THE SHEEP ENTERPRISE

How to establish and maintain the farm flock

UNIVERSITY OF ILLINOIS
COLLEGE OF AGRICULTURE
Extension Service in Agriculture
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THIS CIRCULAR outlines some essential practices in profitable sheep raising, as derived from experiments and the experience of successful sheep raisers. It is based on the belief that good shepherds are made rather than born even though some persons may have greater aptitude than others in the art of shepherding.

Anyone following practices different from those suggested here has no need to change so long as his way of doing brings satisfactory results. Many farmers will find, however, that some changes will reduce their "bad luck" and add substantially to their returns.

Progress requires that we alter our methods or make more effective use of the methods we already employ.

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THE SHEEP ENTERPRISE

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MODERN METHODS of sheep production make successful and profitable sheep raising possible in all parts of Illinois. Good sheep husbandry is, however, dependent upon efficient crop and pasture production.

Although requiring at times a distinct kind of care, sheep are as easy to raise as other livestock if their needs are understood and they are skilfully tended. The amount of labor necessary to care for them is not great on most farms, usually not more than 5 hours a head a year.

Where purebred flocks are kept, some additional labor, compared with grade flocks, is necessary. Purebred flocks, however, should not be pampered. The extra labor is largely due to the need for accurate individual identification and for fitting and trimming for show or sale. Much of the work in caring for either a purebred or a grade flock is not difficult.

MANY ADVANTAGES IN RAISING SHEEP

Sheep make excellent use of pasture and roughage. No animals excel sheep in making use of pasture and roughages, and they do not need large amounts of concentrates. They use almost 14 acres of pasture and roughage to each acre of grain. The ability of sheep to destroy weeds and the fertilizing value of their manure are widely known. Although sheep do better than some other animals on poor soils, they are not unprofitable on highly fertile land.

Can help in conserving the soil. A farm flock can also be of help in conserving the soil. Studies of grazing and soil erosion in southern Illinois show this clearly.[1] On land with a 9-percent slope planted to corn, water runoff was 27.6 percent and soil losses were 13.5 tons to the acre for five months of the year. On adjoining land, similar in every way except that it was in pasture and grazed by sheep, the runoff was only 8.5 percent and soil losses were negligible, being only

[1] These studies were made in cooperation with the Soil Conservation Service Research Division, U. S. Department of Agriculture.

Sheep can profitably utilize the roughages that are produced in a sound rotation program, and they do not need large amounts of concentrates.

1/10 of a ton an acre yearly. Even when the pasture was so heavily stocked and so severely grazed that the sheep gained little weight, the runoff was reduced more than one third (to 17.9 percent) and the soil losses were less than ½ ton an acre yearly.

Can be grazed with cattle. The idea that sheep and cattle cannot be grazed together on the same pasture with good results is a false one — there are times when such mixed grazing is a part of the best pasture management. Because of the size and shape of their muzzles, sheep can graze more selectively than cattle. Also they may be able to graze plants a little closer to the ground, but the difference is not so great as often thought. The widespread notion that grazing animals, especially sheep, cause erosion is without basis. It has probably come about because they have often been permitted to graze too closely, but close grazing is neither good pasture nor good livestock management.

Equipment is not expensive. The equipment for the sheep enterprise does not call for a large outlay of cash. It need not be elaborate, and its construction and design can vary considerably.

More sheep needed. Some increase in sheep raising is justified at present (1949), as the number of sheep has declined greatly since 1942.[1] Any farmer who thinks of expanding his enterprise should, however, first consider its relation to his other farm enterprises and the probable demand (prices) for lamb and wool when his are ready for market.

[1] Production of lambs and wool in this country is on a domestic basis; that is, we produce only enough for our own needs and there is no surplus for export. In fact, for many years considerable amounts of foreign wool have been used in this country.

ESTABLISHING THE FARM FLOCK

Have Enough Sheep to Make Enterprise Worth While

Even when sheep raising is one of the minor parts of the farm business, the number of breeding ewes should be large enough to justify good husbandry without too great expense per head. For an average farm of 160 acres, 40 ewes is about the smallest number likely to return enough income to make a flock worth while. It is doubtful whether sheep raising should be undertaken with fewer animals. This number will utilize about the same amount of farm feeds and pasture as 6 or 7 cows.

A flock of about 40 sheep has a number of advantages that a smaller one does not have. Suitable equipment costs less per head. Not much more labor is needed than for a smaller number given the same attention, for sheep require little individual care except at lambing and shearing. The cost of a good ram will not be too great, and enough lambs and wool can be produced to justify careful preparation of these products for marketing. Another advantage in a fair-sized flock is the greater opportunity to select ewe lambs for it.

Many flocks are of course made up of more than 40 ewes. So long as feeds and labor are available, larger numbers have no drawbacks. In fact a large flock is less likely to be neglected than a small flock.

Lack of experience may make it advisable to start with less than a full-sized flock, but the more limited the number of sheep handled, the more limited the experience gained. A desire to learn and a willingness to study and to adopt improved methods and practices will partly make up for limited experience. On the other hand, experience though important is never a substitute for intelligence.

Select Sheep With High Productive Capacity

For a flock to be profitable each ewe must regularly produce good market lambs and an abundance of high-quality wool. Careful selection of ewes and culling are necessary to reach this standard.

Size. For farm flock purposes, mature ewes weighing 125 to 175 pounds when in good flesh are suitable. There are no special advantages in very large ewes. Undersized ewes often do not produce so well as those of at least medium size, although there are individual exceptions. Size is not, however, wholly a matter of weight.

Form. Ewes that are moderately short-legged and have deep, wide, roomy bodies are better producers than ewes that are shallow and

Rugged, roomy bodies indicate sturdy constitutions. This better class of crossbred ewes from the western range has been conditioned for breeding, as suggested on page 20. Although most farm flocks consist of grade ewes, such ewes should possess many of the qualities of good purebreds.

narrow. Very fine-boned, weak-appearing ewes should be rejected, as they lack the hardiness needed to raise large lamb and wool crops.

Age. Except when they are purebreds, ewes are not usually kept after they are about seven years old.

Two to seven are usually the years of greatest production. The older ewes are, the less they cost, but this does not mean that very cheap old ewes are the "best buy." Indeed, thin, "shelly," worn-out, "broken-mouthed," old ewes are very seldom worth taking home. They do not make efficient use of feed and seldom raise good crops of lamb and wool. Age in itself, however, is not so important as are the evidences of a marked decline in productivity.

Soundness of udder. Anything that interferes with a ewe's ability to produce milk is a serious handicap. In buying or culling, examine the udders and teats and do not accept or keep any ewes that are abnormal in these parts. Lumps in udders or teats injured by careless shearing usually mean future trouble and dissatisfaction. Even with a careful examination it is difficult to detect all abnormalities of the udders of dry ewes.

Fleece. Although lambs account for the greater part of the income from a flock, returns are greatly influenced also by the wool production of the ewes. While there are many things of importance to consider in judging the quality of wool, if the purchaser or flock owner will examine the fleeces carefully, he will soon learn to distinguish the desirable from the undesirable.

Ewes with fairly dense or tight fleeces of fair length are usually

best. Wool that reaches a length of 2½ to 3 inches in a year's time sells for more per pound than wool of the same fineness that lacks length. Fleeces of good length and density are also usually heavier than any other kind. Avoid sheep that have very short wool, those with very loose frowsy wool, and certainly those with fleeces any other color than white.

The extent to which the fleece covers the body is important, as this influences the amount of wool produced. It is more important, however, that there be a good covering on the under part of the body than on the extremities — face, and legs below knees and hocks.

Health and constitution. In the selection of ewes, health and a strong constitution should be the deciding factors. To try to make a profit from a flock in which some sheep lack health or strong constitutions is useless. Such sheep are a menace to the rest of the flock. Dulness, absence of vigor, and poor general condition indicate a general lack of health.

Select Breed for Lamb Production

The value of a ewe depends upon the pounds of desirable marketable lambs and wool she produces each year. Since lambs account for a much greater proportion of the gross returns from the flock than wool does, lamb production should be emphasized. Wool production must not be disregarded, however, since returns from wool add substantially to the income, and in years when ewes fail to produce lambs this is the only source of income from them.

The ability to produce desirable lambs varies greatly with different ewes, and some types and breeds are much more suitable than others for farms in Illinois. From the market standpoint, lambs of the medium-wool type or lambs similar to them are best. Although different types of ewes are suitable as long as they are good milk producers and yield heavy fleeces, it is generally best to use rams of the medium-wool mutton type.

Not only do breeds differ in breeding habits and the kind and quality of lambs and wool produced, but individuals within a breed also differ greatly. It is important, therefore, to use as much, or even more, care in selecting individuals as in choosing the breed.

Medium-wool type. Several medium-wool breeds are popular in Illinois at the present time. The medium-wool breeds include Hampshires, Shropshires, Oxfords, Southdowns, Suffolks, Corriedales, Dorsets, Chevoits, and Columbias. While the distinctive features of each breed, such as color of face and legs, size, shape, and carriage of ear,

are important as a means of identification and as evidence of care in breeding, the utility and profit-producing properties are of much greater concern to farmers raising lambs and wool for market. For this reason the producers of purebred sheep should emphasize, within the limits of acceptable breed character, the practical utility features of their breed. Following are the generally recognized differences associated with lamb and wool production of various breeds.

Shropshires, generally regarded as a medium-sized breed, produce fleeces of medium fineness and length that average 9 to 10 pounds.

Productiveness and good milking qualities of this desirable type of Shropshire ewe are evidenced by the growthiness of her twin lambs.

When the lambs are fat and of proper weight, they meet requirements for market very well. Under favorable conditions many twin lambs are raised. If the lambs have large well-developed parents, and if milk and other feeds are plentiful, they grow to 85 or 90 pounds in 4½ to 6 months. Some Shropshires are criticized by market lamb producers because they are too small and have too much wool about the face. Also, some Shropshire ewes do not breed early in the fall.

Hampshires are popular because of their large size and the rapid growth of their lambs, excelling Shropshires in both these characteristics. Hampshires are coarser than Shropshires and usually shear fleeces 2 to 3 pounds lighter. The light fleece is one of the chief criticisms of the Hampshires. Many ewes breed early enough to produce

lambs in January or earlier, and many of these lambs are used the same year as sires.

Oxfords, the largest of the medium-wool breeds, yield heavy fleeces of fairly coarse wool and produce rapid-growing lambs. If these lambs are fat and not overweight, they satisfy demand on the market. But there is some complaint that many lambs of this breed do not fatten easily until they are too heavy for top-quality carcasses.

