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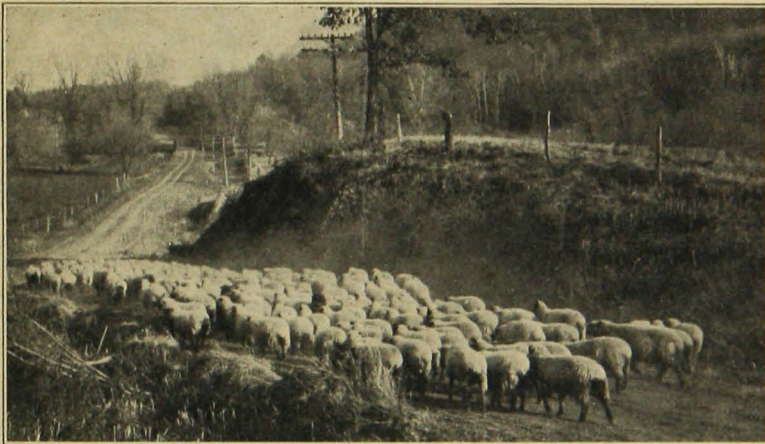
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SHEEP RAISING IN MINNESOTA

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THERE IS ROOM FOR EXPANSION

There are approximately forty million sheep in the United States and approximately four hundred and forty-two thousand of them are in Minnesota. In other words, about one per cent of all the sheep in the United States are in Minnesota. Compare the size of Minnesota, its topography, climate, and type of agricultural production with these



Flock

same factors in several leading sheep producing states and it would seem that Minnesota's proportion of the sheep population of the country ought to be at least 4 or 5 per cent of the total, or about two million head.

To many persons unaccustomed to seeing or working with them, sheep perhaps appear timid, unattractive, and useless. On the other

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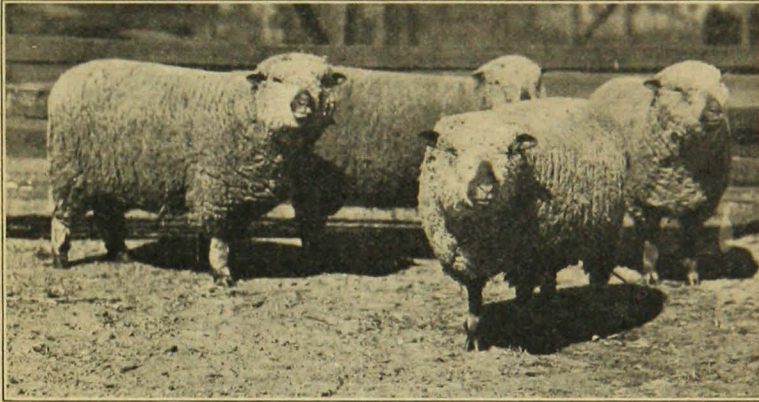
hand, many have spent a lifetime in sheep production, partly because of their liking for them; and these men, through their understanding of the disposition of the sheep, find them among the most highly responsive of all farm animals to proper care and feeding, and one of the most pleasant types of all the farm animals to work with. Sheep have contributed millions of dollars to the agricultural wealth of the world and have seldom brought financial distress to their owners. Just at present sheep are one of the most profitable products of American farms. In 1923 about 300,000,000 pounds of wool were produced in the United States. Our annual consumption of wool is about twice that amount, so from 200,000,000 to 300,000,000 pounds are imported annually. In 1923 the per capita consumption of pork was about 91 pounds, of beef 62 pounds, and of mutton and lamb 5.2 pounds. A great deal of pork was exported, also some beef, but no mutton or lamb. Mutton and lamb have been much higher in price than beef or pork. Without doubt domestic consumption of mutton and lamb of good quality could be considerably increased, and with the woolen industry on an extensive importing basis, it is economically sound to prophesy that there is room for considerable expansion in sheep production in Minnesota.

It is not the purpose, however, to lead any one to decide that there is a fortune waiting for him if he will but plunge into the sheep business and get a large number of sheep. It rather is true that this is a hard time to buy sheep because they are profitable and owners are not disposed to sell more than their surplus of breeding stock. A large investment in sheep at high prices and in equipment for caring for them, especially by one unfamiliar with the selection, care, and feeding of sheep, might result disastrously. On the other hand, if one is going to take up sheep production a start must be made sometime, and by exercising good judgement many Minnesota farmers should be able to start successfully at any time if they will but proceed cautiously and conservatively.

