SHEEP

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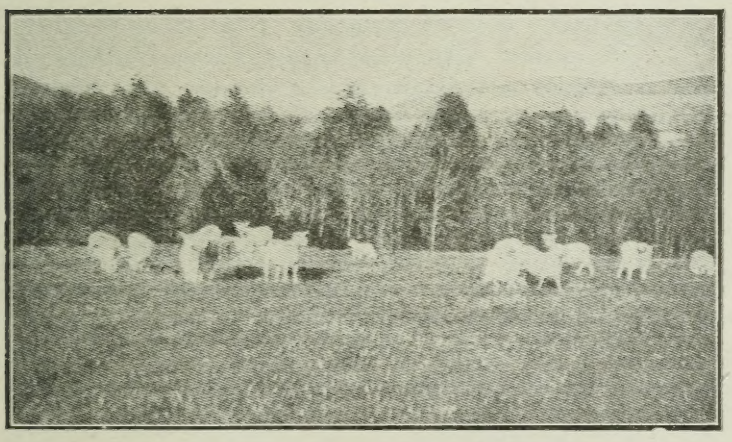
KEEPING SHEEP FOR PROFIT



HILL PASTURE DEVOTED TO SHEEP FOR FORTY-ONE YEARS

Reprinted from "KEEPING SHEEP FOR PROFIT," *by H. A. Hopper, in "Cornell Reading Courses."*

KEEPING SHEEP FOR PROFIT*

H. A. Hopper

At this time there is reason to consider seriously the possibilities of sheep husbandry in New York State. The supply of wool in the world is being heavily drawn on, and flocks in various regions have been seriously depleted as the consequence of unusual conditions in Europe. Wool substitutes are at a premium, and the wastage of war is enormous. At western markets, observation confirms an emphatic shortage during the past year. The production of both wool and mutton in this country has dropped several degrees below consumption, and is apparently still falling.

From this it must not be inferred that eastern farmers should rush into the sheep business; however, with proper care, a goodly number of sheep could be produced profitably. Too often it seems that sheep tending is apparently a lost art. Indifferent care, poor nutrition, and the fluctuation of the market conditions, have contributed a lack of confidence in this business. With poor care, sheep degenerate, become parasitic, and the business ends in ruin. Sheep respond, however, to intelligent care, and usually a healthy sheep is certain

* This Correspondence Course on "Keeping Sheep for Profit" describes conditions and opportunities in New York State conforming so closely to those in many parts of Canada, that the text is reprinted for use among Canadian Soldiers, without change.

to be a profitable one. Sheep husbandry should have a profitable place in the management of many eastern farms. Good sheep were common on eastern farms a generation ago, when in spite of lower prices they proved worth keeping. With the passing of the western range competition, there is a growing interest in sheep for many run-down farms in the East.

Success with sheep consists of more than buying a flock and placing it on the farm. To be successful, the shepherd must know the habits and characteristics of his flock and be quick to interpret the unfailing signs of disorder or health. The ability to look beneath the exterior for evidences of thrift or disorder is essential with all livestock, and constitutes one of the essentials of a successful shepherd.

J. E. Wing says :

"I have been impressed very strongly with the fact that the art of keeping sheep is a very simple art that almost anyone can master ; that the profit of the flock depends more on the shepherd than on the breed or location ; that well-kept flocks bring to any land much fertility, and to the farm homes a good share of comforts and prosperity."

NUMBERS HAVE DECLINED

In 1840 there were 5,118,000 sheep on farms in New York State. In 1860 there were only 2,617,000, and the decrease as shown by the census figures has been constant ever since, reaching 930,000 in 1910 and 537,132 in 1917. During this time there has been a corresponding increase in other stock, so that there are about as many animal units as formerly.

It is a fact of great economic importance that wool

and mutton production in the United States as a whole is steadily on the decline in spite of unusual prices. In 1870 there was one sheep per capita; now there is less than one-half sheep per capita. The consequence is that the production of wool is only about one-half the consumption. In New York State about one farm in five has a flock. The average size is about fifteen sheep.

The decline in mutton and wool production in this State has been due to a number of factors: unequal

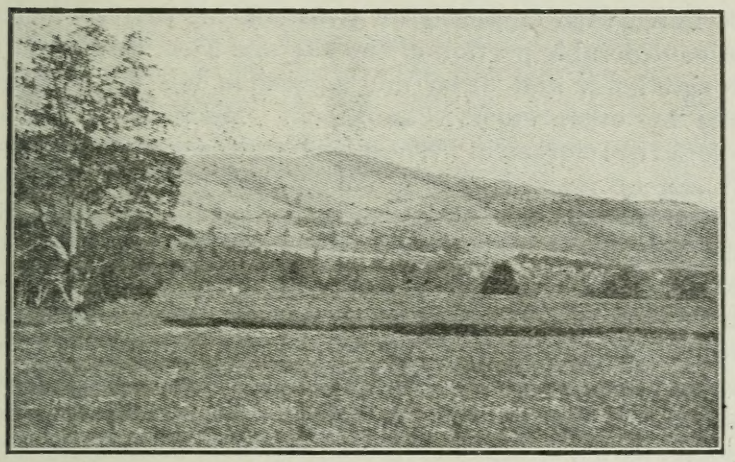


FIG. 26.—*Much land of this type is available for sheep farming.*

western competition, preference for other stock, ravages by dogs, and tardy local readjustment. Conditions are now rapidly changing, and in spite of instances where sheep raising has been unfavourably compared with the production of other livestock, the sheep in this State has a useful and attractive place to fill. This will become more apparent as farm practices become better adjusted

to present economic conditions, when better marketing facilities are brought into use, and when dogs are either eliminated or brought under control.