Southdowns are small and generally very refined. They are usually rated as having the best form of all breeds because they are low-set and compact and the quality of their carcasses is excellent. They are, however, considerably slower than the larger breeds in reaching weights of 85 or 90 pounds. They shear 3 or 4 pounds less fleece than Shropshires. Southdown rams crossed on large, heavy milking ewes of various kinds produce good market lambs.

Suffolks are large and upstanding, quite the opposite of Southdowns, and are rated low as wool producers. In this country they are used mostly for crossing purposes. Generally the ewes are good mothers and their lambs grow fast, as do lambs sired by Suffolks and from various kinds of ewes.

Dorsets differ from other breeds of the medium-wool type in that many of the ewes produce out-of-season lambs and in instances lamb twice a year. Most producers should not, however, count on two crops of lambs in a year's time. The Dorsets do not produce heavy fleeces but the ewes are generally regarded as good milkers and their lambs grow about as fast as, or somewhat faster than, lambs of the Shropshires.

Cheviots are a hardy, active breed of good quality. They are small in size and light-fleeced. Many market men say they produce few lambs that finish well.

Corriedales have been actively promoted in recent years but not all the claims made for them are true. They are not usually so well made as the Shropshires, and their lambs neither grow nor fatten any faster. They usually produce a large amount of good-quality wool.

Columbias are a large, white-faced, crossbred type developed for the range country. Some are now found in the Central States. They yield heavy fleeces and when the ewes are bred to well-made rams they are usually credited with high lamb production.

Long-wool type. Few sheep of the breeds of long-wool type are raised in Illinois at present. This group includes Cotswolds, Lincolns, Leicesters, and Romneys. These animals yield coarse long wool in

large amounts. Although they are also of the meat type, they are not generally considered equal to the medium-wool breeds in meeting present-day market requirements. Their lambs grow fast but do not finish readily at the best market weights. Long-wool breeds have been used with fine-wool breeds in developing such recent crossbred types as the Corriedale, Columbia, Panama, and Romeldale.

Fine-wool type. Most of the fine-wool sheep in Illinois are brought in from the West, where they are raised extensively. Smooth-skinned Rambouillet and Delaine Merinos predominate, as the types with many heavy folds in the skin are not favored by men raising market lambs and wool. Rambouillet ewes that are free from heavy wrinkles and large Delaine Merino ewes are suitable for farm flocks. Bred to medium-wool rams, these ewes raise market lambs of good type. Of the medium-wool rams used for crossbreeding with fine-wool ewes, the Southdowns sire lambs of highest quality, but Hampshire or Suffolk rams and others of the larger breeds sire lambs that grow somewhat faster. Ewes of the fine-wool breeds usually yield large amounts of wool. They are hardy and long-lived and can often be bought cheaper than ewes of other types.

Fur type. Karakuls, a specialty breed, are raised on a few farms in Illinois. The lambs are usually black and may be killed soon after birth for their pelts, which are known commercially as Broadtail, Persian lamb, and Caracul furs. The value of the pelts varies greatly with their quality, and many pelts are reduced in value because of poor handling. As mature sheep, Karakuls are generally considered as unshapely when judged by the standards for other types of sheep. And since their wool is coarse and of various colors, it is far less desirable than the best wool from the medium- or fine-wool breeds. If the lambs are raised for market lambs, they sell at a big discount compared with other lambs because of their poor forms and the usual heavy, "gobby" fat about the rump. Since Karakuls are a distinct specialty breed, their production is suitable on very few Illinois farms.

Native Ewes Have Some Advantages Over Westerns

Ewes purchased for the farm flock will usually be grades rather than purebreds, but they should show fairly well what their breeding is and not be of nondescript type. If ewes of the medium-wool breeds mentioned above are obtained, they will likely be natives, that is, produced east of the range area.

From time to time ewes from the western range area are purchased in considerable numbers for use on Illinois farms. Range ewes are

usually less of the mutton or meat type than natives, most of them being at least half fine-wool breeding. One of the best types of range ewes for the farm flock is a cross of the long-wool breeds (Lincoln and Cotswold, principally) on Rambouillet or other fine-wool ewes. Such crossbred ewes are more of a meat type and have longer and coarser wool than fine-wool ewes. Either fine-wool or crossbred range ewes may be used to raise market lambs of good quality, especially if the ewes are mated with mutton-type, medium-wool rams. Between these two types of ewes there is, according to tests, less difference in the ability to produce lambs than has often been assumed.

During recent years many ewes sired by Hampshires or Suffolks and out of either fine-wool or crossbred long-wool and fine-wool ewes have been purchased in western areas and brought into the central states. In general they have proved satisfactory, as they are apt to have a reasonable percentage of twins and the lambs grow well.

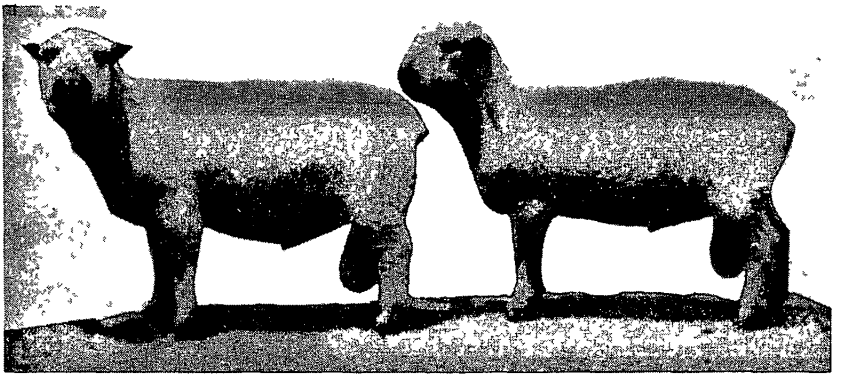
The western or range ewes are usually not so prolific as native ewes; that is, they do not ordinarily produce so many lambs. This is not wholly a matter of breeding, since environment, feeding, and management undoubtedly have some relation to the number of lambs produced. On the other hand, western ewes are likely to be freer than natives from internal parasites. This is especially true of range ewes from the more northern range states. If, however, only healthy native ewes are selected, one is not likely to find many of them heavily infested.

Native ewes may be purchased in the community or at various markets. If a large number of western ewes are wanted, they may be obtained from producers on the ranges, but they can also be secured on the central markets. There is an advantage in buying locally since ewes shipped to market are not usually the best production of a flock. Often, too, a saving is possible by buying locally. But after all, it is not so much cheapness as productive qualities that should be considered no matter where the ewes are purchased.

A Good Ram Is a Necessary Investment

Good lambs cannot be produced if a poor ram is used in the flock. A good, vigorous ram that may be mated to forty ewes is easily worth ten times as much as the average ewe in the flock. Thus if the ewes have an average value of only $10 a head, and only five times the value of a ewe is used as the cost of a ram, $50 is not an excessive price to pay for a ram. Indeed, if the choice is between a $30-ram and a $50-ram and each is expected to sire 100 lambs, the $50-ram

will be cheaper and more profitable in the end if his lambs bring only 25 cents a head more than the lambs sired by the $30-ram. This does not mean that excessive amounts should be spent for a ram, but it does mean that careful attention should be given to his selection. It is folly to select and cull the ewes and then use an inferior ram. As a matter of fact, more improvement in the flock is possible through the use of a good ram than in any other way.



A good purebred ram like the one at the left is essential for improving lamb production. Compare him with the other, both Shropshires. Note his longer neck, straighter back, deeper and wider body, and well-developed rear quarters.

Every sheep raiser in Illinois should use a ram that has the characteristics wanted in his lambs. This will usually mean the ram is representative of one of the recognized breeds whether registered in the breed association or not.

The ram need not have all the fancy points which are given a high value in the show ring, but he should be of good size for his breed, have a well-developed body that is moderately low-set, deep and wide, and have a good constitution. Only strong, vigorous rams are capable of breeding a large number of ewes and producing lambs that are likely to be strong at birth and that will grow satisfactorily. Rams having good mutton form are most likely to sire thickly fleshed lambs.

The fleece of the ram is of importance, especially if ewe lambs sired by him are to be kept for breeding. If all the lambs are to be sold, then the fleece of the ram is not so important, as the future wool production of the flock will not be affected. Great variation in the wool crop of lambs produced in the flock is certain to result when the fleeces of the ram and the ewes are markedly different in quality.

In many communities there are breeders from whom suitable rams can be purchased. When rams cannot be obtained locally, a list of breeders having rams for sale may be secured from the Extension Service, College of Agriculture, Urbana.

Yearling rams are most commonly purchased for sires, although many lambs of the Suffolk and Hampshire breed are bought. It is the general practice to use one ram to each 35 to 50 ewes in the flock. In small flocks the same ram is ordinarily not used more than two years. If some ewe lambs produced in the flock have been added to it, it is usually advisable to obtain another ram after a two-year period in order to avoid inbreeding. Inbreeding is not always harmful, however, and it sometimes results in outstanding animals. It is most often used in efforts to improve animals in purebred flocks.

Improve Flock by Careful Culling

No matter how carefully the ewes were selected in starting the flock, income can always be increased by culling out the poor producers. Ewes vary greatly in the number of lambs they produce and in lamb-raising and wool-producing qualities. It is on this basis that the flock should be culled.

Culling cannot be done by simply looking at the individual members of the flock. Good-appearing ewes are desirable, it is true, but these good-appearing ewes should be high producers of desirable market lambs and wool. Hence some record should be kept that will indicate which are the most productive ewes. A very simple record, showing the number of the ewe, the weight of the fleece, the number of lambs dropped and raised, and the weight of the lambs at weaning time will suffice.

But if some ewes are better wool producers and some better lamb producers, how can we arrive at a common basis for comparing them? We can do this by changing the weight of a ewe's fleece into an equivalent amount of lamb on the basis of their relative values per pound. Since wool has often brought about three times what a pound of lamb has sold for, we simply multiply the number of pounds of wool by 3 and add that weight to the weight of the lambs when marketed. Take Ewe No. 1 in the table on page 14. This ewe produced 10 pounds of wool, which has a value equivalent to 30 pounds of lamb. Since her lambs weighed 155 pounds when marketed, she can be credited with 185 pounds of lamb. Ewe No. 5's production would be 193 pounds figured in this way, while No. 3's would be only 91 pounds. As a flock ewe, No. 3 is seen to be far inferior to the others.

