 pounds of legume hay.

Securing Feeder Lambs

Too great a financial risk is involved when feeder lambs are purchased at approximately the same price as fat lambs. There ought to be a margin between these two prices in favor of the feeder lamb prices. The lambs may be secured directly from western South Dakota sheepmen, upon the terminal livestock markets or through livestock sales agencies operating within the state. When purchases are made at the terminal livestock market, a good commission firm at that market should be consulted and the purchases made through it. Select lambs that are blocky, low set, deep of body with straight top line, wide of back and loin and square at the dock, carrying a fair degree of fleshing and a dense unbroken fleece free from burrs. Extremely thin lambs have lost their lamb flesh which results in slower and more expensive gains in the feed lot.

Starting the Lambs on Feed

When the western feeder lambs arrive at the unloading station, they should be unloaded as soon as possible. The lambs should be carefully counted and weighed so as to have a check upon the number of head and upon the shrinkage enroute. The station agent should make notations on the freight bill showing the number of lambs unloaded and also the number of cripples and deads, if any. After being unloaded do not permit the lambs to have all the water they will drink at the stock yards; merely give them a little to quench their thirst.

After getting the western feeder lambs to the farm, they should not be immediately turned out to forage. The grass they are used to is much drier than the ranker growing grasses in the corn belt. Keep them in the feed lot and feed them what they will eat the first day but let them have about all the water they will drink.

Western lambs are not accustomed to grain and consequently they have to be brought on feed gradually. Start by feeding them about one-tenth of a pound of oats per head daily and as they clean up this feed, increase it at the rate of one-tenth of a pound per head each day, or feed oat bundles. After the first week, corn or barley may be substituted for a portion of the oats. Increase the grain feed gradually until light lambs are getting up to 1 pound and heavier lambs up to 1½ pounds per head daily. Hay may be fed quite liberally during the early part of the feeding period but toward the latter part of the feeding period the lambs ought not to get more than one pound of hay per head daily. The lambs should be carefully watched for any indications of "going off feed" or scouring. Provide the lambs with plenty of fresh water at all times. Permit them to have access to what salt they need, but as with the

grain, accustom them to the salt gradually, otherwise digestive disorders may occur.

Native feeder lambs will undoubtedly be accustomed to grain and so may be placed on full feed quicker than western feeder lambs. However, the same principles of feeding apply to both types of feeder lambs.

Fattening Lambs in the Corn Field

In lambing-off corn, farmers in the eastern part of the state usually consider that 12 to 15 head of feeder lambs will clean up an acre of corn. Experiments show that an average gain of eight to ten pounds per head may be expected each month. The lambs for the corn field should be strong and growthy. If it is a large field, it may be advisable to fence off a portion of it. Some successful lamb feeders cut a criss-cross strip 10 to 12 corn rows wide through the field which enables the lambs to find their way back to the barn lot more readily and prevents their getting lost from the balance of the flock. Use care in starting the lambs in the corn field; they may be turned into it for an hour the first day, two hours the second day and so on until they are fully accustomed to the feed.

It is well to provide a protein supplement to the corn. A little rape seeded in the corn in the last cultivation provides an excellent supplement or if the lambs may have access to a rape pasture or a clover pasture, satisfactory results will be experienced. In experiments conducted at the State Experiment Station lambs having the run of the corn field and access to rape made an average daily gain of one-half pound per head. Alfalfa hay is preferred as a protein supplement and should be supplied the lambs each evening when they are penned in the barn lot. If alfalfa or clover hay are not available, oilmeal or bran will provide the necessary protein, feeding approximately one-eighth of a pound of oilmeal or one-half of a pound of bran per head daily. Where the lambs have the run of the field, they should be yarded at night as this gives the feeder an opportunity to check up on the lambs daily and may prevent losses from ravages of dogs or coyotes. Plenty of fresh water and salt should be provided the lambs.