The question as to whether sheep should be given a permanent place on New York farms should be considered in connection with diversity and available markets.

DIVERSITY

All evidence points to the great safety of diversity in farming, with emphasis on livestock for eastern farms. A considerable portion of the average New York farm is rough land, and often not accessible nor suitable for use by other stock than sheep. Much of this land should be reforested. Where such a procedure is unlikely, it can be made to pay a substantial profit if devoted systematically and intelligently to sheep. In properly diversifying the business on any such farm, the number of sheep to be kept will not necessarily be determined by the area of rough land available. In a sense, the rough land is accessory to the problem. Since the flock cannot be made to depend successfully on forage from the rough area entirely, it will be necessary to consider what straws, forages and grain may be produced incident to the general crop system to supplement properly the ration of the sheep. It is a well-known fact that certain forms of cheap roughage in this State are regularly fed to purchased bands of sheep at a good profit. The home flock would make equally good use of this same material.

There are many good farms in the State that are partially inaccessible; a number will continue so indefinitely. In the past, the dairy cow has been looked to as a means of diversifying farm practice where stock is needed, but there are remote locations and inaccessible

places where her great natural economy may be at a disadvantage. In many sections the season is short, and often hay, potatoes and buckwheat only are produced. The bulk of such crops go to market, while the fertilizer bill for the farm grows larger each year. The altitude or the exposure frequently precludes uniform success with silage corn, and this discourages an attempt at dairying even if the market for dairy products is close at hand. Roots can always be grown at least in a limited way and are relished by sheep. To provide for sheep the cash crops need not necessarily be altered in the general plan, but a slight readjustment of forage crops may be made to supplement the ration of the sheep and yet not interfere with the rotation of crops. Waste hillsides and broken pasture lands may thus be utilized, coarse roughages profitably consumed, and valuable manure obtained for fields that are in great need of it. In this way the labour income should be maintained or possibly increased with less actual labour and with an increase in soil fertility. These statements assume a reasonable allowance of intelligent care and flock management that will keep it free from disease.

MARKETS

In a commercial sense, ignoring the sale of breeding stock, the cash income from sheep is derived from wool and mutton. The former is removed and sold once a year under ordinary circumstances, while mutton can be disposed of at any time, provided there is an accessible market. With about one-tenth the population of the United States resident within the borders of New York State, with an ever-increasing population, and with a continual rise in the cost of meats, more and more importance must necessarily be placed on mutton, milk

and poultry in the human dietary. The maximum returns under eastern conditions will be from sheep giving as heavy a fleece of good staple wool as is consistent with the economical production of the mutton type demanded by the market. With large towns and cities within striking distance, small lots of sheep or lambs may be marketed at the most advantageous time. While the distant cities are accessible, in some sections well adapted to sheep raising, there is an annual influx of thousands of tourists and summer boarders, who may be made to constitute the producer's best market at his very door. Consumers will continue to demand a liberal allowance of meat; it is the part of wisdom for the farmer to supply this as fully as possible from his own resources.

Winter lambs should be produced near the market. They represent a special phase of the business, which requires prompt transportation and relatively high selling price to cover feed and shipping costs. In this connection, it is important to remember that New York State is largely free from the ravages of the internal parasites peculiar to sheep, so that, with a little care in summer management, the flocks need not suffer from this cause.

To those who have given the matter study, it seems that experienced sheepmen who are inclined to settle in New York State could successfully develop sheep enterprises of large dimensions, which would pay. There are many undeveloped situations that give promise for efforts of this sort. A large area of rough land fenced against dogs should be available for summer use, and should be subdivided as indicated elsewhere in this lesson. At no great distance, productive farm land to the extent of 100 to 150 acres could be obtained, capable of growing good crops. The flocks could be wintered on

this land to consume all roughage and residues. Part of the hill land could be tilled for spring or fall feed, and rape could be grown for finishing and carrying over drought periods. Sheep could be the leader, but other enterprises need not be ignored.

COMPARISON OF SHEEP WITH OTHER STOCK

Among ruminants, sheep utilize their food to best advantage, but they are not quite so economical as the hog, which is omnivorous. A rough average of available data shows that it takes about five pounds of corn, or its equivalent, and four pounds of roughage to produce one pound of mutton. On this same basis, it takes six pounds of corn and nine pounds of roughage to produce one pound of beef, and about five pounds of corn to yield a pound of pork. The superiority of the hog on the point of economy is not to be construed as minimising the status of sheep, since they fill different places in livestock economy. Hogs lose about 25 to 30 per cent. in dressing, while sheep and cattle show a shrinkage of 35 to 50 per cent.