Production Record of Ewes, 1948

(Sample illustrating basis for culling)

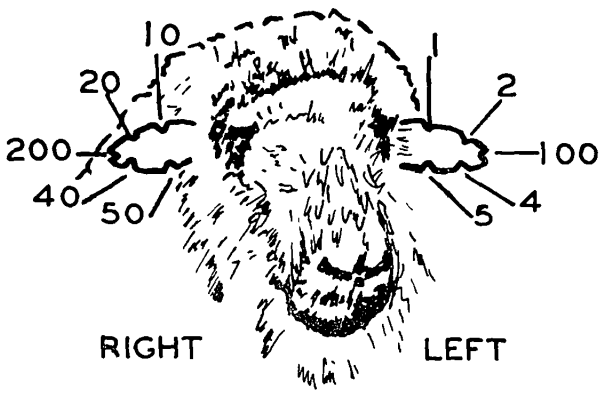
Ewe No.	Pounds of wool	Lambing date	Lambs produced			
			Identification No	Sex	Sale weight	Remarks
1	10	2-10	4	Male	80	
			5	Ewe	75	
2	10	2-5	1	Ewe	90	
3	7	2-20	7	Ewe	70	Cull: light fleece, poor lamb
4	9	2-10	6	Male	95	
5	11	2-5	2	Male	80	
			3	Ewe	80	
6	6 5	2-12	8	Ewe	70	Cull: poor fleece, poor milker
			9	Ewe	50	
7	8	2-12	Dead	Male		
8	9	2-15	10	Male	100	

In general, it is a good plan to keep ewe lambs that are from prolific ewes. This does not mean that ewes born as twins will always produce twin lambs, but it does give assurance that the produce of the most prolific ewes is not being discarded. Some ewes will raise twins more easily than others raise single lambs. This means that the ewes raising twin lambs that grow rapidly are not only prolific but are good milkers. As a rule, the growth of a lamb or lambs is a very good indication of the milking ability of the ewe, for milk is the most important single food in the growth of young lambs. Hence, by keeping good-sized, twin-born ewe lambs the prolificacy and lamb-raising abilities of the flock are likely to be improved.

It is a very poor policy to keep ewe lambs that are not good enough to sell, for this is certain to reduce the quality of the flock.

In order to obtain such a record as described above, the ewes and lambs must bear identification marks Numbered metal ear tags will serve this purpose. These are easily put into the ears and are seldom torn out. Until they are added to the breeding flock, the lambs may be identified soon after birth by notching their ears or by inserting lightweight aluminum tags.

Owners of commercial farm flocks sometimes consider the matter of identifying their sheep individually as unimportant, but if they are



Notching the ears of ewes and lambs is a good way to identify them. One system is shown here. By using five notches in each ear any number up to 399 can easily be built up. On the left ear a single notch stands for 1, 2, 4, 5, or 100, according to its position. Two notches in this ear indicate 3, 6, 7, or 9 (1 and 2 = 3; 4 and 2 = 6; 5 and 2 = 7; 5 and 4 = 9); 8 takes three notches (1, 2, and 5). On the right ear, notches represent 10, 20, 40, and 50; combinations of these notches give 30, 60, 70, 80, and 90; a notch at the tip stands for 200. To make 127 takes four notches — at positions 100, 2, and 5 in the left ear and at 20 in the right. To make 238 takes six notches — at the tip and at positions 10 and 20 in the right ear and at 1, 2, and 5 in the left. In flocks of 100 lambs or more, metal tags inserted in the ear fairly close to the head are better than notches for permanent identification; but some system of notching will probably need to be used along with the tags since the ears of young lambs are usually too small for tagging.

to be able to cull their flocks on the basis of production, they will have to adopt some such system to give them a basis for judgment. Compared with methods used in testing and culling some other kinds of farm stock, the above method is very simple and the farm flock should be worth this attention.

GENERAL CARE AND SHELTER

A sheep enterprise on a farm represents a considerable investment. As such it should be carefully established through the selection and purchase of the right animals, and so handled that its greatest productiveness and profitableness will be fully realized. Costs should be kept as low as possible without interfering with profitable returns. Sheep raising, like other livestock production, affords an opportunity to market feed and labor. Hence the kind of feed and care which the sheep are given should be determined by the relation between costs and returns and not by costs alone.

The best way to protect the investment in sheep is to provide the shelter, equipment, care and feed that will maintain their health and enable them to produce in a normal way without high cost.

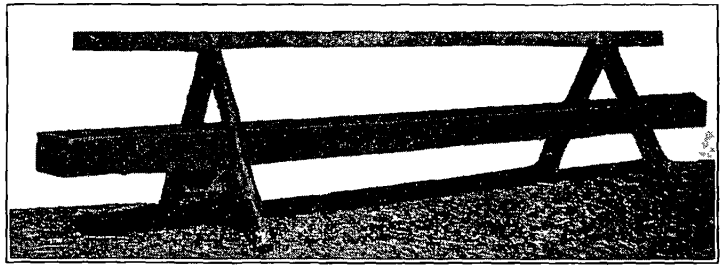
Shelter and Equipment Need Not Be Expensive

Shelter. The main requirements of a shelter for all classes of sheep, except young lambs born during the winter months, are that it be dry and well ventilated. In Illinois the matter of warmth needs to be considered for early lambs, but for other sheep the usual winter temperatures are not harmful.

The cheapest shelter is a shed open on the south. The objections to such a structure are that it lacks storage space for feed and a place warm enough for early lambs, but aside from these drawbacks it is almost ideal. Such a shed may be built of lumber or of poles and straw. While the latter construction is not so satisfactory as lumber, it does not cost much and it may be made to serve very well.

From 12 to 15 square feet of floor space in the shelter, aside from that occupied by feed racks, is needed for each ewe in order to avoid overcrowding. In fact this is a minimum for ewes and their lambs and more is often advisable. Hence a structure 20 feet wide and 30 feet long is the minimum size for a flock of about 40 breeding ewes.

Feed racks. Combination grain-and-hay racks or bunks have proved satisfactory in many cases. These are not hard to make; and if proper care is used in putting in the feed, practically none of it will

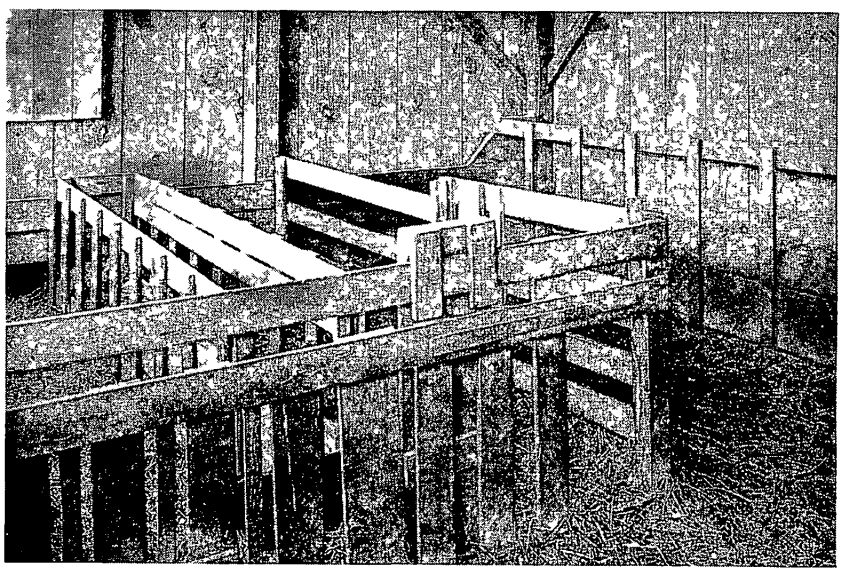


A grain trough like this is easy to build. It provides a good way to feed grain when the grain is not fed with the hay. If the grain and roughage are to be fed together, a slatted rack like the one on page 17 is recommended.

be wasted by the sheep and their fleeces will be rather free of chaff. Of course other types of grain and hay racks may be used. Some kinds are illustrated.

Since feed racks are used mainly for bred or suckling ewes in full fleece, ample space should be provided. At least 18 inches of feeding space should be allowed for each ewe of the larger breeds, but about 15 inches will be sufficient for small ewes.

This barn with attached sheds is excellent for sheep. It can be used for a breeding flock or for feeding lambs and is acceptable for other purposes. Alleys along the back of the shed make feeding easy. The pens can be cleaned with tractor scoops. Wide doors or gates are advisable for a breeding flock. For another type of barn see page 47.



A well-arranged interior. A feed rack for the ewes runs along the side. The creep in the corner lets the lambs eat apart from their mothers. Grain and hay are fed from a rack inside the creep.

A shed of this kind makes a suitable shelter for a breeding flock so long as it is dry, well ventilated, and near where the feed is stored. This shed would be improved by cutting several windows at the back and in the ends. Feed racks can be built along the sides.

Water containers. Sheep should have water available at all times. If sheep do not have enough water, they are certain to show the effect of such poor attention. Any tanks or containers for supplying water that keep it fresh and clean and of suitable temperature are satisfactory.

Lambing pens. These are not absolutely necessary but they do often help to save lambs. Since they do not cost much and are easily made, one or two lambs saved will pay for the materials.

Lambing pens are small pens about 4 feet square in which a ewe and her lamb or lambs may be confined for a few days just after the lambs are born. With such pens, it is easy to observe the ewe and lamb and notice whether they need any special attention. Light hurdles made of 1-by-2-inch or 1-by-3-inch pieces are very satisfactory for these temporary pens.

Dipping vat. It is often advisable to have a vat or tank in which to dip the flock in order to control ticks and lice (see page 38). In some communities portable dipping vats have been used for several years and have proved satisfactory. A permanent vat may be either of metal or concrete. For most flocks in Illinois a vat that is 6 feet long at the bottom with an end sloping so that the top is 10 to 12 feet long will be adequate. It should be 4 feet deep, 2 feet wide inside at the top, and 1 foot wide inside at the bottom. The sheep leave the vat on a cleated board or a ladder made in the concrete. A drainage platform attached to the vat will help to save the dip.

Small tools. Aside from the above items of equipment the things needed in caring for sheep are small tools, such as knives, shears, etc. Anyone who wishes to shear his own sheep, should have a hand or a power shearing machine.

Skilful, careful management is the best assurance of good results in sheep production. No amount of equipment will make up for its lack. In fact, there is often a good deal of virtue in making the best use of less than ideal equipment.

Early Lambing Fits Illinois Conditions Best

In general, two systems of lamb raising are followed in Illinois. These may be called early and late lamb raising. The choice between them depends upon the preference of the flock owner and the equipment available. Their chief difference is the date at which the lambs are born and the method of feeding used. Early lambs are born during January, February, and early March. Late lambs are dropped in April and May, as a rule.

For farmers who are properly equipped, early lambs are likely to be preferable to late ones; but, since early lambs are apt to be more expensive to raise, they must be marketed when prices are high in order to gain the most advantage. While there are a number of reasons for favoring early lambs, the main ones are that they bring the higher prices and are less troubled with internal parasites.