Comparing the best lot of corn-field fed lambs (those receiving hay and linseed oil cake in addition to the standing corn) with the dry lot fed lambs in tests at the Ohio Experiment Station, the results showed a lower cost of gain for the corn-field lambs. Assuming that it cost 8 cents per bushel to harvest, store, and feed the corn to the dry-lot lambs, then the corn field lambs made cheaper gains and showed a greater return per acre of 60 bushel standing corn than the dry-lot lambs.

Fattening Lambs in the Dry Lot

Where lambs are fattened in the feeding lot the grain may be hand fed or self fed, but the cost of the grain in weight is usually higher for self-fed lambs. When self-feeding lambs the protein supplement should be mixed with the grain as lambs will not properly balance their own feed. In hand feeding a sufficient number of feed troughs or bunks should be provided. The feed troughs should have a flat bottom 12 inches wide, should be set on legs and

so constructed that the feeder can tip them over for cleaning. There should be a 2" x 4" running lengthwise about 12 inches above the trough to prevent lambs from climbing into the trough. A trough 8 feet long and 12 inches wide will accommodate 16 lambs. The hay bunk should preferably not be over two feet in width. If a combination hay and feed bunk is constructed it may be 18 inches wide. Illustrations of two feed troughs are shown on pages 10 and 11.

A few good rations for fattening lambs are here presented:

Without silage or legume hay:	With silage and alfalfa hay:
1½ lbs. grain	1½ lbs. grain
⅛ lb. linseed meal (pea size)	.1 lb. linseed meal or cottonseed meal
1½ lbs. prairie hay	2 lbs. corn silage
	½ lb. alfalfa hay
With wet beet pulp:	With a legume hay:
1 lb. grain	1½ to 2 lbs. of grain
5 lbs. wet beet pulp	1½ lbs. alfalfa or clover hay
1½ lbs. alfalfa hay	

When a ton of corn does not exceed four times the cost of a ton of alfalfa hay, a ration containing a smaller amount of hay (1½ to 1 lb.) is preferable. At the South Dakota Experiment Station it has been found that a grain mixture of 100 pounds of shelled corn, 100 pounds of oats and 25 pounds of linseed oil meal makes a very satisfactory and economical grain mixture when fed with alfalfa or clover hay. A grain mixture consisting of ⅓ barley, ⅓ oats and ⅓ rye should be economical.

Care and Management

For the beginner in lamb feeding a few statements might be made regarding the necessary equipment. Expensive equipment is not necessary. It is essential that the lambs have dry quarters where they can go in case of rain or snow storms. Such quarters can be provided by a good straw shed, preferably closed on three sides with the south side open and having plenty of straw covering on the top so as to keep the moisture from seeping through. Failure to have such covering on the top may prove to be a source of severe losses in the feed lot, should a wet season be experienced. In considering the size of the shed, allow approximately four square feet of floor space for each lamb. Having dry quarters for the lambs the feed bill can still be further reduced by having adequate wind break for the feed lot. Where one does not have the protection of a grove of trees or a board fence, a straw fence may be constructed. Where this is done it is well also to construct a snow fence outside of the wind break to prevent the snow from drifting into the feed yard.

Oftentimes when lambing-off corn in the early fall during fly season there may be a few lambs trying to bite or rub various parts of their body; this may be due to an infection of maggots. The wet or soiled wool should be clipped and if any maggots are found, apply a solution of sheep dip or gasoline. At times in the more severe cases of scours it will be advisable to sort out the affected lambs, pen them by themselves and treat each lamb as outlined on

page 29. At times during the feeding period there may be lambs that develop wool blindness; if so, they should be caught and the wool clipped from around the eyes.

If lambs are badly infested with ticks, it would pay to dip them in a standard sheep dip twice, allowing an interval of two weeks between dippings. Lambs that appear dull and unthrifty may be infested with stomach worms or tape worms; diarrhea may also be a symptom. Lambs thus infested should be treated as suggested on page 30.

When lambs go "off-feed" the amount of the feed should be reduced and then later increased as the lambs show a keener appetite. It might be well to let them miss an entire feed. When self-fed lambs go "off-feed" it is advisable to change the form of the grain until they are back on full feed again. Lambs that are decidedly smaller than the bulk of the lambs on feed could most profitably be sorted out and fed by themselves. The smaller lambs should be given a growing feed for thirty or sixty days and then put onto a fattening ration.