From earliest times, sheep have been recognised as profitable and eager consumers of low-grade products that cannot be so well used by other stock. Unquestionably they help to rid a farm of weeds and brush, and are often kept in small flocks for this purpose. It is unfortunate, however, to look on them too largely as scavengers, because this is likely to encourage a low estimate of their importance and to react in poor care and bad results. They are as much entitled to attention and skilful management as any stock, and, when assigned

to the proper place in the farm business, experience shows that they are a source of regular profit.

In the lambing season sheep require most attention. If lambs come in the spring, this will possibly interfere with some outside work. Shearing takes time, but can be done at odd intervals. Aside from this, sheep require very little labour. Practically the same is true regarding swine, and both sheep and swine may be employed to harvest crops and thus avoid labour. Beef cattle and other meat-producing animals require very little labour. Dairying, on the other hand, calls for relatively much labour daily throughout the year. The combination to be selected as between crops and livestock is very dependent on the man for its success. Livestock men have a strange way of upsetting many of the calculations of economists and winning a success where conditions may seem unfavourable. Sheep should not be expected to compete with dairy cattle on rich arable farms near cities, towns or shipping points; on the other hand, they can be made to fill a useful place on remote farms lacking in labour, crop yields, animal manures, and diversity.

FLOCK MANAGEMENT

In view of certain studies on successful sheep farms in New York and the Eastern States, as well as of the careful observation and experience of successful shepherds elsewhere, it is believed that the most profit one year with another from sheep in New York State will be obtained by close adherence to the suggestions enumerated under the five following headings :—

1. FEED SUPPLY

As in other livestock enterprises, the farm should be made to furnish the feed supply. It may be that in

favourable localities a cash crop may be used in part to cover the cost of purchased feed. Corn, oats, barley, peas, and a good variety of roughage, are possible on most farms. Except where lambs are to be finished for a special market, these grains will meet all the practical needs of the flock.

2. BREEDING

That constitutional vigour in the flock is the first requisite for continued success, should be kept in mind. The breeding operations should not be conducted without forethought, and should not be subject to the variations of the market or the whims of the owner. Worth-while breeding operations require some tenacity of purpose and grit to stick to the plan. Where one already has a flock that is satisfactory as to breed and that meets feeding and market conditions, little change is desirable. It will always be possible to make the flock a little better, especially if it is a utility farm flock. The flock should be headed each succeeding time with a better ram of the chosen breed. The breeder should get the best one possible, and should not hesitate on the price so long as

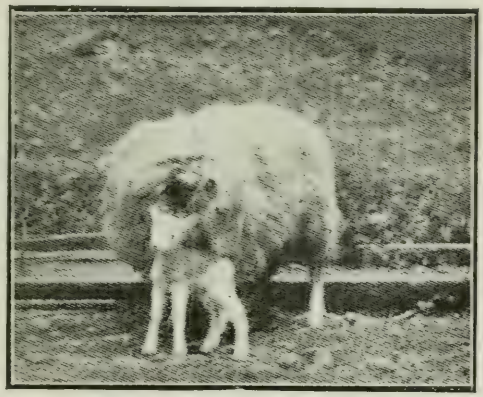


FIG. 27.—*A small weak lamb from a ewe bred when less than one year old.*

the quality is there. Ten dollars extra amounts to only twenty-five cents each on the lambs of forty ewes. It is strongly recommended that the flock, unless pure bred, have a strain of Merino blood. Cross-bred Merinos make for hardiness and vigour, and such ewes make an excellent foundation for the farm flock. When crossed with high-class rams of the desired mutton breed, the lambs have size, and feed and shear well. The Merino blood found also in the related breeds assures stamina and natural

FIG. 28.—*A mixed farm flock. Greater uniformity should be sought.*

resistance to internal parasites and disease. Ewes should not be bred until they are one year old. Breeds and feed supply are more fully discussed on pages 14 to 20.

3. NECESSITY OF FINISHING EARLY

The culls and the lambs should be marketed early. The worn and the weak ewes should be sorted out and started toward market promptly. When lambs from vigorous ewes have, in addition to pasture and a small

allowance of grain, access later to green peas, oats and rape, they will make excellent gains and be ready for market in five or six months. Rape is a good finisher, and gives gains at low cost. The lambs should be kept growing by use of a succession of fresh soiling crops, for thus are they fitted at least expense.

4. SELECTION OF STOCK FOR WINTERING

Economy dictates that only sound pregnant ewes and ewe lambs be wintered. Other things being equal, this insures a good lamb crop with dams capable of forcing them rapidly. The flock should be culled closely for worn or "broken mouthed" ewes and those that are poor mothers; these should be sent to market early in the fall. All new sheep should be dipped; also the farm flock should be dipped annually if infested with ticks or scab.