### SMALL FLOCK FOR AVERAGE FARM

Three general plans may be followed in sheep production. (1) Maintaining a flock of from 25 to 100 breeding ewes as part of the livestock on the average quarter-section or half-section farm. (2) Specializing in sheep production as the major enterprise of the farm and maintaining all the sheep the farm will carry. (3) Purchasing feeder sheep or lambs from the western range or the large market, fattening them and selling them.

The first plan is the one that should appeal most and will fit in best on the average Minnesota farm. When a small flock of ewes is maintained on the average diversified farm, the expense of production can be kept at a minimum. Some feeds are better adapted for sheep than for poultry, hogs, or cattle.



Breeding Ewes

### SELECTING BREEDING EWES

As every sheep maintained and every lamb produced appreciably affects the possible profit in the small flock, it is especially important that good ewes be selected and a good ram be used. The beginner in sheep raising will be safest in starting with grade ewes. They may be selected from neighboring flocks that have already been graded up by one or more top crosses with mutton rams, or they may be western bred, showing principally Rambouillet or Merino breeding. They may be graded up still further by the use of a purebred ram of one of the mutton breeds, though a Rambouillet ram may be used, especially if the ewes are decidedly lacking in quality and covering of fleece.

The age, conformation, wool covering, and condition of the udder should all be considered. The ewe is most valuable when from one to two years old, but older ewes can often be purchased to advantage if priced accordingly. Desirable breeding ewes are thrifty in appearance, indicating which are bright eyes, pink skin, and lively, active movements. They are fairly low set, symmetrical and even in body lines. They are sound in mouth and udder, and the body is completely covered with a fairly dense fleece.

The age of a sheep up to four years can be readily determined by the teeth. At one year old the center pair of permanent teeth appear. The permanent teeth are much larger and broader than the lamb teeth and can easily be distinguished from them. At two years old the next pair of permanent teeth appear, at three years old the third pair,

and at four years old the fourth pair or corner teeth, come in. If old ewes are purchased, their mouths should be examined to see that they still have all eight of their incisor teeth on the lower jaw. If one or more teeth are missing the ewe is called a broken-mouthed ewe and this can be taken as a sign that she is probably at least six years old and will likely soon lose more of her teeth and will not continue to do well very long. Ewes two or more years of age may have a spoiled udder. The udder should be examined and if it seem enlarged, hard, or unbalanced the ewe should be rejected, as she will probably have udder trouble after lambing.