Ten Simple Suggestions for Greater Gain

1. Start lambs on feed and make any changes in feed gradually.
2. Provide dry quarters and protection from severe weather.
3. Allow sufficient feed bunk space for every lamb and clean out feed bunks each time before feeding.
4. Feed a balanced ration, feeding no more than what the lambs will clean up at one feeding.
5. Permit access to clean fresh water at all times; in cold weather the water should be slightly warmed.
6. Have salt available always.
7. Provide a growing ration for light weight lambs for 30 to 60 days before starting to fatten them.
8. Sort any sick lamb or scoury lambs and feed them by themselves.
9. Watch out for lambs going off feed, or off condition or for any wool blindness.
10. Handle lambs quietly at all times.

Fitting Sheep for Show or Sale

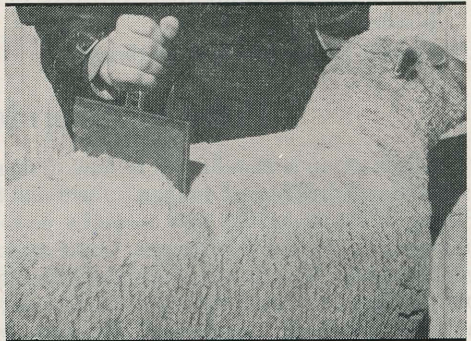
A lack of understanding as to how to fit sheep for the show or sale ring is oftentimes the cause of disappointment and failure on the part of the owner. Fitting alone, no matter how carefully performed, can never make a good individual out of an inferior one. Good conformation is the result of intelligent breeding; the efficient feeding of the animal helps to bring its owner the best market price and the most net returns; and the proper fitting of the animals' not for the purpose of deception, but merely to have it look best when exhibited. The animals to be shown must be in a thrifty and healthy condition.



With left hand under the jaw and the right hand over the dock this member is moving his sheep in an approved manner

Training

A well fattened and fitted sheep or lamb may sometimes lose a prize because it is not properly shown. The proper training of the animals should start well in advance of the time they are shown. First of all one should know how to properly catch a sheep, lead it and show it. **Never catch or hold a sheep by its wool.** It may be caught by grasping the right rear flank and then placing the left hand underneath its neck. When leading it keep the left hand under-



On the right is shown the wool card used for combing out the ends of the wool for trimming after the foreign material on the surface of the fleece has been worked out with circular curry comb.

neath the jaw and place the right hand over the dock, thus guiding with the left and pushing with the right hand. The sheep to be shown should be trained to stand quietly. The exhibitor stands or kneels at the left side of the sheep, holding the left hand under the sheep's jaws and when necessary to quiet it the right hand may be placed on top of the animal's head or on its dock. Stand the animal squarely on all four legs; the correct position of the legs may be arranged with the right hand. Keep the body in position, with a level top line and with the head up.

Equipment Needed

The following list of materials and equipment is necessary for fitting sheep or lambs for the show ring:

- | | | |
|-------------------|--|--------------|
| Small rope halter | Curry comb | Sheep shears |
| Pail of water | Wool card | Pocket Knife |
| Stiff fibre brush | Double hone (medium for fine surfaces) | |

Trimming the Feet of Show Sheep

The feet of any sheep or lambs that are to be shown should be examined every few weeks. The outside horny part of the hoof often grows irregularly, and if the feet are not kept trimmed, crooked and broken down pasterns may



Trimming the ends of the fleece on back and on side of sheep being blocked. The trimming is made at right angles to the backbone

result. One or two trimmings during the year is usually sufficient for the general flock, but frequent leveling of the edges of the hoof to keep it level with the sole of the foot is desirable with all show animals. The hoof and horny part should be trimmed down until it is level with the sole of the foot, so that the foot will stand straight when placed on the ground. Be careful not to cut the hoof too short so as to cause soreness and lameness.