5. SUMMER MANAGEMENT

During the summer there are two things to keep in mind, namely, cheap nutritious pasture and forage, and freedom from parasites. Fortunately, in New York these requirements can be readily met. There are two good reasons for frequently changing pasture, namely, freshness of grass and avoidance of parasites. Internal parasites, which work great havoc with sheep in the Corn Belt, can be easily controlled here. The young lamb is born free from them, and should remain so if kept from infested ground. Where possible, the lambs should precede rather than follow the old sheep as the season progresses. In brief, the land to be devoted to sheep pasture should be divided into several parts. Danger can be avoided if the flock does not run in one area longer than fifteen days from May to September and if it is followed by other stock. By this plan the lambs

will not go over infested ground. From the permanent pastures they will go to clean forage crops and be finished safely. Old sheep are more resistant, and could go back over ground grazed earlier in the season.

BREEDS OF SHEEP

An average farm flock in New York would be composed of about forty ewes, though the range in number would

FIG. 29.—*A small farm flock of Merinos.*

vary greatly. This number would be sufficient for a beginner. The designation of breeds can be little more than suggestive. In two prominent sheep counties in the State, the writer found at the county fair in each in 1915 classes for twelve breeds of sheep, and entries in practically every class including grades of the various breeds. Some of the sheep were true to breed and a

credit to the exhibitors. Many of the classes were filled with entries of doubtful breeding by so-called "ringers," whose sole interest in sheep breeding centred on the premium offered in classes not likely to be filled. There can hardly be a real demand for twelve breeds of sheep in one small county. Farmers should devote themselves to a few breeds, working collectively, and should insist that only the breeds they represent be recognized with

FIG. 30.—*A uniform group of Cheviots.*

prizes by the local fairs. This will greatly simplify the question of breeds, and permit an intelligent consideration of local problems.

Since constitutional vigour and general resistance are of basic importance in a flock, most practical authorities give preference to Merino foundation. Such stock will remain in good vigour under conditions that would destroy the usefulness of the mutton breeds. Good results follow the crossing of Merino ewes with good Down or Dorset rams. In time the flock will lose character and resistance unless a part of the flock is

kept pure by using two rams or by the purchase of pure Merino ewes. On this point, J. E. Wing says :

"There is a real and profitable place for the half-blood Merino ewe on the better managed sheep farms. There is not a doubt that she is more prolific than the pure Merino, a better mother and milker, shears a fleece that may easily be worth more than the pure Merino fleece, and unquestionably her lambs will fatten faster than those from purebred Merino ewes. They will be heavier, too. At the same time, crossbred Merino ewes will be a trifle less resistant to parasites and will consume more feed."

Delaines, Blacktops, and Rambouillets, since they belong to the Merino group, serve as excellent foundation material and are in wide use in the State. When crossed with the Down breeds, they make excellent general purpose flocks ; and if given a dash of Dorset blood, they can be depended on to breed early enough for the production of "hothouse" lambs.

Theforegoing is not intended to discourage the breeding of purebreds. As fast as desirable, purebred flocks should be built up. The immediate need is for first-class grades, and when intended for early slaughter, purity of breeding is not so important. The classification of the common breeds of sheep as to quality of fleece is as follows :

1	2	3
FINE WOOL	MEDIUM WOOL	LONG WOOL
American } Merino	Dorset horned	Cheviot
Delaine } Merino	Hampshire Down	Cotswold
Rambouillet } Merino	Oxford Down	Leicester
	Shropshire Down	Lincoln
	Southdown	
	Tunis	

On the basis of utility, group 1 would be designated as the fine wool breeds, and groups 2 and 3 as the mutton breeds.

SHEEP FEEDING

Like other domestic animals, sheep need care in the matter of nutrition if they are to contribute to the profits of the business. Any plan that includes the keeping of sheep entirely as scavengers or on short rations is doomed to failure from the outset. True they are excellent gleaners and to a degree hold weeds in check, but this feature should not be exaggerated.

Briefly, flock management in New York so far as feeding is concerned deals with the production of mutton, wool, and winter lambs. In either the first or the last case, the carcass is the first consideration, and the rations that produce the best carcass likewise furnish the best nutriment for wool growth so far as the breed is adapted to wool production. While wool is to some extent incidental, it can hardly be overlooked with the present trend of prices.

To maintain good health and obtain economical returns, the flock should be dipped regularly,* and a liberal variety of hays and green forages in season should be used as freely as possible. To a large degree, the flock can be made to do its own harvesting, and the ewes and lambs for market can practically be finished on green forage crops. The amount of grain needed to fatten sheep for market is never large, and the returns from its use are relatively high. A plan for safe summer pasturing has been given on page 13, and should be

*The sheep tick and its eradication by dipping. Marion Imes. U. S. Department of Agriculture. Farmers' bulletin 798.

considered seriously. Feeding lambs is probably the most profitable phase of general sheep keeping. They should be forced from the start, separated when weaned, and given access to clean bluegrass, rape, and a grain allowance of ground oats, bran, and the like. Rape has a remarkably favourable effect on lambs, hastening the time when thay may be finished and marketed. The bulk of the lambs ordinarily will have been marketed when the flock goes into winter quarters. For convenience in feeding and to obtain best results at this time, the flock may need to be divided into several groups composed respectively of mature pregnant ewes, yearling pregnant ewes, ewe lambs for breeding, and any lambs yet to be finished for market. Each lot may need to be treated somewhat differently, hence the advantage of grouping as indicated.