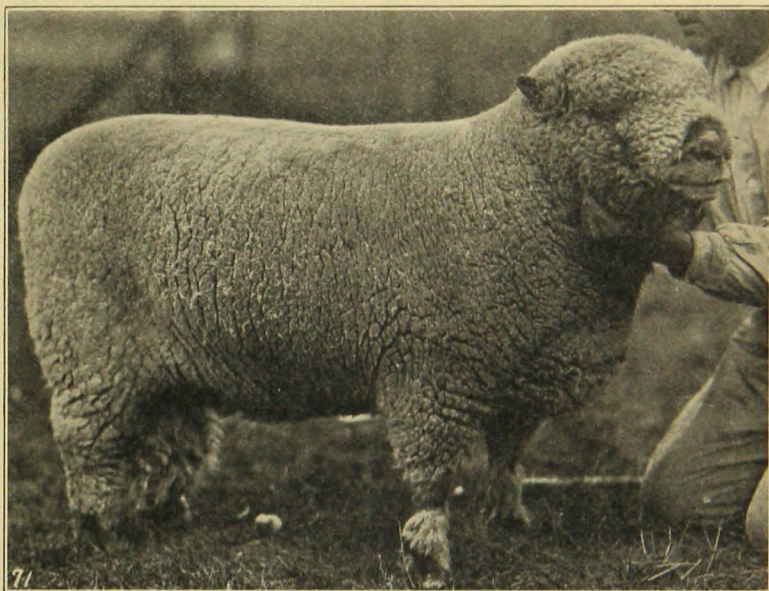
### **SUMMER GRAZING FOR THE SMALL FARM FLOCK**

Sheep will do well grazing on native prairie grass, brome grass, bluegrass, timothy and clover, or sweet clover. They are especially adapted to grazing annual forage crops such as rape, Canadian field peas, soybeans, or green oats, barley, rye, or wheat. By midsummer the small flock can usually be grazed in the corn-field for a short time, where they will clean the fence rows and eat the grass and weeds and lower leaves of the corn without breaking the corn down until the other feed is gone. They can graze over grain stubble fields and will gain a livelihood from the scattered bits of grass and small weeds that usually come on after the grain is cut. They are well adapted to grazing the second growth on cut over meadows. They can graze on a potato patch after the vines have begun to dry, and over a beet or cabbage field after the crops have been harvested, and will turn everything left on these fields that is edible into mutton and wool. They will eat many weeds that cattle will not. One mistaken view that is sometimes held is that sheep can graze brush lands. This is true only when there is plenty of grass growing with the brush, as sheep are not good browsers and will not do at all well if forced to eat leaves, buds, and small stems of brush on which goats would thrive. Sheep do not like to graze in brush or densely wooded lands, and will not do so well as on open grazing lands. While sheep can graze on very short grass, the mistake is often made of not giving them sufficient range.

### **MATING**

When it is desired to have the lambs born in March and April the ram should be turned with the ewe flock the first of October. Ewes normally begin coming in heat about this time. If they are not bred then the heat period recurs every sixteen to twenty-one days. The length of the period of pregnancy is about one hundred and forty-six days. The best results will usually be secured in getting the ewes bred if they are turned on a good fresh pasture of rape, meadow aftermath,

sweet clover, or stubble field, a week before the beginning of the mating season. If such pasture is not available, they may be fed a little grain for from four to six weeks during the breeding season. Ewes treated in this way are more likely to breed readily and to produce a larger number of lambs than if they were maintained on bare pasture or poor feed during the breeding season. Ewe lambs less than a year old should not be bred because they are not sufficiently developed at the time the lambs are born to be good mothers.



Breeding Ram

If the flock is small the ram may be allowed to run with the ewes all the time, tho it is good practice to keep him away from the flock during the day and allow him to run with them at night. The flock ram should be healthy and thrifty at the beginning of the breeding season and should be well fed throughout this season of the year. If there are less than 15 ewes in the flock a well grown ram lamb may be used as flock ram. In large flocks one ram should be used to each thirty-five to fifty ewes.

#### FEED REQUIREMENT OF PREGNANT EWES

As winter approaches care should be taken to see that the ewes do not get too thin. By this time of year the fleece will be showing considerable growth and unless the flock is carefully observed one may think the ewes are in good condition when they really are not. The principal feed for the ewes in winter should be a legume hay. Alfalfa,

red clover, sweet clover, or soybean hay may be used. The flock may be wintered successfully, however, by using two pounds per head per day of legume hay and supplementing this with prairie hay, oat straw, corn stover, or some cheaper roughage. From two to three pounds of corn silage, or turnips, sugar beets, or mangels per head per day adds greatly to the desirability of the ration. Too much silage or roots however, may result in weak lambs being produced, and it is not advisable to feed an unlimited amount of either. If the ewes come into winter in good, healthy, thrifty condition they will not require grain until a few weeks before lambing time begins. Beginning about the first of February one pound of grain per head per day will put the ewes in stronger condition and they are likely to milk better than if they do not receive grain. The grain feeding should be continued until the ewes go on pasture.