Trimming (Blocking Out) the Fleece

The uniform and pleasing outlines of sheep and lambs exhibited by experienced showmen are the result of experience and hours of careful work. It is more desirable for the beginner if the process of trimming may be done at two or three different times at intervals of several weeks, rather than doing the whole job just before starting for the fair or just before exhibiting the animal. Should the fleece on the underline, over the twist or on the legs be very badly cotted or taggy, it should be washed to remove the dirt and filth and allowed to dry before starting the trimming. Soft water to which has been added sheep dip (2 tablespoonfuls dip to a gallon of water) may be used for washing, although it may sometimes be necessary to use soap on the badly stained fleece. Whatever washing is necessary should be done at least two months before exhibiting the animals, as this will give sufficient time for the oil or yolk to come back into the fleece. If not too badly cotted the wool may preferably be combed out with the curry comb rather than washed.

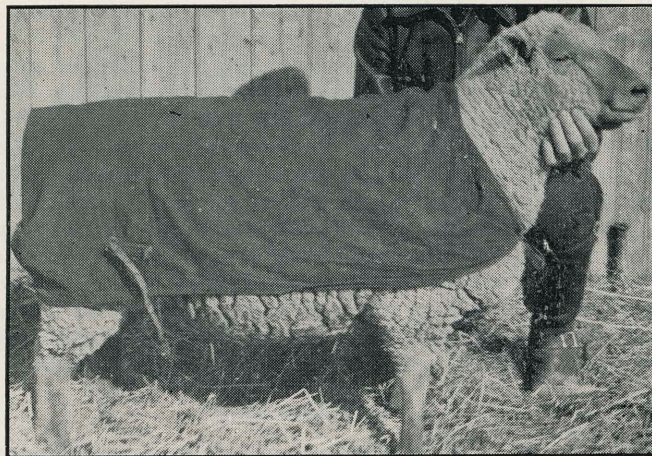
The amount of blocking of the fleece depends upon the type of sheep to be shown. The fleece of fine wool sheep should not be washed, but should be kept as clean as possible. The fleece is not blocked but is smoothed off to give the animal the characteristic round body lines. The fleece on the long wool type sheep is left in a more natural condition; it is never carded, the tag ends may be trimmed off to give it a neater appearance and the dock may be slightly squared up. The fleece should be kept as clean as possible. Length of fleece is important in the long wool breeders and the Lincoln and Cotswold should be shown with long full foretops.

There are five important rules to bear in mind in blocking the fleece on the medium wool breeds:

1. Maintain a fine cutting edge on the shears.
2. Keep the animal standing squarely when blocking.
3. Hold the shears flat when trimming.
4. Always trim at right angles to the backbone when blocking the body.
5. Constantly stroke up the fleece while trimming and keep its surface moistened.

Stand the animal to be trimmed squarely on its feet on slightly rising ground with the head turned uphill. It is most desirable to have it held in position by an assistant, but if this is impossible, tie the animal to a post or fence. The back and underline should be straight and level, and if the animal is not standing squarely, the back may be so trimmed that afterwards it will be slanting off to one side or the other.

The fleece is combed out with the curry comb so as to separate any cotted fibres and to straighten up any uneven growth; this combing also partially



Blanket the sheep after blocking the fleece to keep it clean.

removes any dirt or foreign material. Dampen the outside of the fleece with the wet bush and then fluff it up with the card; the fuzz thus produced is brushed or rubbed so that the uneven ends are sticking up. Trim the back square, making it as broad as possible and straight and strong in its outline. To do this hold the shears flat to the back, start at the high place in the top-line, which is usually the shoulder, and clip crosswise of the back, working towards the rump. The clipping should be done at right angles to the backbone as a cut in any other direction results in a jagged appearance. While trimming, continually rub the fleece up with the brush or the flat of the shears, so that any uneven tags may be exposed and trimmed off.