Ewes lambing early require better feed than those lambing late, and the lambs must be fed grain before going on pasture. Ewes lambing in April or May require little grain, and their lambs need little, if any, grain if they have an abundance of legume or mixed grass and legume pasture and are kept free from parasites. It is a poor policy, however, to raise early lambs which, because of poor feeding and management, have to be sold in the fall in competition with range lambs.

Buyers on the market prefer good native lambs to range lambs any time of the year, if the natives are of the right kind and are fat and properly prepared for market.

THE BREEDING SEASON

The natural breeding season of sheep is in the fall of the year, from about the middle of August to the end of December. Ewes of the Dorset breed or grade and crossbred Dorset ewes and some fine-wool ewes will breed earlier than this or at other seasons. However, for most farmers in Illinois it is impractical to start breeding the ewes

before the middle of August. The periods of heat last about one day and recur approximately every 16 days. The gestation period (the time from breeding to lambing) averages 147 days.

Have Ewes and Ram in Good Shape

Although the lambing season is frequently called the "shepherd's harvest," the character of the crop depends largely upon proper care and feeding during pregnancy, assuming that the flock is made up of desirable individuals.

Care of ewes. Flushing the ewes before the start of the breeding season is generally advisable. To flush them, give them some grain in addition to pasture or put them on more nutritious pasture than they have had during the summer, so that they will be gaining weight when bred. Fushing is not expensive. Feed each ewe ½ to ¾ pound of grain daily for about a month or merely put the ewes on good pasture without feeding grain.

Although natural prolificacy is undoubtedly important in determining the number of lambs a ewe will drop, experimental work and observations of practical sheepmen indicate that flushing, either with grain or pasture, increases the number and may have other benefits.

Ewes should be kept in thriving condition at all times. Flushing them just before breeding will not overcome poor feeding and management at other seasons.

Condition of ram. The ram will be most active if in medium flesh during the breeding season. If of medium size, give him at least a pound a day of some grain mixture, such as 3 parts of oats and 1 part of wheat bran, by weight. If he is very heavily wooled he should be sheared or the wool on his belly clipped short before he is turned in with the ewes.

Not all rams are equally fertile at all seasons of the year. Some settle ewes readily during summer and early fall; others are almost sterile at these times and become highly fertile only late in the year. This may be true even with rams that are very active. Although some very fat rams are fertile, there is evidence that extremely heavy feeding and high fitting is sometimes harmful and is always wasteful.

Be Sure All Ewes Are Bred

Since ewes do not show so plainly as other farm animals when they are in season, effort should be made to learn whether they are being bred. This is especially necessary if only one ram is being used.

In a number of cases none of the ewes in a flock dropped lambs because the ram was sterile or did not serve the ewes.

The oestrus (heat) period of ewes occurs at about 16-day intervals. A simple way of knowing whether or not ewes that have been bred are returning in heat is to leave the ram with them for a 16-day period, during which time most of the ewes should have been bred. At the end of this 16-day period some thick paste, made of used oil and red ochre, is placed on the ram's brisket between his front legs. This will need to be applied every day or so during the next 16 days. This will leave a red mark on each ewe bred during the second 16-day period.

For the next period, lampblack can be used in place of the red ochre, so that those ewes bred during the third 16-day period will have a black mark on the rump. If all the ewes are again bred, without effect, it is doubtful if the ram is a breeder and a new one should be secured. When more than one ram is being used, or if the caretaker is giving the flock very close attention, such as in the case of purebred flocks, the use of the marking material will not often be necessary.

A notation regarding the date the ram was turned with the flock, or the period when most of the ewes were bred, is helpful in preparing for the lambing season.

Remove Tags and Trim Feet

The breeding season calls for attention to some details. Among the things to do is the removal of tags (large locks of dirty wool) which may have collected about the rear quarters of the ewes. Good caretakers, however, remove these tags from time to time as they are accumulating and the task at breeding time is not difficult.

While the feet of sheep may need to be trimmed from time to time to prevent excess growth and lameness, it is especially important that the feet of the ram be in good shape at the breeding season. The feet of sheep may be trimmed with a knife. A small pruning knife is often recommended. The hoof is much easier to cut if the work is done after the sheep have been on wet pastures or damp ground for a few hours.

FEED AND CARE DURING PREGNANCY

During the gestation period many farm flocks are so neglected that very poor lambing seasons follow. Throughout this period ewes should gain in weight so that they will be in good condition to nurse their lambs well. This means that the ewes must be given feeds which contain the nutrients needed to maintain their own bodies, to grow a

fleece, and to develop the fetus. Not only must the feeds be suitable, but other phases of management should be adapted to the needs of the ewes. When properly handled, bred ewes seldom become too fat.

Pasture Is Advisable in Fall and Early Winter

After the breeding season for early lambs there is a period of about eight weeks before it is necessary to put the ewes on winter rations composed largely of harvested feeds. Pasture feeding during this part of the fall and, in some sections of the state during at least a part of the winter, will help to keep feed costs down.

To have good pasture for this period, stock should be removed from these areas during earlier parts of the season. Bluegrass or redtop pastures handled in this way and allowed to grow about 4 to 6 inches high before the sheep are turned into them will furnish palatable feed during a large part of the winter in many areas of the state. Such cereals as rye, wheat, and winter barley make excellent pasture where soil conditions permit. If seeded in September they are likely to make the best pasture. Except when these crops are grazed too closely, the reduction in grain yield will not be great and it will likely be offset by the value of the pasture.

During severe weather the ewes should of course be protected. At other times they can be made to gather a portion of their feed, as this assures some exercise, a great aid in maintaining vigor and health.

Legume Hays Good Basis for Winter Ration

Alfalfa, clover, soybean, lespedeza, or cowpea hay may well be made the basis of the ration for pregnant ewes, whenever possible, after the pasture season. Fed at the rate of about 3 to 4 pounds a ewe a day, such roughages supply most of the nutrients needed. For additional feed the ewes may make use of pastures as suggested above and perhaps some nonlegume roughages.

One of the best ways to feed ewes during pregnancy is to use a legume roughage as the entire ration most of the time. This, however, generally increases the expense compared with a legume and pasture combination, for a ewe weighing 125 to 150 pounds will eat 3 to 4 pounds of hay daily. Nonleguminous feeds, such as timothy hay, straw, or cornstalks, are not suitable for exclusive use in this way, since they do not contain sufficient quantities of the food materials needed by bred ewes. Protein concentrates and additional minerals are usually required when such roughages are fed, and even then the results may not equal those obtained by feeding legumes.

Corn silage of good quality is very suitable for bred ewes and is undoubtedly the best way to use part of the corn crop for sheep. At the Illinois Experiment Station at Urbana and at Dixon Springs many hundreds of ewes have been fed in drylot with corn silage as the only roughage. Since 6 or 7 pounds of corn silage is an average daily allowance for a ewe, two acres of corn yielding 20 tons of silage will maintain a flock of 40 ewes for five months. It is important to use a supplement with the silage to correct its deficiencies of protein and calcium. Each ewe should be fed about ¼ pound of a supplement mixture made up of the following ingredients: 80 pounds of either soybean oilmeal, cottonseed meal, or linseed meal; 10 pounds of finely ground limestone; and 10 pounds of salt. The limestone and salt may be mixed separate from the meal and kept before the ewes at all times; the protein concentrate is fed on the silage at the rate of one pound daily for each four or five ewes.

Corn silage may be used for at least half the roughage ration when the other half is a legume roughage. In this case no supplement is needed.

Silage made from legumes or legumes and grasses has proved suitable for sheep. Unless such silage is carefully made, however, sheep may not especially like it. Some reports show alfalfa silage to be of higher feeding value than alfalfa hay, but the relative values would depend on the relative qualities of the two feeds. Sudan grass silage did not give as good results as corn silage in a test involving two different lots of ewes.

Grain Is Needed a Month Before Lambing

The above feeds are generally sufficient and they have been shown to be more economical, results considered, than other methods of feeding. Such feeding is suitable until about a month before the ewes are due to lamb. At that time a small amount of grain — ½ to ¾ pound — should be given each ewe daily. For this purpose equal parts, by weight, of whole oats and shelled corn are satisfactory to use with the legume roughages suggested above. This is not the best grain ration that could be used — a mixture of 5 parts oats, 3 parts corn, 1 part wheat bran, and 1 part linseed oilmeal is superior to corn and oats. If the ewes are thin, reverse the proportions of oats and corn, using at least 5 parts corn and not more than 3 parts oats in the mixture.

There has been a widespread notion that corn is not a satisfactory feed for breeding sheep. As a matter of fact it is one of the very best grains to use with legume roughages because it supplies the kind of

nutrients needed by ewes late in pregnancy and if fed as indicated is in no way harmful to them.

Some grain should be fed to the ewes at this period because it helps them to nourish properly the rapidly developing lambs. The vigor of the lambs at birth is so important that no one should try to save feed when its use increases the possibility of having strong lambs and hence raising a large percentage of them. Furthermore this grain, although not of large amount, does help to assure a good supply of milk for the young lambs, and since milk is the most important single food for growing young lambs, it is very necessary that the ewes be well fed.

Fed as suggested above and given ample water and salt, ewes in all parts of Illinois should, so far as feed is a factor in production, produce good lambs. Apparently the only deficiency which might arise in a few cases would be a lack of iodine. This is shown by goiter or "big neck" in newborn lambs and is corrected by using a very small amount of iodine in the ration in such cases. It is advisable to use iodized salt for sheep in all parts of Illinois.

Suggested Rations for Pregnant Ewes

For Ewes Lambing Before Pastures Are Ready

Ration 1

		Pounds daily
Oats 5 parts Shelled corn 3 parts Bran 1 part Linseed oilmeal 1 part	one month before lambing	½ to ¾
Legume hays		2 to 3
Corn silage		2 to 4

Ration 2

Oats and shelled corn, one month before lambing	½ to ¾
Legume hays	2 to 3
Corn silage	2 to 4

Ration 3

Oats and shelled corn, one month before lambing	½ to ¾
Legume hays	3 to 4

Ration 4

Oats and corn, one month before lambing	½ to ¾
Supplement: soybean oilmeal 80 lb. Fine limestone 10 lb. Salt 10 lb.	¼
Corn silage	6 to 8

For Ewes Lambing After Pastures Are Ready

Ration 5	*Pounds daily*
Legume hays	1½ to 3
Pasture: bluegrass, etc.	
Ration 6	
Corn silage	3 to 4
Alfalfa or clover hay	2 to 3

The above rations have given good results when fed to pregnant ewes. The amounts indicate approximate average daily requirements for *ewes weighing 125 to 150 pounds* and should be adjusted accordingly Usually the grain part of the ration need be fed only during the month before lambing. These rations, especially those with grain, should enable ewes to gain from 15 to 25 pounds during pregnancy so that they will come through the lambing season in good condition.