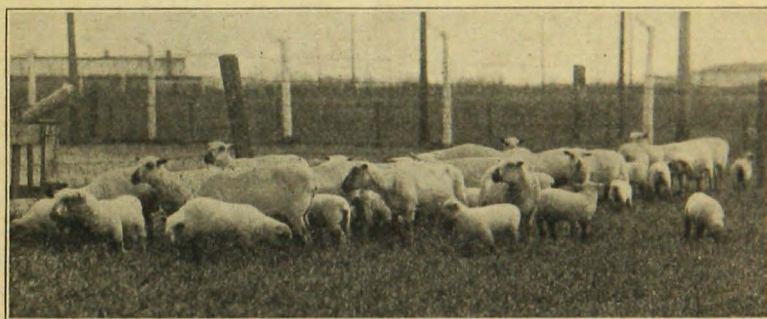
### WINTER WATER SUPPLY

The water supply of the ewe flock is important. It is a common opinion that sheep do not drink much or require much water in winter. It is true that if sheep are offered water only once a day and that ice-cold and in a dirty trough, they will not drink much and will not do so well as if they have before them all the time fresh, clean water from which the chill is removed. One of the most satisfactory and successful means of watering the flock is an automatic galvanized iron stock watering tank of the type that can be kept from freezing by a kerosene lamp placed beneath it. With such a tank a flock of fifty ewes will drink from 30 to 50 gallons of water per day right through the coldest winter weather. If goiter in the lambs has been a common source of loss, this trouble can be prevented by adding potassium iodide to the feed or water. If added to the water, use 5 grains per ewe per week. If added to a grain ration add  $\frac{1}{3}$  ounce to 100 pounds of grain.

### EWES AND LAMBS AT LAMBING TIME

The owner should be prepared for the coming of lambs 140 days after the ram is turned in with the flock. It is not difficult to care for a flock of ewes through the lambing season, but it is important to give both ewe and lamb the necessary attention. If lambs are born in March or April each ewe should have a separate pen for from two to five days after lambing so that she will know her own lamb or lambs when she and the lambs are turned with the flock again. After lambing, the udder of the ewe should be examined and the wool clipped away from around the teats so that the lamb will have no difficulty in finding them. If the udder is full or hard and caked, some of the milk should be milked out to relieve it.

The attendant should make sure that the lamb nurses well within a few hours after it is born. If it does not, it should be helped until it strong enough to stand and nurse alone. If a large number of ewes are lambing or if the feeding and sleeping quarters for the flock are a little crowded, it is well to keep those that have lambed separate from those that have not. A young lamb is rather delicate and awkward at birth, but it gains in strength very rapidly and by the time it is three days old it can usually take care of itself. Ewes and their lambs may run together in large groups for convenience in handling and feeding.



Ewes and lambs on winter rye

In case of March lambs especially, it is desirable to arrange a "creep" for them so that they can get away from the ewes and be fed some choice hay and grain in addition to their mother's milk. The average lamb will begin to eat a little when three weeks old and will be a "regular feeder" by the time it is five weeks old. A little good green second or third cutting alfalfa hay or some good quality clover hay and a mixture of 60 per cent oats and 40 per cent bran make an ideal feed for young lambs. They will not eat very much, but the little they do eat helps a great deal in starting them to grow before the grass season opens.

### DOCKING AND CASTRATING LAMBS<sup>1</sup>

All lambs should be docked by the time they are fourteen day old. Between the tenth and the fourteenth days is usually the best time for this operation. The long tail is a menace to sheep because it catches filth, giving the sheep an unsightly appearance, may interfere with the health of the sheep, may prevent mating, and actually detracts from the selling value. It is therefore not only financial gain to dock a lamb, but the lamb is benefited throughout its life. Many methods of docking are used. We will give only the one that has proved most satisfactory at the Minnesota Experiment Station. That method is to cut

<sup>1</sup> For further information, write to Division of Publications, University Farm, St. Paul, Minn., for pamphlet "Docking and Castrating Lambs."

the tail off about an inch from the body with a pair of docking irons heated to red heat. Very few lambs will be lost from this method if they are docked before they are fourteen days old.

Ram lambs that are not to be kept for breeding should also be castrated at an early age. Many flock managers dock all lambs and castrate the ram lambs at the same time. This may be the most economical method for the large range flock, but it is not recommended for the small flock. Docking is most easily and most satisfactorily done when lambs are under two weeks old, while castrating can best be done when lambs are from ten days to three weeks old. Performing the two operations at different times is likely to cause less loss than if they are performed at the same time. The performing of these two simple operations is a part of the care of sheep that is more often neglected than any other one feature. If sheep men would realize that lambs with long tails are unattractive in appearance and that ram lambs bring from one to two cents per pound less than those that have been castrated, they would surely take greater care to see that the lambs are docked and castrated.

### MARKETING LAMBS

Lambs born in March or April that have been sired by good sized rams of the mutton breeds and have been fed grain until the pastures are ready and then put on grass, can usually be marketed as fat lambs in September at weights from 65 to 80 pounds. They may run with the ewes until marketed or be weaned early in July and fed grain from then until marketed. This latter plan will produce a fatter lamb that will sell for a higher price on the market and pay a good profit.