FIG. 31.—*Dorset ewe with triplets.*

When aged ewes come to winter quarters in good condition, they can be wintered cheaply. However, good preparation of ewes for lambing is as essential as fitting a dairy cow for her lactation period. A daily allowance of two or three pounds each of clover hay and turnips or silage makes an excellent ration for mature ewes. If they are thin, a half pound of grain mixture should

be given daily long enough to put them in vigorous condition. In the absence of clover hay, the more inferior roughages should be supplemented with grain. A good grain mixture for this purpose can be made from two parts oats, one part bran, and one part oil meal. Ewes lambing as early as February, March or April, should be well fitted if given this mixture. Care should be taken that the ewes do not become too fat. They should have opportunity for outdoor exercise. One of the secrets of successful sheep feeding is to use roughage in the most economical way possible. If the quality is good, a small amount will suffice. Silage may take the place of roots until near lambing time, when both had better be withdrawn until ewe and lamb are well established. Mangels, roots and sugar beets in amounts up to two or three pounds per day may be given to ewes in normal condition. Mangels are not considered safe feed for rams.

The ewes past a year old that are about to have their first lambs should be by themselves if possible to make sure that they have the feed they require and are not needlessly disturbed. They should have choice alfalfa or clover hay and grain, as already stated, together with exercise. If they lamb early, it should occur in warm quarters. They should not be fattened, but rather they should be fitted to supply the lamb abundantly with milk.

The ewe lambs intended for future breeding stock should not lack food and exercise. As a factor in improving livestock, development through judicious nutrition and care has not generally received its proper consideration. The future of the ewe lambs can be largely determined by the care they receive their first winter. They should be given nutritious feeds, which will develop

size and rugged frames, and they should be encouraged to develop the full powers of mutton and wool production to which heredity entitles them. Here again there is a place for that most useful of rations, alfalfa or clover hay, oats, bran, oil meal, peas and the like, together with about two pounds of roots or silage per day. Overfatness should be avoided, as such a condition is antagonistic to size and the production of large market lambs.

Since it does not pay to rush thin, unfinished lambs to market, some of the late or backward individuals may well be held and fed during the early winter. A good roughage ration consists of two pounds of clover or alfalfa and three pounds each of silage and roots. The grain mixture serves well if made up of two parts each of oats and bran and one part of oil meal. Toward the end of the fattening period, two parts of corn may be added. This may be in the form of corn on the cob cut into short pieces, as lambs enjoy shelling corn for themselves and pay well for the privilege of doing it.

REVIVING THE BUSINESS

Interest in a farm flock at this time is due to a growing recognition of an economic place for sheep on many farms and to higher prices for mutton and wool. If farmers will turn to sheep with an intelligent conception of what is to be done to insure success and will do those things in a timely and practical way, most of them will succeed. No one should be urged to keep sheep or any other stock simply for the novelty or the amusement it may provide. If on the analysis of the farm business and its relation to the market facilities of the region there seems to be a profitable place for sheep, and if they can have a kindly personal interest bestowed on them, they may well be

tried. The successful regeneration of the sheep business in its broad sense calls for better breeding, better feeding, and co-operative selling methods. While the details of individual flock management have much to do with the success of each shepherd, the stability and the progress of the business in any region will be determined more and more by the intensity of interest felt by the producers of mutton or wool in the three points mentioned.

BETTER SHEEP

The beginner should start with a small flock, allowing it to increase as he gains knowledge and experience. In general it would not be prudent to begin with a flock of purebred ewes. With ten or twelve purebred ewes and the rest high grades, one would be in a position to improve his flock rapidly without undue risk or heavy investment. The ram must of course be purebred and of first quality for the object in mind. He can hardly be too good for a grade flock and certainly must have outstanding character if he is to produce superior lambs from good purebred ewes. A medium-sized ram for the breed, having indications of vigour and quality, should be selected. The largest ram may not be the best. Characteristics to look for are breed type, straight back, well-sprung ribs, full chest, and satisfactory fleece. Compactness, with short legs, signifies early maturity and the good leg of mutton which the market demands.

The present status of many flocks is unsatisfactory because the rams in use are not good enough and the breeding ewes are not culled closely. Ewe lambs are frequently bred. Nothing could be more effective in reducing size and stamina than such a practice. Selection is the key to better stock and higher profits. Most flocks include a number of useful females that could well be

made the basis of a superior flock. The shepherd needs to get in mind the most useful type for his purpose and then rigidly and continuously select for it. He needs also to apply the same principle to the ram, and to realize that a good ram is a superior investment if properly used.

SOURCES OF BREEDING STOCK

It is possible to obtain a nucleus for a flock in one of two ways. In many parts of the State there is an annual surplus from the local flocks offered for sale. Any promising ewe lambs or sound-mouthed aged ewes of good breeding should be kept. At this time an aged ewe that will produce a good lamb will readily pay for herself and contribute substantially to the cause. It may be necessary to contract for these in advance.