Care of Troubles Common to Pregnancy

Many sheep raisers report that late in the pregnancy period their ewes develop "pregnancy disease" or "before-lambing paralysis," also referred to as "acidosis," "acetonemia," "ketosis," and "ketonemia." When the disease occurs, the symptoms almost always develop about a week or two before the ewe is due to lamb. The affected ewe is at first sluggish and weak and then becomes unable to rise. Stiffness is usually noticed first in the hindquarters Death often occurs within 4 to 7 days after stiffness sets in, but if the ewe delivers her lambs she usually recovers.

Pregnancy disease occurs most frequently in ewes carrying twins, but it is also found occasionally in ewes carrying single lambs. Since twin lambs are profitable, attention should be directed to correct feeding and management in order to prevent the trouble.

Most cases of pregnancy disease develop in flocks that are well fed but take little exercise or in flocks getting enough exercise but receiving a ration that is too small or is not balanced. Late in pregnancy much of the ewe's abdominal capacity is taken up by the developing lambs At that time her need for nutrients is great. If the ewes are then fed the usual bulky rations the result is semistarvation and the development of pregnancy disease. For this reason it is recommended that grain be fed at least a month before lambing begins. Since ewes in late pregnancy need feed high in starch and sugar, as well as in proteins, minerals, and vitamins, it is logical to use corn as the con-

centrate portion of their ration. Ewes that lamb when good pastures are ready usually do not need to be fed grain during pregnancy.

Even with careful feeding and management some cases of pregnancy disease may develop. As soon as symptoms are noticed it is recommended that affected ewes be given three to five times daily a quart of water to which is added either a cupful of molasses or ⅔ cupful of sugar. The regular rations should be put before the ewe even though she will eat relatively little. Treatment will usually not be needed after lambing.

Many other troubles with ewes, such as a tendency to disown their lambs or failure to give enough milk, may often be prevented by giving the ewes ample feed.

CARE OF EWES AND LAMBS DURING LAMBING

Profitable sheep husbandry depends on maintaining good health in the flock. This requires at times more technical knowledge than most farmers can hope to acquire, so if there is a competent veterinarian within reasonable distance, it is advisable to establish contact with him and call him during the lambing period when help is needed.

If the veterinarian lives some distance away and the ewes are grades, the expense may make it impractical to call him to treat individual cases of noncontagious diseases. Then, too, immediate attention even if unskilled is often of the utmost importance. Hence anyone who is caring for lambing ewes should know how to render first aid.

Try to Save All the Lambs

It is useless to flush the ewes and give them good feed and care during pregnancy if no attempt is made to save the lambs. Large losses of lambs often occur within about a week after they are dropped. There are many causes of these losses but the big cause is neglect.

In many flocks of 35 to 70 ewes, owners have raised an average of 1½ to almost 2 lambs per ewe. This is done by using lambing pens, providing sanitary quarters, and giving personal attention during the lambing period. The things that should be done at lambing time are known to most flock owners, but knowing what to do and still neglecting to do it does not save lambs.

The following precautions are absolutely necessary in order to guard against excessive losses:

Have lambs born in clean quarters.

Within an hour after the lamb is born, saturate its navel with tincture of iodine.

Do not allow the lambs to become chilled. In cold weather wipe them dry with old cloths or sacks.

See that the ewe has milk, that her udder is all right, her teats open, and that the lambs get the milk. The first milk, or colostrum, has special properties which help the lambs to survive.

Give the lambs reasonable protection from severe weather.

Do not disturb the flock any more than necessary. To do so or to handle the lambs roughly is almost certain to result in injured lambs, an important cause of deaths.

With careful attention, the loss of lambs should be kept below the 25 to 30 percent loss that occurs in many flocks.

Ewes Often Need Help in Delivering Lambs

When the ewe is giving birth to a lamb, do not disturb her so long as everything seems to be going well. If she must have help (which she should have if little or no progress is being made after much laboring), first learn what position the lamb is in. To be delivered alive, it should be presented forefeet first, with the nose lying between the forelegs. This is the normal position for birth although some lambs are delivered hind legs first.

Before entering the ewe to get the lamb into the proper position, disinfect your hand and smear it with vaseline or oil. Use care not to tear the parts of the ewe (it may be inadvisable for a person with a large hand to attempt the operation). After being sure the lamb is in proper position, pull steadily on its forelegs, bringing the lamb slightly downward toward the ewe's udder, but use most strength in pulling when the ewe labors. Be sure to keep the head coming with the forelegs.

Watch Ewe Closely for Several Days

Soon after the lamb is born, draw a little milk from the ewe in order to make sure that the milk channels are opened so that the lamb can draw the milk. Give the ewe close attention for several days. Note whether she casts the placenta (afterbirth) and whether her feces are normal. If she fails to cast the afterbirth, a veterinarian should be called.

Do not worry if a ewe refuses to eat for the first three to six hours after lambing, but if she continues to refuse feed, make sure that her bowels are in good condition. If she is constipated, give as a drench

4 ounces (one-third pint) of raw linseed oil, or 4 to 5 ounces of epsom salts dissolved in water. For a quick-acting physic, 2 ounces (4 tablespoonfuls) of raw linseed oil with 4 ounces of epsom salts may be used.

As an aid to the appetite, the ewe may be given three times daily a teaspoon each of tincture of gentian and ginger in half a pint of lukewarm water.

Watch the udder. Milk the ewe if the lamb does not take most of the milk; this will reduce the danger of a caked udder. Do not expose a ewe to cold drafts at this time. Give her all the water she wants, but not large quantities at one time, and see that it is not so cold as to chill her.

Give a lambing ewe good feed, such as legume hay and oats; feed grain sparingly for two or three days after the lamb is born.

Give Suckling Ewes Plenty of Good Feed

After the lambs are three or four days old, their mothers should be given a liberal allowance of nourishing feeds. This is the time when the good milking ewe proves her worth, for such a ewe will often raise twin lambs better than a poor milker will raise a single lamb. For a ewe weighing about 150 pounds a good ration is:

Oats, 5 parts by weight Corn, 3 parts by weight Wheat bran, 1 part by weight Linseed meal, 1 part by weight	1 to 1¼ pounds daily
Alfalfa, clover, soybean hay:	3 to 4 pounds daily

Rations 1, 2, 3, and 4, given on page 24 may also be fed to suckling ewes if the amount of grain is increased ½ to ¾ pound. Suckling ewes need grain until good pastures are available.

Examine Udder Frequently

If the ewe's udder is swollen, keep it milked out and paint it twice a day with tincture of iodine until the swelling begins to go down, and thereafter paint it once a day until it is evident that further treatment is unnecessary. Some of the new medicines obtainable from a veterinarian and given according to his directions are likley to be more effective than some home remedies.

Ewes with swollen udders should be removed to comfortable quarters outside the sheep barn, for their trouble may be caused by an infection that will spread through the flock. Since their milk may be poisonous, the lambs should be taken away from them and fed by hand until the swelling subsides and the milk is again normal.

Sore teats in ewes are most often caused by the formation of pock-like sores, but sometimes by the long sharp teeth of the lamb. As soon as the pock-sores are discovered, they should be opened and washed twice a day with a good disinfectant or treated with tincture of iodine. If the teats are very sore, the ewe will refuse to let the lamb nurse, and it will be necessary to feed the lamb and milk the ewe.

Give Weak and Orphan Lambs Special Care

Little attention need be given the strong lamb whose mother has milk, except perhaps to see that it finds the teat. If the mother has no milk or if the lamb is an orphan, it is best at first to take a little milk from a ewe that has more than enough for her lamb. The next best thing to do is to feed cow's whole milk but do not dilute it, as it is usually not so high in fat and solids as ewe's milk. Give about 2 tablespoonfuls every two or three hours. The following schedule is likely to prove satisfactory if adjusted to the size of the orphan lambs:

Age of lamb	*Number of feedings daily*	*Ounces of milk at each feeding*
1 to 6 days	8 to 6	1 to 2
1 to 2 weeks	6 to 4	3 to 6
2 to 3 weeks	4	6 to 8
3 to 4 weeks	4 to 3	8 to 10
4 to 6 weeks	3	10 to 16
6 to 8 weeks	3	16 to 32

The milk should be fed at a temperature of about 90° F. and all utensils in which it is placed must be kept thoroughly clean. Continue feeding milk for at least two months, but after the first two weeks give the lambs grain and hay or put them on good pasture.

A lamb too weak to stand to nurse should be helped to get a fill of its mother's milk soon after birth. If it is anxious to nurse, back the ewe into a corner and hold the lamb to the teat. If it refuses to nurse, stimulate its desire by milking into its mouth or draw some milk from the ewe and feed the lamb from a bottle until it gains in strength and develops a strong appetite. Some shepherds give the lamb small amounts of a stimulant, such as coffee.

Since chilled lambs usually die, every possible precaution should be taken to prevent them from chilling. If a lamb is chilled one of the best ways to handle it is to place all but its head in warm water. This should be as warm as one's elbow can bear and should be kept at this temperature. When the lamb becomes somewhat lively, take it out of the bath and rub it briskly with a coarse cloth until it is almost dry.

Then feed it, wrap all but its nose in a thick blanket or cloth, and put it in a warm place to sleep. Return it to its mother when it has become strong.

Have Each Ewe Raise a Lamb

If a ewe disowns her lamb, try to get her to claim it but mark her for culling later. A well-fed good milking ewe will usually care for her lambs.

Since a ewe recognizes her offspring at first wholly by smell, it may help in getting her to own her lamb to smear on her nose and on the rump of her lamb some of her milk. Another way is to tie the ewe in the lambing pen, where it is easy to hold her and force her to let the lamb nurse often. Usually she will not need to be kept tied for more than three or four days. Sometimes it is helpful to place a dog in an adjoining pen. At other times all methods are unsuccessful. There is no more certain way to fail than to do nothing because "I tried it once before and it didn't work." Willingness, effort, and ingenuity are important in sheep husbandry.

When the disowned lamb is one of a pair of twins, both lambs may be placed in a pen next to that occupied by the ewe so that she can see them, and both should always be put with her at the same time. In her anxiety to nurse the lamb she claims, she is likely to let the other one nurse also.

If a ewe loses her lamb and has a good supply of milk, an attempt should be made to have her raise another, an orphan or one not getting enough milk from its mother. If she has just lost her lamb, she may be induced to take another if the skin of the dead lamb is removed immediately and placed on the stranger. The skin should not be left on for more than a few hours. The suggestions given above for getting a ewe to claim her own lamb may also be employed.