After the back has been trimmed to one's satisfaction trim the sides, clipping either up or down the same process of combing, wetting, fluffing and rubbing the fleece as described in trimming the back, being careful to retain the natural slightly rounding contour of the body. The space over the body, between the side and back trim should be rounded, trimming as little as possible so that the greatest possible width and blockiness may be maintained. The rump is trimmed to carry back rectangularly; the dock is squared to show width and plumpness; and the leg of mutton trimmed to give a plump full appearance. Sometimes the fleece over the thigh is fluffed to increase the plump appearance of the leg of mutton. The trimming over the belly is done to remove any low hanging hags. The shoulder vein, brisket and neck are left plump and full, only the outer fibres being evened. If increased width is desired, the brisket is slightly fattened. If the animal has a long neck, the shoulder is oftentimes trimmed a little more forward.

The trimming of the fleece over the head depends upon the breed, but all animals are trimmed squarely between the ears to show all the width possible. The cheeks and forehead of the Shropshire and Hampshire should be round

and full. The fleece on the head of the Southdown is trimmed and blocked to give a finishing touch to that compact tidy appearance.

After completing the blocking, the fleece may be given a smoother, denser appearance by lightly patting it with the back of the wool card or with a short smooth board. On breeding sheep the length of the wool over the loin ought to be at least $\frac{3}{4}$ inch, while for market sheep it could be slightly less. It is advisable to blanket the sheep whose fleeces have been blocked for the show, as it keeps the fleece cleaner. Suitable blankets can be made from burlap bags or from unbleached muslin; they should be made large enough so as not to bind in any manner. If a burlap bag is used, the seam may be opened down the side, a hole of sufficient size cut in the lower corner of the bag opposite the seam that has been opened, to permit the bag being slipped over the animal's head. The blanket is then held in place on the sheep by making a tie between the hind legs at the flank for each of the rear corners of the blanket.

In the Show Ring

When in the show ring be alert, yet calm and courteous. Give the judge every opportunity to see the animal you are exhibiting, and bear in mind that it is your animal and not you that the judge wants to examine. Set the animal up properly and continue to show it every minute you are in the show ring. When requested to move your animal, move into the new position from behind the line and then continue showing your animal. It may not be possible for every entry in the class to win a premium so remember to be a good loser as well as a cheerful winner.

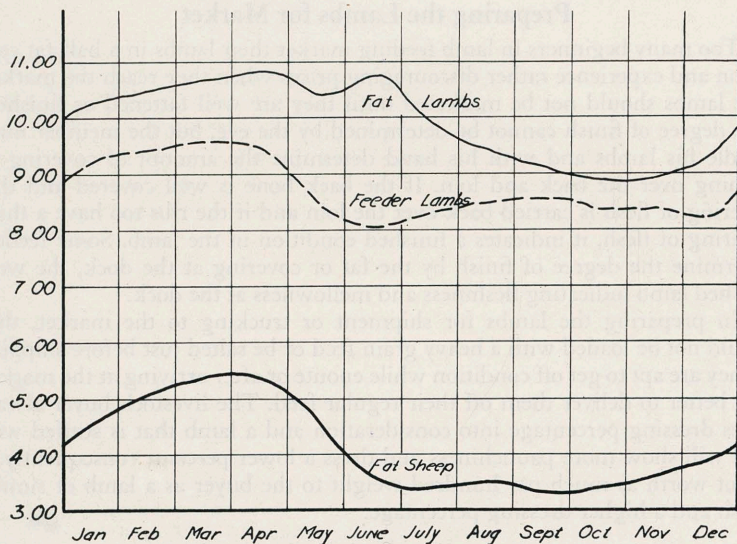
Marketing

The successful sheepman makes a study of market conditions as well as the problems of production. He endeavors to buy his feeders at a margin (the spread in price per hundred weight between feeder lambs and fat lambs) so that he may be assured of a more certain profit over and above the feed and labor costs involved in fattening the lambs. As the lambs are fattened, he sorts off those that are finished and moves them to market. The 4-H club member should make a study of market trends and cycles in sheep production; the illustration below shows the monthly trends in prices of sheep and lambs over a 10-year period at the Chicago market. Prices on the different classes are all on a higher level during the first half as compared with the last half of the year.