There are also many western range ewes being brought to the State. These are being assembled and distributed through various agencies and livestock companies. For the most part, these animals are the result of mutton crosses on fine wool ewes and are sold to New York farmers at cost. Application for information concerning either local or western stock should be made to the farm bureau manager.

CO-OPERATIVE ASSOCIATIONS

The interest of sheep breeders would be decidedly improved by the formation of numerous local sheep breeders' associations. In this way a progressive attitude on breeding problems could be easily maintained. High-grade ewes of the sort needed will serve the best interests of the majority of sheepmen. A relatively small number will probably breed purebreds, but a sufficient number should be encouraged to produce

purebred rams to meet the local need for such animals in the various flocks. It is through the continuous use of high-class rams in conjunction with rigid selection that the farm flocks can be most readily made more productive. General observation would justify the conclusion that by these very simple means the profit from most flocks could be doubled in two or three years. In this, as in other similar efforts, the local farm bureau should be called on to assist the local sheep breeders

FIG. 32.—*Prize-winning Shropshire ram.*

in forming an association. Such co-operation is most effective, as noted in the Otsego County Sheep Breeders' Association to which reference is made on page 25.

Wool growers and mutton producers should familiarize themselves with the demands of the market, in so far as possible remove features that may be objectionable to manufacturer or consumer, and insist on a price commensurate with the quality offered. The quality must

be standardized and its merits established with the trade. Then the product should be sold under conditions of free competition. With slight modifications, this statement would apply generally to the effective marketing of all farm products. It has a peculiar force and application to the products of the farm flock, in that under eastern conditions the product from any one farm is relatively small.

GRADING WOOL

Wool in particular can be handled co-operatively to excellent advantage. There is a feeling born of experience among wool growers that "wool is wool, regardless of quality, condition, or care." If this is true, it is because buyers have taken advantage of the grower's failure to grade and advertise his product properly. Under such conditions the best wool is likely to sell at the price of the poorest.

As an outlet for the product at remunerative prices, every wool-growing community should adopt a system of grading the wool according to market demands. After it is graded, it should be tied and packed to please the probable manufacturer. With each grade selling at its relative value, docking will be discouraged, and producer and consumer will profit thereby. There are of course many essential elements to a highly organized co-operative enterprise, which need not be mentioned here, to complicate the efforts of wool producers in their worthy attempts to obtain the full value of their product. Most counties in the State have one or more local organizations through which proper grading and marketing could easily be directed. In certain sheep-growing States there are co-operative lamb and wool clubs, which have been effective in educating growers to

market needs and in assisting them to obtain fair prices from buyers. In this connection, the farm bureau may be mentioned as possibly the most effective agency. While the manager cannot engage in the direct transaction, he is in a position to facilitate negotiations by bringing the manufacturer or the consumer, and the producer together. He can engage the services of an expert wool grader to assist in the classification of the product of the various associations in the county. With the output standardized, the marketing to advantage of the product of a whole community is a relatively simple matter. The following statement from the farm bureau manager in Otsego County, New York, shows the practical advantages to be obtained by such methods.

"We have a sheep breeders' association, which was organized under the auspices of the farm bureau. It now has forty-six members. At their last meeting on May 29th, 1915, a committee was appointed to sell the season's wool crop. All the members present agreed to abide by anything done by this committee. I wrote to a number of men who I thought would be interested, and as a result five wool buyers met the committee at this office on June 12th. The committee was asked to receive sealed bids, which it would not do. The wool was sold to the highest bidder. Before we took up the matter, 27 cents was the highest price paid for wool in this county. Bidding began at 31½ and stopped at 36 cents. The association is planning to have a consignment sale of purebred sheep on the county fair grounds on October 14th, and is also considering the joint purchase of a carload of fencing suitable for sheep fences."

On the 30,000 pounds offered it is shown that the

difference in price received above what was originally offered, netted the sheep breeders' association $2,700. There is no statement made that this wool was graded, though this system will doubtless be adopted. When the buyers can be sure of the kind of wool they are to receive, it will react to the growers' advantage. This same association sold its 1916 wool clip at auction for 39½ cents per pound.

Every community engaged in wool or mutton production should take steps immediately to grade and market the products collectively. This is the most urgent essential to the revival of sheep husbandry in the State. Haphazard selling without standardizing the grades defeats the grower with no gain to the consumer. A sheep or wool-growers' club should be organized for self-protection.

RULES FOR THE WOOL-GROWER

Regardless of the method of marketing wool, growers should observe the following rules set forth in a bulletin of the United States Department of Agriculture :*

1. Adhere to a settled policy of breeding the type of sheep suitable to the locality.

2. Sack lambs', ewes', wethers', and all buck or very oily fleeces separately. If the bucks or part of the ewes or wethers have wool of widely different kind from the remainder of the flock, shear such separately and put the wool in separate sacks so marked.

3. Shear all black sheep at one time, preferably last, and put the wool in separate sacks.

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* The wool-grower and the wool trade. F. R. Marshall and L. L. Heller. U. S. Department of Agriculture. Bulletin 206, p. 29-30.