Give Prompt Attention to Ailments

Sore eyes may occur in young lambs. As soon as this condition is noticed, the eyes should be washed twice daily with a saturated solution of boric acid and then treated with a 15-percent solution of argyrol applied with a medicine dropper. Some cases of sore eyes are very persistent, and treatment needs to be continued for a considerable time.

Turned-in eyelids, which occur most often in breeds with very wooly heads, are one of the causes of sore eyes. If the turned-in lids are forced open several times a day, they sometimes correct themselves,

but in many cases they need to be stitched back or they may be held back with the small metal clips used by surgeons.

Sore mouth in lambs is caused by a filterable virus. Repeated applications of an ointment or of an antiseptic, such as tincture of iodine added to a salve, is a standard treatment. Recent tests have shown that sore mouth may be prevented by vaccination of the lambs before the disease appears; and in some cases vaccination seems to hasten healing when the trouble has started.

"Pinning" is a trouble which may affect lambs a few days after birth. The first feces are very sticky and sometimes collect about the tail to such an extent that it is impossible for the lamb to void feces. Unless removed, this accumulation will impair the lamb's health.

Indigestion, diarrhea, dysentery, and constipation may occur from time to time. They are usually associated with poor feeding and lack of sanitation. Many lamb raisers do not realize that neglecting sanitation results in expensive losses later in spite of treatment.

The most common treatment for these disorders of the stomach and intestines is a laxative, usually castor oil—a teaspoonful to a tablespoonful, depending upon the size and age of the lamb. Milk of magnesia may be used in the same dose as castor oil. In cases of extreme constipation it may be advisable to use an enema of a small amount of warm water. Soap should be omitted or very little used.

Pneumonia often develops following exposure and chilling. Few cases are treated successfully — prevention by careful management is better.

FEEDING THE GROWING LAMBS

Grains and Hay Are Needed

While milk is extremely important for growing young lambs, it is not sufficient after the lambs are about two weeks old. For early lambs, provide a creep so they may eat apart from their mothers.

An excellent grain ration for lambs is 20 pounds of coarsely ground or cracked corn, 20 pounds of coarsely ground, crushed, or whole oats, 10 pounds of wheat bran, and 10 pounds of linseed oilmeal or soybean oilmeal. They will also need some of the best-quality alfalfa or clover hay. They like good corn silage too.

If the above grain mixture is not easily secured and prepared, equal amounts of corn and oats can be used with good results. After the lambs are two months old the grain need not be ground.

Feed the lambs liberally on this creep mixture until pasture is available. If the pasture is very good, the lambs may stop eating grain even though a creep is built in the field. The milk of their mothers and the pasture satisfy them and little, if any, grain is likely to be eaten till after they are weaned or pasture becomes short.

Although they may eat no grain, lambs that are raised by good milking ewes on very good pasture will make gains at least equal to those fed in creeps before pastures are ready.

Whenever pastures are short, creep feeding is advisable, as the extra feed helps to keep the lambs in good condition to be sold to advantage at weaning time. Failure to have lambs of market condition and weight at weaning time is poor economy. It is much more expensive to feed the lambs for two or three months after weaning than it is to provide them with the needed feeds earlier when they are capable of making most economical gains.

Whether to creep-feed lambs on pasture will depend on conditions. Do not do it on abundant succulent pasture; always do so on scant or dry pasture. Make a good creep and locate it so that the lambs will enter it often to eat. Be very careful to have palatable feeds and keep the feeding equipment clean.

Permanent or Temporary Pastures Can Be Used

Good pastures are the basis of economical sheep production; and legumes are the basis of good pastures, especially in late spring and in the summer.

Pastures of cereals were suggested for ewes in the fall (page 22). Early in the spring these cereal pastures are very productive of milk, growth, and health, and of great help in developing early lambs.

Many Illinois farmers depend entirely upon permanent pastures for their sheep. Bluegrass is, of course, the most commonly used permanent pasture grass, although other grasses and clovers are frequently important parts of such pastures. In using permanent pastures farmers will need to give some attention to their management and improvement. It is recommended that these pastures be used in the spring and fall but not be depended upon throughout the summer.

From the standpoint of good sheep husbandry some rotation of sheep from one part of a pasture to another is advisable—indeed, this may also be advisable from the standpoint of good pasture management. If, however, a large area of pasture is used for more than one kind of livestock, and it is not grazed too closely, it may not be so necessary to rotate the flock. In spite of the opinions of some, it is

Sheep on summer pasture need some shade if they are to be comfortable.

possible, and perhaps in some cases advisable, to put both cattle and sheep on the same pasture.

If heavily grazed early in the season, bluegrass, redtop, and many other grass pastures are usually short and dry during July and August; hence they furnish little feed at that time. Supplementary temporary pastures and forage crops are therefore very helpful in keeping the flock in good condition. A considerable variety of crops may be used for this purpose. Probably one of the most satisfactory arrangements is to use the forages grown in the crop rotation. There may, of course, be some danger of bloat when sheep are grazing on alfalfa or clovers, though tests at this Station indicate that bloat can be largely avoided. Many ewes and lambs have been pastured on alfalfa during recent years and very few have been lost. No special precautions have been taken except to allow the sheep to get a good fill of grass before going onto the alfalfa, and to have water and salt available at all times. They were then left on continuously day and night. Where adapted, lespedeza is very good sheep pasture. Ladino clover and birdsfoot trefoil are also good, although trefoil does not seem very palatable.

Some such combination of permanent and temporary pastures usually proves more satisfactory than permanent pastures alone or temporary pasture and forage crops. To provide a full season's succession of temporary forages requires a number of crops and involves considerable labor and fencing and often the purchase of seed.

INTERNAL AND EXTERNAL PARASITES

To make a profit from sheep raising, the health of the flock must be maintained. Probably the most frequent cause of ill health in lambs in Illinois during the summer and fall is infestation with parasites. The parasites which are to be found inside the body are generally more harmful than those on the skin.[1]

Management and Treatment Check Internal Parasites

In Illinois and other central states most sheep are infested with some internal parasites. Control, particularly of stomach worms and intestinal worms, is a matter of management, although medicines may also be needed. Change of sheep from pasture to pasture is advisable. Just how often this should be done depends upon conditions on the farm. The aim should be to prevent lambs from becoming infested, and the use of pasture crops grown in the regular crop rotation is a great help in accomplishing this.

If many sheep are pastured on a rather small area year after year, they are very likely to become unthrifty due to infestation with internal parasites. The reason for this is that the eggs of mature or adult parasites, especially of some of those that live in the stomach or intestines, are passed from the sheep in their droppings and after several stages of development are eaten by the lambs or sheep as they graze. If a small number of sheep are pastured on a large area, the danger of infestation seems to be considerably reduced. Few, if any, internal parasites are found in lambs kept in drylot from birth, as they do not have access to any of the materials on which worm eggs or larvae are deposited. This explains why early lambs do not usually become infested any sooner than late lambs when they are turned on pasture at the same time. In most sections of Illinois parasites do not become troublesome in lambs until about summer time.

Since the symptoms of infestation are similar to those of many other conditions, the trouble cannot always be diagnosed with certainty by looking at an animal. Also, the symptoms are not much different for different kinds of internal parasites, and there may be several kinds in an animal at the same time. The internal organs of posted sheep must be carefully examined; otherwise, parasites may be overlooked. All except tapeworms are small, some extremely small.

[1] For detailed information about common parasites of sheep, see Farmers' Bulletin 1330, "Parasites and Parasitic Diseases of Sheep," issued by the U. S. Department of Agriculture.

In Illinois the most common parasites of sheep are found in their stomachs, intestines, and lungs. More than one kind may be found in each place. There is no satisfactory treatment as yet for lungworms, and treatment is only partially effective against other parasites. Nevertheless sheep should be treated regularly during the pasture season. It is important too that treatments be given in the fall, for infested sheep will not thrive during the winter. All sheep should be treated in the spring before going onto new pastures, so that parasites which have lived over the winter in the sheep will not cause new infestations.

Although internal parasites are usually much more troublesome when sheep are on permanent pastures than when they can be changed from one pasture to another, good lambs have been produced on permanent pastures by the use of suitable treatments. Treatment is not expensive.

Since the giving of medicines may involve some danger, it should usually be done by a veterinarian or at least according to his directions or those of the manufacturer. With the exception of a mixture of phenothiazine and salt, the use of various concoctions in drinking water or salt is likely to be a waste of money.

Treatment with phenothiazine. Phenothiazine is now probably the most used medicine for stomach worms and nodular worms. It is not effective against tapeworms and some other internal parasites. A single dose should not be expected to remove all parasites, not even all of one kind. Treatments help in control but do not give complete control. For the greatest benefit they must be accompanied with other good management practices.

Phenothiazine is one of the safest as well as one of the most effective treatments. At the Illinois Station it has been given to many thousand sheep without causing apparent harm. Treatment should not be given just before lambing, however, but earlier in the season. Earlier medication is needed, not because ill effects are likely to follow the later medication, but because ewes should not be subjected to the drain of these parasites through the winter. Sheep stand repeated treatments. Some ewes have been given dosages at regular intervals during several years.

Since most stomach and nodular worm infestations are due to the adult parasites living over winter in the sheep, rather than to larvae persisting on pastures, *winter treatment is very important.* (Few larvae appear to live longer than four months on pastures even under the most favorable conditions, according to recent studies.)

Phenothiazine may be given in various ways. *Some flock owners*

whose sheep are used to eating grain like to mix it with the feed. All ewes in a large flock can be treated at one time, contrary to what has been generally recommended. One pound of phenothiazine should be mixed thoroughly with 16 pounds of ground feed. This is enough for 16 mature sheep, or 32 lambs weighing about 65 pounds each. Withholding feed is not necessary, but the flock will have better appetites if the treated feed is fed in the morning after the sheep have been without feed since the previous midday.

The treatment may be given as a drench, in capsules, or as boluses. But capsules and boluses are sometimes spit out when the cud is chewed. A drench is usually cheaper. The drench may be bought already prepared, or it can be easily made (most phenothiazine is now sold with a "wetting agent" so that it can be mixed with water). Although exact directions give the dosage of phenothiazine in grams, most people will find it easier to measure in ounces. For yearlings and mature sheep (weighing 100 to 200 pounds) use 1 ounce; for lambs and small yearlings (40 to 100 pounds) use ½ ounce. Thus if 10 pounds of phenothiazine is mixed with enough water to make 2½ gallons of drench, yearlings and mature sheep would be given 2 ounces of the drench (containing 1 ounce of phenothiazine).