Market Outlets

Sheep producers in South Dakota have a wide selection of market outlets. Feeder sheep and lambs may be obtained direct from the producers, from livestock sales agencies or at the terminal markets. When the lambs and sheep have been fattened for the market they may be sold at the terminal livestock markets, direct to interior packers, and in some localities through the livestock sales agencies. When shipping to the terminal livestock market, the producer has a broader outlet for his sheep and lambs as packer buyers, order

buyers and speculators operate daily at such markets. The shipments are consigned to commission firms operating at the market; these firms act as the sales agent of the producer, endeavoring to secure the highest possible price for the consignment and a fair fill on the sheep or lambs so as to net the producer the greatest amount of money.



Average lamb and sheep prices at the Chicago market. Ten year period 1927-1936.

Cooperative Marketing

Producers may purchase or sell their sheep and lambs through cooperative livestock marketing agencies which operate at the terminal livestock markets and at interior points. In a few localities within the state producers may ship their livestock through their local cooperative shipping association, which enables the producer with less than a carload of livestock to enjoy the advantages of shipping in carload lots by cooperating with the other members of the association. In doing this he is protected from losses in transit, experiences lower transportation costs by being able to ship in carload lots, receives the market price for his livestock with the exception of the amount deducted for the transportation and actual marketing expenses.

There appears to be an increasing support on the part of farmers for their cooperatively owned market agencies. At present there are successful cooperative commission agencies on every important livestock market in the United States. These cooperative associations can do anything on the market that a private firm can do. The larger their volume the greater is their bargaining power when it comes to dealing with buyers. Many cooperative commission firms are a real factor in keeping up prices on terminal markets today because

of the control they have over supplies. They charge the same commissions as are charged by all the firms on the market, but any profits that are made during the year are pro-rated back to the shippers according to the patronage furnished. Several cooperatives have pro-rated back as high as 40 percent of the commissions paid by their patrons.

Preparing the Lambs for Market

Too many beginners in lamb feeding market their lambs in a half fat condition and experience rather discouraging prices when they reach the market. The lambs should not be marketed until they are well fattened or finished. The degree of finish cannot be determined by the eye, but the member must handle his lambs and with his hand determine the amount of covering or fleshing over the back and loin. If the back bone is well covered and that covering of flesh is carried back over the loin and if the ribs too have a thick covering of flesh, it indicates a finished condition in the lamb. Some feeders determine the degree of finish by the fat or covering at the dock, the well-finished lamb indicating fleshiness and mellowness at the dock.

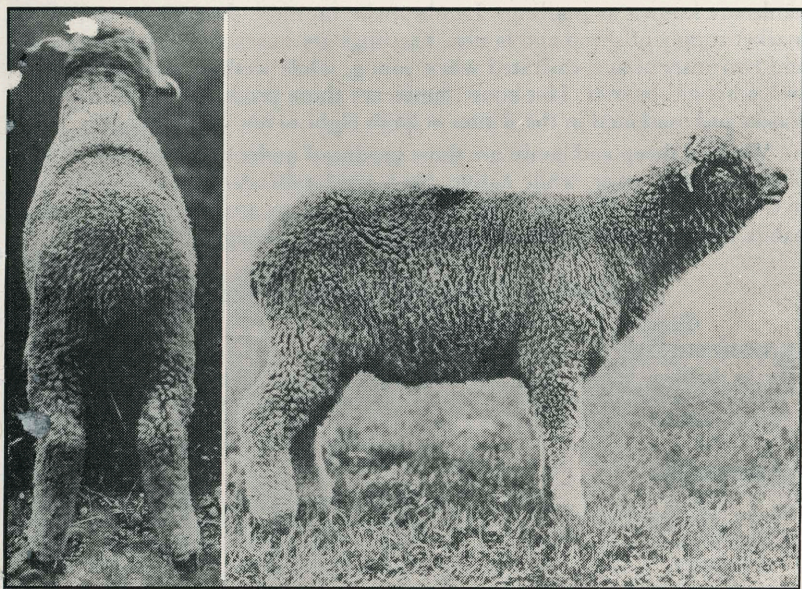
In preparing the lambs for shipment or trucking to the market, they should not be loaded with a heavy grain feed or be salted just before shipping as they are apt to get off condition while enroute or after arriving at the market. It is better to deliver them off their regular feed. The livestock buyer always takes dressing percentage into consideration and a lamb that is stuffed with feed will show more paunchiness and dress a lower percent; consequently, it is not worth as much per hundred weight to the buyer as a lamb of similar finish and a higher dressing percentage.