4. Remove and sack separately all tags, and then allow no tag discount upon the clip as a whole.

5. Have slatted floors in the holding pens.

6. Use a smooth, light, and hard glazed (preferably paper) twine.

7. Securely knot the string on each fleece.

8. Turn the sacks wrong side out and shake well before filling.

9. Keep wool dry at all times.

10. Make the brands on the sheep as small as possible and avoid tar brands.

11. Know the grade and value of your wool and price accordingly.

12. Do not sweat sheep excessively before shearing.

13. Keep the floor sweepings out of the wool.

14. Do not sell the wool before it is grown.

15. When all these rules are followed place your personal brand or your name upon the bags or bales.

EARLY OR WINTER LAMBS

Probably the most conspicuous special phase of sheep husbandry is that of producing lambs for early or mid-winter use. Because of the unusual requirements for growth, the product is often termed a "hothouse" lamb. The demand for such lambs prevails generally from Christmas to Easter and is found in the larger cities, where cost is a secondary consideration in meeting the exactions of the epicure. A well-developed, plump, attractive carcass is what is wanted. It should be fat and should have a good leg, also a thick caul with which to cover the exposed flesh. Condition and quality is

more important than size. Such lambs will weigh alive from forty to sixty pounds. The lighter weights are in demand early in the season, the heavier ones later.

Early breeding ewes and lambs giving the right sort of carcass are the essential requirements for success in producing "hothouse" lambs. The greatest obstacle is to get ewes that will breed sufficiently early, as most breeds are fixed in the habit of spring lambing. However, the Dorset, Tunis, Merino, and Rambouillet breeds

FIG. 33.—*Grade Shropshire ewes with lambs.*

can without much difficulty be managed so as to breed in time to produce early lambs. While Hampshire, Southdown and Shropshire are occasionally used with success, they can hardly be considered dependable. The time of breeding is doubtless susceptible of modification by selection and management, but most shepherds prefer to use Dorset or Rambouillet grade or purebred ewes. These may be mated with a Southdown or a

Shropshire ram of compact and early maturing type and be expected to produce lambs of good form. Grade or purebred ewes of the early breeding types may be expected to give satisfactory returns when mated with rams of the right type from any of the Down breeds. At the Cornell Experiment Station, "Dorset ewes bred earlier, stood forced feeding better, and were less affected by unfavourable weather than Shropshire ewes, and their lambs made more rapid gains." To insure early con-

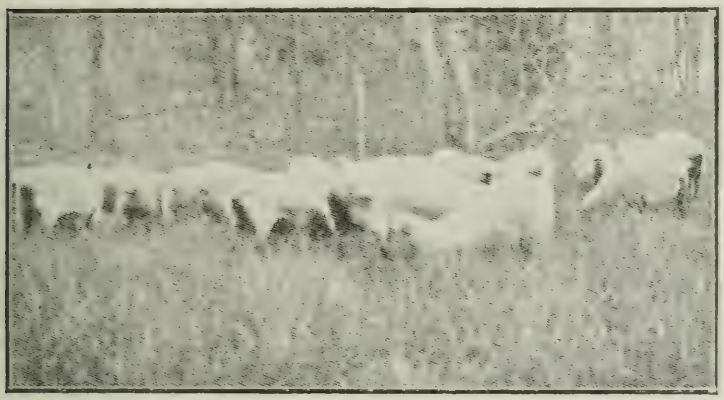

FIG. 34.—*An excellent flock of Shropshire lambs.*

ception the ewes should be well fed and gaining in flesh. A vigorous well-fed ram, not too fat and preferably young, should be turned with the ewes from the middle of March to the middle of May. The average period of gestation is one hundred and forty-seven days.

Under good conditions, four out of five ewes may be expected to breed early. The lambs coming late will find another market, and the ewes that fail to breed can be sent to market early. Ewes that can be depended

on to breed early and regularly should be kept as long as they are useful. The skill of the shepherd in so managing his ewes that they will respond in season is of vast importance. Vigorous ewes with a strong infusion of Dorset blood may be made to bear lambs at almost any season of the year.

Ewes intended to produce fall or winter lambs must receive good care and liberal feeding during the spring and summer months. The rapid growth of the lamb is assured only when the dam is prepared to yield an abundance of milk. The ewe cannot be put into condition after the lamb is born. Therefore the summer feeding must be supplemented with rape, roots and other nutritious feeds, so that the mother will be well prepared to force the lamb. This can usually be accomplished without grain until about the lambing period.

A short time before the lambs are due, the ration should be somewhat reduced and the ewes assembled in the lambing pens, which should be warm and clean for the reception of the young lambs. A few days after the lamb is born, when it has attained some strength and the ewe's udder is being properly relieved of its milk, the ewe's ration should be increased gradually to the amount she can safely consume while growing her lamb.