Ewes that lamb in May or June may lamb in the pasture and will require very little attention. As a rule their lambs should be fattened on the farm in much the same way as feeding lambs brought from the western range. The fattening lambs will be discussed later.

### SHEARING

One of the two sources of income from the ewe flock is the fleece of wool. The quality of the wool and the condition in which it is marketed are the principle factors in determining the price that can be secured for it. A thoro discussion of all the factors involved in the production, shearing, packing, and marketing of wool can not be given here.

Quality in wool and yield per sheep must be obtained by selecting breeding stock that possess desirable wool covering. This must be backed up by good feeding. The condition in which the wool is marketed, however, can more easily be improved by care in shearing and in packing



and tying the fleeces. To bring a high price wool must be free from burrs and reasonably free from chaff. Shearing should be done in late April or early May when the fleece will clip the easiest and will be in the best condition for storing.

### DIPPING

Sheep are often infested with ticks and sometimes with lice and scab mites. They may easily be kept free from ticks by dipping in a disinfectant solution that will kill these parasites. There are several standard dip preparations on the market, any one of which will be effective if carefully used according to directions. The time to dip is in the spring, just after shearing. A small galvanized dipping tank is the most economical unless there is gravel on the farm and one prefers to construct a concrete tank. Every sheep in the flock, including the young lambs, should be dipped. If the ewe flock has been infested with ticks, the lambs are sure to be badly infested soon after the ewes are shorn. If ticks are found at shearing time, the sheep should be dipped twice, the second dipping ten days after the first. If sheep scab is present, care must be used to select a dip that will be effective in treating it.

### INTERNAL PARASITES

Sheep are infested with internal parasites. Stomach worm, nodular worm, lungworm, liver fluke, and tapeworm cause the most serious losses and about in the order mentioned. There is only one safe way of keeping a flock free from these internal parasites and that is by changing the pasture each year so that the same ground is used for pasture only once in three years. Sheep become infested with internal parasites for the most part while in pasture. If sheep that are free from parasites are turned on a pasture that is free from them and no infested sheep are brought in, the same pasture could be used continuously; but a flock is rarely entirely free and by far the safest plan and the most profitable one is to change the pasture each year and rotate the pastures in at least a three-year rotation. The sheep pick up the infestation from the pastures in the spring and summer months.

### SPECIALIZED SHEEP RAISING

Sheep raising on a large scale has advantages that adapt it to certain sections of the country and certain types of farms. A few localities in Minnesota are especially suited to sheep production and owners might raise sheep in large numbers with greater profit than could be obtained from any other type of livestock. The principal essentials to the suc-

cess of such an enterprise are a large area of cheap grazing land and a thoro knowledge of sheep management. Sheep do well on rough hilly land where grass is not very abundant and which is not suited to pasturing cattle.

### FATTENING SHEEP AND LAMBS

Following the development of the large sheep ranches in the western and southwestern states, there arose throughout the corn belt the practice of "fattening" sheep and lambs. While many of the arid and semi-arid regions in the range country are highly suited to the grazing of sheep and sufficient hay can be produced for wintering breeding flocks, the rancher seldom can make his lambs or sheep fat enough on such feeds to produce finished carcasses of mutton or lamb. The corn belt farmer was quick to learn that he could take these thin sheep and lambs, fatten them on his corn and legume hay, and make a profit on the enterprise. Thousands of sheep and lambs grown in the range states are thus fattened in the corn belt every year, usually with satisfactory profit.

The basic feeds in sheep and lamb fattening in the corn belt are corn and a legume hay, usually either clover or alfalfa. This ration can be improved upon both in gains made and in resulting profit by the addition of about ten per cent of a protein supplement, such as cottonseed meal, linseed meal, or soybean meal. Fattening can be successfully done by using a non-leguminous hay if the protein supplement is used in the grain ration.

While corn is the leading grain for fattening sheep, it has been found that both sheep and lambs can be successfully and profitably fattened by different methods and by the use of different feeds. Methods especially applicable to Minnesota conditions are:

1. Using elevator or mill screenings as the principal feed.
2. Using barley as the grain feed.
3. Grazing on stubble fields.
4. Grazing a cornfield or "sheeping-down" corn.