A Choice Fat Lamb.—(Courtesy U. S. Bureau of Agricultural Economics)



A Medium Fat Lamb.—(Courtesy U. S. Bureau of Agricultural Economics)



A Cull Fat Lamb.—(Courtesy U. S. Bureau of Agricultural Economics)

The owner can well afford to accompany his fat lambs to the market. At the terminal livestock market it is customary for the commission firm handling the lambs to give them a fill of hay and water; consequently if they have not been loaded heavily with feed before shipment, they will stand the shipping better, will take on a normal fill at the market and will be more attractive to the buyer and result in more satisfactory returns to their owner.

Market Classes and Grades

By knowing the market classes and grades of sheep and lambs, the producer is in a better position to interpret the market quotations, and thus should be in a more favorable position to buy or sell sheep and lambs, for he can interpret them in terms of his own stock. The U. S. Department of Agriculture has proposed a uniform standard of grades for sheep and lambs, and while they have not been universally adopted as yet by the trade, they do offer a standard for uniformity of interpretation for all parts of the United States which should be an advancement in our system of livestock grading.

The difference between mutton sheep and feeder sheep is the degree of finish or fat. Lambs are not classed as sheep until they have acquired their first pair of permanent teeth, which usually occurs when the animals are 10 to 15 months of age. Spring lamb applies to the new crop of lambs reaching the market in the spring of the year; it distinguishes them from the fat lambs born in the early part of the previous year. About July first the term "spring" is dropped and the crop from then on is known as lambs, while the old crop lambs are known as yearlings. Lambs make up more than 90 percent of the market supply of sheep and lambs. Yearlings are unsexed males between one and two years of age, castrated when young, while wethers are similar males two years old or over. Hot-house lambs are those produced out of the usual season and marketed in the winter at from eight to ten weeks of age.

Western sheep and lambs are those produced under range conditions west of the Missouri river, while native sheep and lambs are produced in the area to the east of the Missouri river. Western sheep, on account of their grazing habits, are freer from internal parasites than native sheep.

Market Classes and Grades of Sheep

Classes	Grades
MUTTON SHEEP:	
Lambs	Prime, choice, good, medium, plain, cull.
Yearlings	Prime, choice, good, medium, plain, cull.
Wethers	Prime, choice, good, medium, plain, cull.
Rams	Choice, good, medium, plain, cull.
FEEDER SHEEP:	
Lambs	Fancy, choice, good, medium, plain, inferior.
Yearlings	Fancy, choice, good, medium, plain, inferior.
Wethers	Fancy, choice, good, medium, plain, inferior.
Ewes	Fancy, choice, good, medium, plain, inferior.
BREEDING SHEEP:	
Ewes	Fancy, choice, good, medium, plain, inferior.

Selling Purebred Sheep

The marketing of purebred sheep presents different problems than the marketing of feeder or fat sheep. The breeder of purebred sheep should retain only such individuals for breeding or for sale that offer a real value for breed improvement. The culls should be fattened and sold on the open market. The breeders of purebred sheep should make an effort to participate in shows and fairs, as this affords advertising for the flock, while the winning of premiums and ribbons develops public confidence in what the breeder has to offer. The purebred livestock business is one that is based on character. Public confidence must be secured and maintained.

Because of our modern mode of travel attractive roadside signs are an effective means of advertising the breeders' business. The local papers should be used to advertise the animals that are for sale, and as the breeder develops his flock such advertising can also be inserted in farm papers and breed papers. regarding the flock or the animals offered for sale.

Whatever animals are offered for sale must be healthy and useful to the buyer. Rams should be guaranteed as breeders, and if found otherwise, should be replaced or the purchase price refunded. Selling ram lambs for immediate breeding purposes may do the breeder harm, for if they are not well cared for, they are not apt to mature into individuals of approved type.