The following "quick" method for drenching with phenothiazine is satisfactory but should not be used when copper sulfate is given. If the flock is small, one man can hold the sheep and give the drench. In a larger flock it is best to have another person hold the sheep. A hundred or more sheep can be treated by two men in an hour.[1]

Corral the sheep in a small inclosure. Keep them standing during treatment and turn them out or mark them afterwards. Use a 2-ounce metal plunger-type syringe fitted with a 6-inch pipe of large diameter (about ⅜ inch). Mark the plunger to measure a 1-ounce dose for lambs. The holder stands to one side or straddle the sheep's neck and hold its head about straight out. He places his left hand under the sheep's jaw and his right hand over its face, then opens the sheep's lips near the corner of its mouth on the left side.

Now insert the nozzle of the syringe and push it back on top of the tongue. Do not let nozzle end press against back or sides of the mouth.

The holder presses the sheeps nostrils together with his right thumb and forefinger, using his left hand to close the mouth. As soon as the mouth and nostrils are *tightly* closed, *push the plunger of the*

[1] For detailed directions regarding treatment, address the Extension Service, College of Agriculture, Urbana, Illinois.

syringe down as fast as possible. (Anyone doing this part of the job will soon learn the feel of the syringe when everything is as it should be for the dose to pass down the gullet.)

Keep mouth and nostrils closed and the nozzle of the syringe properly placed, or part or all of the dose is likely to run out the mouth.

Besides this full treatment in the spring and fall, a *mixture of phenothiazine and salt should be kept before the flock throughout the pasture season or the year.* A good mixture to use is 10 pounds of phenothiazine and 100 pounds of salt. These materials should be thoroughly mixed and protected from direct sunlight and from rain. But under conditions very favorable to the parasites, the salt mixture is not enough to control them, and regular treatments should also be given.

Treatment with "Cunic mixture." For many years a 1-percent copper-sulfate (bluestone) solution was a standard treatment for stomach worms. This solution is now used chiefly as part of the so-called "Cunic mixture," which is reasonably effective against tapeworms and does a better job against stomach worms than is done by copper sulfate alone. The following suggestions for its use will be helpful where veterinary service is not available.[1]

To prepare the "Cunic mixture" dissolve 1⅓ ounces of copper sulfate in 4 quarts of water. (The copper sulfate will dissolve much faster in boiling water than in cold water.) Use porcelain, glass, or enamelware containers, as this material will corrode metal. When the copper sulfate is dissolved, add 1 ounce of Blackleaf 40 (which contains approximately 40 percent nicotine sulfate).

A gallon of the "Cunic mixture" will treat 32 mature sheep. Sheep weighing 100 pounds or more may be given 4 ounces of the solution. Lambs weighing 25 to 50 pounds may be given 1 ounce; those weighing 50 to 75 pounds, 2 ounces; and 75 to 100 pounds, 3 ounces.

Keep the sheep off feed and water for at least 12 hours before and 4 hours after treating them.

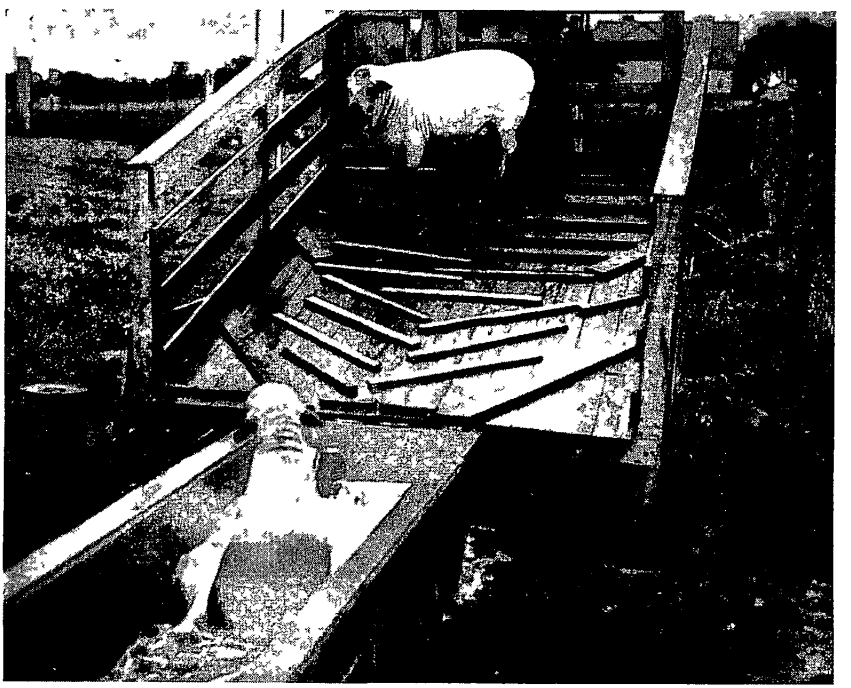
Ticks, Lice, and Mites Destroyed by Dips and Sprays

Ticks and lice are often found on sheep. Ticks are easily seen, and any sheep observed rubbing against fences, feed racks, or other objects should be examined for them. Lice are very small, and can be detected only by a careful examination. They will generally be found

[1] More detailed directions regarding treatments may be obtained by addressing the Extension Service College of Agriculture, Urbana, Illinois.

on or close to the skin just back of the shoulders. Often in the spring of the year loss of wool is due to the sheep rubbing themselves because of irritation from lice. Careful, thorough dipping, preferably a week or two after shearing, is the common way to destroy ticks and lice. Two dippings 2 to 3 weeks apart are usually necessary if liquid preparations are used. Some dips made of powdered materials are equally effective if the sheep are dipped only once. Lambs, as well as mature sheep, must be treated if all parasites are to be destroyed. (*For spraying recommendations, see illustration on next page.*)

Scab mites may infest sheep. While they are found in only a few flocks in Illinois, they are a serious pest, as they are harder to get rid of than ticks and lice. Lime-sulfur or nicotine dips are usually necessary in order to free sheep of them. The buildings and fences about paddocks where scabby sheep have been kept should be thoroughly



Dipping is the most practical means of ridding sheep of ticks, lice, and scab mites. The most economical time to dip is soon after shearing but no flock should be allowed to go into the winter without being dipped if any parasites are present. A vat such as this can be made of concrete. A draining platform saves dip.

Many sheep are now sprayed for external parasites. Several types of rigs can be used. Complete coverage applied with enough pressure to penetrate the wool is essential. For ticks a 0.5-percent DDT spray is very effective, as also are methoxychlor and Rothane in the same concentration. A 0.1-percent lindane spray is also a good treatment for ticks. One application of any of these sprays will do the work. Sheep should be sprayed within a month after they are sheared. It takes less spray then to get complete coverage.

disinfected, and sheep should be kept away from such premises for several months; otherwise infestation may recur.

If the flock becomes infested with scab, the local veterinarian and the State Veterinarian at Springfield should be notified.

Relief Is Possible for "Grub-in-Head"

Removing the grubs that sometimes get into the small cavities opening into the nostrils of sheep is difficult. Harm from these grubs usually occurs in late winter or early spring. The grubs are the maturing larvae of a fly which lays them on the edge of the sheep's nostrils. The adult fly, somewhat larger than a housefly, usually attacks sheep in June and July. When attacked, the sheep is greatly annoyed. It may run about frantically and hold its nose close to the ground or against other sheep. The flies are most troublesome during the middle of the day.

About 90 percent of the larvae will be destroyed by injecting into each of the sheeps' nostrils a fluid ounce of a 3-percent lysol solution in a small stream under about 35 pounds pressure, according to a

report of work in the U. S. Department of Agriculture. Almost 98 percent of the larvae were destroyed when two treatments were given five days apart. The treatments were given in late fall or early winter.

Pine tar smeared on the sheep's face does not repel flies so effectively as was formerly thought.

Control Maggots by Keeping Sheep Clean

Blowflies often lay eggs in wool that is dirty or wet with urine. The maggots that develop from these eggs are extremely irritating to the sheep. Lambs or sheep that have been fly-blown stamp with the hind feet and try to bite and rub the irritated parts.

Blowfly maggots are easily seen if the wool is parted. A common treatment consists of clipping the wool, if it is long, and applying some diluted dip or turpentine. An application of pine tar or similar material helps to prevent new attacks.

A treatment for maggots and screwworms, known as Formula (or Smear) 62, is recommended by the U. S. Department of Agriculture. Although directions can be obtained for making the smear, it is better to buy it already prepared.

The smear is best swabbed into the wound with a 1-inch paintbrush. One gallon is enough for a single treatment for 200 to 250 wounds. If pine tar or pinetrel is applied after Smear 62, or if some other means is used to destroy the maggots, there is little likelihood of another attack at that point.

DOCKING AND CASTRATING MARKET LAMBS

Only by marketing attractive lambs of good quality are the greatest profits possible. Undocked lambs and uncastrated ram lambs are not desirable on the market and sellers of them will be penalized. All market lambs should be docked and all market ram lambs castrated. Only the best purebred ram lambs should be left uncastrated. The sheep raiser who fails to dock and castrate his market lambs is neglecting a fundamental principle of better marketing; that is, to produce what the market wants.

There are a number of methods of docking and castrating.[1] Any method which is not unduly painful and does not result in great loss

[1] Farmers' Bulletin 1134, "Docking and Castrating Lambs," issued by the U. S. Department of Agriculture, discusses this subject in some detail.

of blood or in infected wounds is suitable. One who performs this operation must be careful and clean and apply a good antiseptic, such as tincture of iodine, to the wounds. These are not operations which may be carelessly performed.

From the standpoint of improving sheep management and of gaining a better reputation for all Illinois lambs on the markets, it is imperative that all lambs be marketed as docked ewe and wether (castrated male) lambs.

MARKETING THE LAMBS

When lambs weigh from 80 to 90 pounds they meet with strong demand on most markets. If they show good quality and form and are fat, there will be little chance of their selling much below top prices for the day. This statement refers to docked ewe and wether lambs. Ram lambs are subject to criticism because they may be coarse. Prices for ram lambs are always below those for ewe or wether lambs.

Shipping lambs to market is an important phase in sheep raising. It should be done carefully so that the lambs will be attractive on arrival. Tags should be removed. Cars or trucks should be cleaned and bedded lightly so the fleeces will not become soiled.

Overcrowding lambs in either cars or trucks is likely to mean loss from trampling or suffocation. Crippled lambs, the result of crowding or rough or hurried handling at loading, usually sell for only a dollar each. Picking up lambs by the wool may and often does result in a bruised carcass.

Docked wether and ewe lambs like these are ready for market. They meet requirements because they are of good quality and are fat, weighing from 75 to 90 pounds.