#### Fattening on Screenings

Hundreds of thousands of sheep have been fattened on screenings from the flour mills of Minneapolis. Sheep and lambs can still be profitably fattened on screenings when suitable screenings can be secured. The development of the use of screenings in mill by-products of late years has, however, reduced the supply available and raised the price often to the point where they can not profitably be used for sheep fattening. The usual method of fattening on screenings is to keep screenings before the sheep all the time and supply a cheap roughage such as prairie hay, allowing them to eat all they will. Sometimes a

protein supplement is added to the screenings and usually pays. A legume hay is better than prairie hay.

### Fattening on Barley

By grinding barley before feeding it, sheep can be fattened about as quickly and as profitably with barley as the principal grain feed as with corn. They will do well on whole barley if it can not be easily and cheaply ground.

### Stubble Grazing

As a great deal of grain is grown, especially in northwest Minnesota, and rains frequently occur soon after harvesting and threshing, the stubble fields often send up considerable growth of grass and weeds soon after the grain is cut. Sheep and lambs are admirably adapted to grazing this growth and will make good gains on it, sometimes becoming fully finished for market from grazing the stubble fields alone. More often, however, especially when lambs are grown, the grazing season on the stubble fields is not long enough to fully fatten them and a finishing period of from 40 to 60 days on a good fattening ration is necessary after the stubble no longer provides suitable or sufficient feed. No one should undertake stubble grazing without additional feed available for this finishing period. When carefully handled many grain growers can add greatly to the income from their grain lands by this practice.

### Fattening in the Corn Field

Sheep are frequently fattened by pasturing down a corn field. They can be turned into a corn field in late August or early September, even if the corn is still somewhat green, and will do well first on the green growth and as the corn ripens they will gradually begin eating more and more corn until they are on a full feed of corn. In turning a band of sheep just off the western range on either a stubble field or a cornfield, care should be taken that they are filled up with dry feed. They should be gradually accustomed to the new feed through at least three days, during which time they would receive some good quality dry roughage each day, otherwise bloat and severe scouring are likely to occur. Yearling or older sheep are somewhat better suited to stubble and cornfield grazing than lambs because they eat it more readily and they fatten more easily and quickly than lambs.

The latter two methods of fattening sheep should appeal to many Minnesota farmers, who are on the road between the Dakota and Montana sheep ranches and the ultimate market, either St. Paul or Chicago. Sheep or lambs can be purchased in the west and stopped enroute to market for fattening with no additional expense in freight.

### Feed Requirement for Fattening Sheep

Mature sheep or lambs have an advantage over fattening cattle in that they require a smaller amount of grain per 100 pounds of gain and will utilize a higher percentage of hay. Hay is usually the cheaper part of a fattening ration for either sheep or cattle.

The average sheep or lamb will require from 300 to 400 pounds of grain and from 700 to 900 pounds of hay per 100 pounds gain, while the average fattening steer will require from 500 to 700 pounds of grain and from 300 to 600 pounds of hay per 100 pounds gain. The average lamb will eat from 0.9 to 1.25 pounds of grain and 1.5 to 2 pounds of hay per day and will gain from 0.25 to 0.40 pounds per day in weight. Mature sheep will eat from 2 to 2.5 pounds of grain and 2 to 3 pounds of hay per day and will gain from 0.35 to 0.6 pound.

### SUMMARY

1. While Minnesota now produces one per cent of all the sheep in the United States, it might produce to advantage 4 or 5 per cent.

2. The great majority of farms in Minnesota are better adapted to the maintenance of a small flock of ewes as one item in the diversified plan than to highly specialized sheep production.

3. The management, care, and feeding of the small farm flock is not difficult or burdensome and affords an attractive enterprise that might be turned over to the boy as a means of giving him a share in the management of the affairs of the farm.

4. A common source of loss in the management of the farm flock is neglecting to dock and castrate the lambs. These are simple operations. Do not fail to perform them.

5. Loss is often sustained by careless shearing, packing, and marketing of wool. Use the best possible methods in preparing the wool for market.

6. Sheep are subject to internal and external parasites. Protect against both by preventive methods rather than rely on cures after the sheep have become infested.

7. A few farms in parts of the state are suitable to extensive sheep production.

8. There is abundant opportunity in Minnesota for the conversion of much unmarketable and cheap feed into a saleable form through several methods of fattening western sheep and lambs enroute to market by purchasing them in the west and fattening them through the fall or winter months.