Leguminous roughage with silage and roots should provide the coarse part of the milking ewe's ration. Corn, oats, bran and oil meal are the best concentrates that can be given, in which combination corn should not represent more than one-half. Corn as a sole concentrate tends to reduce the ewes but gives as good gains on the lambs. Three parts corn, two parts bran, two parts oats, and one part oil meal, or an equivalent combination, will give economical and satisfactory

results. Only feeds that are adapted to milk production should be given. The average daily ration for a ewe weighing about ninety pounds would be approximately as follows :—

Alfalfa or clover hay	1 pound
Silage	$2\frac{1}{2}$ pounds
Roots	2 pounds
Grain mixture	$\frac{3}{4}$ to 1 pound

The ewes are often sheared just before lambing to insure their comfort and thrift during the period of confinement.

Every device should be employed to force the lambs rapidly from birth. They should have warm quarters* but not at the sacrifice of pure air and limited exercise. A creep or other device where the lambs alone may enter at will and find attractive feed at their disposal should be provided early. They will begin to take an interest in such feed when two or three weeks old. Ground oats, wheat, bran and oil meal will be found suitable for beginners. Later, the proportion of corn may be increased and at least part of the grains, such as corn, oats, and barley, may be given whole or cracked. One part each of cracked corn, barley and oats, with two parts of bran, is a lamb ration recommended for eastern farms. The lambs must be fed regularly, and all nosed-over feed should be removed before the next feeding period. The trough must be clean, and an unstinted supply of clean water must be available at all times. In order to be profitable, winter lambs must sell for from $6 to $8 per head. They frequently bring from $9 to $12. The business of producing winter lambs, however, is not for amateurs.

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* Equipment for farm sheep raising. V. O. McWhorter. U. S. Department of Agriculture. Farmers' bulletin 810.

Only men somewhat experienced in the details of feeding and marketing should undertake it. The beginner should confine his efforts to general flock management, where the requirements are not so exacting, until he has time to study the features of special production and marketing. To the man who understands the business "hothouse" lambs are profitable.

THE DOG MENACE

Between dogs and neglect, the average farm flock may prove a poor investment. Good results demand diligent care, abundant food, and freedom from annoyance or loss by dogs. Every dog is under suspicion. Some are vicious ; very few are useful. Most dogs are of indifferent value and should be eliminated in these times of stress as a menace to public health and the production of human necessities. Unquestionably dogs work more harm than good to the farmer. The rural and municipal regulation of canines is ineffective both in restraining the dog and in fixing the responsibility for his acts on the owner. Moreover, a cash indemnity never covers the loss.

There are 252,000 dogs in the State outside New York City. With 587,000 sheep in the State, that allows only two sheep per dog, and many dogs get more than their allowance of two sheep. The sheep losses in the State in 1916 were 5,810 sheep killed and injured, which at $16 per head amounts to about $100,000, a loss that the consuming public must sustain. No report is made of the number of dogs killed ; doubtless it is small, as they easily escape. Worthless dogs therefore are probably increasing faster than sheep. It is estimated that the number of sheep destroyed by dogs exceeds the number used by farmers in their homes.

In view of these facts and the slowness with which public sentiment supports measures of control, the sheep owner must assume every means of protection at his command. A dog-proof woven wire fence enclosing at least part of the sheep range is at present practically a necessity. Such a fence should be considered as an investment, and its maintenance charged up to cost of production. It should not be necessary, however, to incur this extra expense, and farmers can hardly be censured for refusing to keep sheep where there is danger from dogs, regardless of the price or the need for mutton or wool.

KEEPING SHEEP FOR PROFIT

DISCUSSION PAPER

The Discussion Paper is planned to help the student by drawing his attention to the important points of the subject he is studying. It is intended to develop thought and self-expression of his own ideas. Each Discussion Paper, when answered and returned, is carefully read by the staff of the Department of Agriculture, and a personal statement is given in connection with any question that the reader thinks the student has not fully understood. The student is invited to ask any questions that will help to give him a more complete understanding of the Course.

GENERAL INSTRUCTIONS

1. Always express your ideas in your own words.
2. Finish one Paper at a time.
3. See that the subject is placed at the top of the first page of each Paper answered.
4. Do not forget to write your NAME, NUMBER and COMPLETE ADDRESS on each set of answers.
5. Number each question, and also each sheet, and pin them together in their right order.
6. Send in each Paper as soon as completed.

QUESTIONS

1. Do you think sheep should be given a permanent place on land devoted to general agriculture in Canada ? Give reasons.

2. What do you consider the greatest hindrance to the extension of the sheep business ? How would you suggest that it might be overcome ?

3. Compare briefly sheep-raising with other branches of live stock, mentioning its advantages and disadvantages.

4. Are sheep likely to prove successful under the management of a man who does not know their habits and characteristics ? Give reasons.

5. What care and management is necessary during the summer to keep the flock healthy and have the lambs mature quickly ?

6. What preparation would you make to secure the greatest returns per sheep from the flock wintered ?

7. Describe how you would build up a flock from the start.

8. Is it well to market your wool and lambs through a co-operative association ? Give reasons.

9. Should all of the lambs that are to be marketed be sold in the autumn, or does it pay to fatten lambs during the winter ? Give any details you can about your home district.

10. Can the dog nuisance be controlled ? Suggest how you would attempt overcoming it.

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