As the breeding business develops and the flock increases with good strong vigorous individuals of approved type, the breeder may want to hold an auction sale of the surplus breeding stock. The smaller breeder will attract local sheep producers to his sale, while the older, more established breeder will attract not only local sheepmen but also sheepmen from outside his county and his state.

Information for Sheep Club Members

Sheep Registry Associations and Secretaries:

- American Cheviot Society, Inc.—Katherine S. Turrell, Oneonta, N. Y.
- American Corriedale Association—Fredric S. Hultz, 1007 Sheridan Street, Laramie, Wyo.
- National Corriedale Sheep Association—Mrs. F. J. Moline, Union Stock Yards, Chicago, Ill.
- American Cotswold Registry Association—F. W. Harding, Union Stock Yards, Chicago, Illinois.
- Continental Dorset Club—J. R. Henderson, Hickory, Pa.
- American Hampshire Sheep Association—Helen Tyler Belote, 72 Woodland Ave., Detroit, Mich.
- National Lincoln Sheep Breeders Association—D. T. Knight, Marlette, Mich.
- American Oxford Down Record Association—J. M. McHaffie, Clayton, Ind.
- American Romney Breeders Association—H. A. Londgren, Carvallis, Oregon.
- American Shropshire Registry Association—Julia M. Wade, LaFayette, Ind.
- American Southdown Breeders Association—W. L. Henning, State College, Pa.
- American Suffolk Sheep Society—C. W. Hickman, University of Idaho, Moscow, Idaho.
- National Suffolk Sheep Association—Mrs. F. J. Moline, Union Stock Yards, Chicago, Ill.
- American and Delaine Merino Record Association—Gowdy Williamson, Xenia, Ohio.
- National Delaine Merino Sheep Association—I. Y. Hamilton, Houston, Pa.
- American Rambouillet Sheep Breeders Association—Mrs. Dwight Lincoln, Marysville, Ohio.
- Karakul Fur Sheep Registry—L. K. Brown, Friendship, Wis.

SOUTH DAKOTA EXPERIMENT STATION PUBLICATIONS ON SHEEP:

(May be obtained free by writing the South Dakota Experiment Station, Brookings, South Dakota).

- SB2077 Forage Crops for Lambs.
- SB 252 Value of Grinding Grains and Roughages for Livestock.
- SB 278 Methods of Feeding and Grain Rations for Fattening Lambs.
- SC 29 Development of Notail Sheep.

SOUTH DAKOTA STATE COLLEGE EXTENSION SERVICE PUBLICATIONS:

(May be obtained by writing the Extension Service of South Dakota State College, Brookings, South Dakota).

- EC 316 Cooperative Wool Marketing.
- EC 331 South Dakota Stockman's Guide.
- MC 283 Stomach Worms and Tape Worms in Sheep.
Lamb-Mutton on the Farm
- Livestock Leaflet No. 12 Contract Lamb Feeding.
- Livestock Leaflet No. 13 Fattening Western Lambs for the Market.
- Livestock Leaflet No. 18 Modern Feed Yard for Lambs.

FARMERS' BULLETINS—United States Department of Agriculture:

(May be obtained by contacting your county Extension Agent or writing Extension Service, Brookings, South Dakota).

- F 576 Breeds of Sheep for the Farm.
- F 713 Sheep Scab.
- F 798 The Sheep Tick and Its Eradication by Dipping.
- F 810 Equipment for Farm Sheep Raising.
- F 840 Farm Sheep Raising for Beginners.
- F 1134 Castrating and Docking Lambs.
- F 1155 Diseases of Sheep.
- F 1181 Sheep on Temporary Pastures.
- F 1199 Judging Sheep.
- F 1268 Sheep-Killing Dogs.
- F 1330 Parasites and Parasitic Diseases of Sheep.
- F 1710 Range Sheep Production.
- F 1805 Grading Wool.
- F 1807 Lamb and Mutton on the Farm.
- L 89 Controlling Stomach Worms in Sheep and Lambs.
- L 92 Preparing Wool for Market.

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