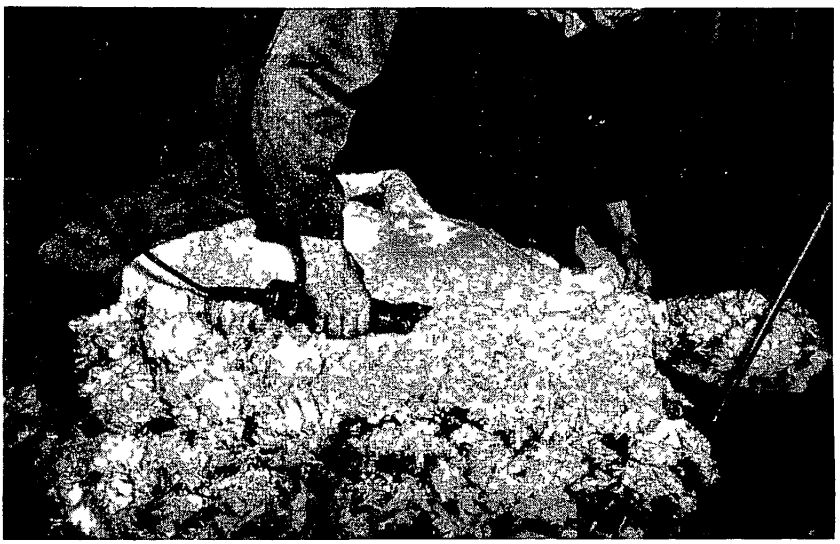
Feed Lambs in Usual Way Before Shipping

Lambs ship best if fed in the way to which they are accustomed until it is time to load them. Some producers withhold water for a considerable time before loading, hoping to get a bigger fill after the lambs reach market. Some try to feed extra quantities of salt for the same reason. Such things usually react to the disadvantage of the seller because of the possibility of digestive derangements.

It is far more important to raise good lambs and have them in good condition before selling them than it is to try to overcome the loss in weight while en route by "tricks" just before shipping.

CARE OF THE FLEECE

Keep the fleece as clean as possible at all times. Under farm conditions it is impossible to keep all fleeces entirely free of straw and chaff, but it is possible to keep sheep out of fields where there are many burs. With care and the use of suitable feed racks but little chaff or straw will get into the main parts of the fleece. Likewise, if the tags are removed from time to time as they accumulate, there will be none to interfere with shearing.



Power shears are more satisfactory than hand shears. They give better results and are easier to operate. Shearing takes skill. Note that this shearer is keeping the fleece intact and is not cutting the sheep.

The fleece must be carefully rolled and tied if it is to bring the best market price. To roll it, first put it on a clean floor with the flesh side down and the leg and belly wool turned in (*top*). Then beginning at the rump, roll it, leaving the shoulder wool outside (*middle*). Last, tie it with a smooth paper twine (*bottom*).

In Illinois sheep are shorn from about the middle of April to the end of May. Special care should be taken to avoid damaging the fleece. When shearing is carelessly done, the full value of the wool cannot be realized. To do good shearing requires practice, which is best secured under the direction of a skilful shearer. Detailed directions which may be obtained from various sources are, however, extremely helpful in learning the fine points of this operation.

Whether sheep are shorn with hand shearers or with a machine, the fleeces should be dry and the work should be done on a clean floor. The fibers should be cut close to the skin, with only one cut. If the fibers are cut too far from the skin and a second cut is made to remove what was left, these short fibers will be lost in processing. Hence "second cuts" reduce the value of the wool.

The aim in shearing should be, not to see in how few minutes a sheep may be shorn, but how good the job will be when it is done. A good shearer will keep the fleece in one piece and not in many small pieces that cannot be tied attractively. Sheep will not be cut and bruised if the hand piece of the machine is properly held and they are kept in the proper position at all times.

DISPOSING OF THE WOOL CROP

On a clean basis, that is, after it is washed or scoured, wool is usually the most valuable product *per pound* regularly produced on Illinois farms. It is therefore advisable to harvest and prepare wool carefully for market and to sell it on the basis of its class and grade.

Wool may be sold through cooperative organizations, commission houses or dealers. The cost of selling it cooperatively in Illinois has ranged from approximately 5 to 8 cents a pound. Growers have benefited by this method because of increased competition for the wool, and because any price rises following the shearing season have increased their returns. During some recent years prices have declined after shearing, and the cooperative agencies have not been able to make as good returns as would otherwise have been possible.

Some Illinois growers ship their wool to commission houses or dealers in St. Louis, Chicago, or other cities. Wool sold in this manner is usually sold on the basis of its class and grade. This is also true of wool handled by the cooperative agencies.

In most communities there are local dealers who buy wool. These men usually buy on the basis of fine, medium, or coarse grade. On the larger markets the grading system is much more refined and the grading reports received by the growers are more educational.

No matter what method is used in selling the wool, a grower should try to have a good product and it should be offered in such a manner as to overcome the frequent criticism made of Illinois wool and wool from other central states that it is poorly prepared for market. Illinois sheep raisers would benefit if they would —

1. Keep the fleeces free of burs and chaff.
2. Handle the wool carefully at shearing time so the fleece is practically in one piece and is kept clean.
3. Remove the tags from the fleeces and sell them separately.
4. Roll the fleeces with the skin or inside of the fleece on the surface.
5. Tie the fleeces with about 7 feet of special paper wool-tying twine. (Fibers from other twines become entangled in the wool and cannot be removed except by hand during the process of manufacture.)
6. Pack the wool in standard wool sacks which hold about 250 to 300 pounds.
7. Know what kind of wool their sheep produce and sell it on the basis of its market class and grade.

Because wool is not a perishable product, it is often carelessly handled after it is removed from the sheep. Its value, however, is influenced by the manner in which it is rolled, tied, and packed. Better preparation of wool is urgently needed if Illinois farmers are to receive full value for this product.

Market Classes and Grades of Wool

Boston is the largest wool market in the United States and market prices in all localities in this country are usually figured on the basis of prices in Boston. Prices are quoted for various classes and grades in a number of market papers or may be obtained through the market news service of the Production and Marketing Administrations, U. S. Department of Agriculture, in Chicago or St. Louis.

Wool produced in Illinois is classed as *combing* or *clothing,* according to its length. In general, wool over 2½ inches long is referred to as combing. Shorter wools are classed as clothing. For fine wool there is an intermediate class known as *French combing.* Because of its greater length, combing wool is more valuable per pound than clothing wool. Coarse wools are usually long enough to class as combing wools; hence there is no quotation for these grades in the clothing class.

The grade of wool refers to the size or diameter of the fibers, that is, whether the wool is fine or coarse. The grades commonly used are *fine,* ½-*blood,* ⅜-*blood,* ¼-*blood, low* ¼-*blood, common,* and *braid.*

Classes and Grades of Market Wool, and Their Prices on the Boston Market, May 13, 1949

Grades		Approximate shrinkage	Price per pound	
American system	Bradford system		Grease	Scoured
Combing wool				
Fine-wool sheep		*perct.*		
Fine	64s, 70s, 80s	55–60	$ 72– 81	$1 75–1 85
½-blood	58s, 60s	54–57	64– 69	1 45–1 55
Medium-wool sheep				
⅜-blood	56s	46–48	55– 57	1 04–1 08
¼-blood	48s, 50s	42–45	54– 57	97–1 00
Low ¼-blood	46s	41–43	43– 45	76
Long-wool sheep				
Common and braid	36s, 40s, 44s	41–43	41– 42	71
Clothing wool				
Fine-wool sheep				
Fine..	60s, 70s, 80s	61–66	$ 46– 54	$1 30–1 40
½-blood	58s, 60s	56–59	51– 55	1 20–1 30
Medium-wool sheep				
⅜-blood	56s	52–55	42– 45	90–1 00

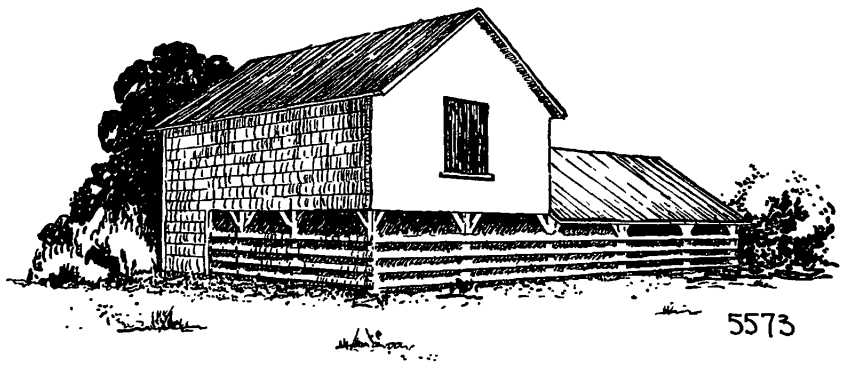
For each of these terms there is also a numerical designation known as the Bradford system. Both systems are somewhat arbitrary ways of designating degrees of fineness.

The above table shows the standard grades and classes of bright fleece wools such as are generally produced in Illinois and in the other states east of the Mississippi. Prices, both on a grease and on a scoured basis, are as quoted on the Boston market May 21, 1948. *Grease wool* is wool as it comes from the sheep. *Scoured wool* is wool from which the grease or yolk and dirt have been removed by washing. Fine wools shrink or lose much more in the process of scouring than coarse wools; hence the difference in prices for the wools on a grease basis is not so great as the difference on a scoured basis. The *shrinkage percentages* are approximate state averages. Greater shrinkages in any case would reduce the grease price and lower shrinkages would increase it. Marketing costs for such items as transportation, storage, grading, and insurance, would of course be deducted from the prices of grease wool.

PLANS FOR A SHEEP BARN

The barn shown below consists of one two-story section measuring 20 by 32 feet. This section provides storage space for grain and hay. It may have either one or two one-story wings 24 feet wide. Note that all roofs are gable construction.

Anyone interested in obtaining these plans may write the **Department of Agricultural Engineering, University of Illinois, Urbana,** for further particulars. Ask about Plan *5573*.



SHEEP RAISING, whether included as a major or a minor enterprise, has a definite place on many Illinois farms. It is a good source of income, helps to diversify production, and by contributing to good land use helps to assure a permanently productive agriculture.

For many farms a grassland system is the most suitable — it cuts down erosion and conserves the soil. Actual tests show that on sloping land that is cultivated the yearly soil losses may be several hundred times as great as on land in pasture.

To be profitable, grassland farming calls for animals that live chiefly on grass and roughage. Sheep fill this requirement. They are also useful wherever large acreages of legumes are regularly grown. Sheep raising, however, must be guided by as much intelligence as any other farm enterprise, and the work must be done with as much skill, if comparable results are to be assured.

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