
Oregon Agricultural College
Experiment Station

Cost of Producing Mutton and Wool
on Eastern Oregon Ranges

By

E. L. POTTER and H. A. LINDGREN



CORVALLIS, OREGON

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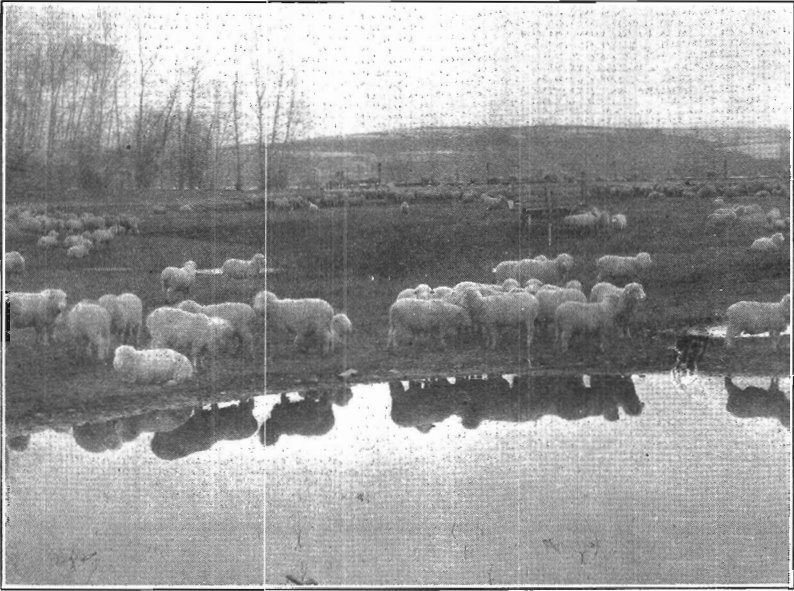


Fig. 1. In winter quarters.

SUMMARY

With wool at 40c, the cost of producing feeder lambs is \$9.24 per hundredweight.

With wool at 40c, the cost of producing early fat lambs is \$9.90 per hundredweight.

With fat lambs at \$10.50, feeders at \$10.00, fall prices, and wool at 40c, sheep are paying \$8.00 a ton for hay, \$1.62 a year for grass, wages, and 8 percent on the live-stock investment.

The cost of producing lambs for the winter market increases 50c per hundredweight for each month after the grazing season is past.

Cost of Producing Mutton and Wool on Eastern Oregon Ranges

By

E. L. POTTER and H. A. LINDGREN

This bulletin aims, first, to present a fair picture of the financial status of the sheep business in Eastern Oregon; second, to show simple methods of estimating costs of production which will enable the producers to figure out their own costs more accurately; and third, to point out the financial importance of certain management practices and thus lead the way towards cheaper production and greater returns.

This bulletin is the result of several years of study and investigation, and the data have been discussed with most of the leading sheepmen of the state. The cost tables were presented before the 1925 meeting of the Oregon Wool Growers' Association at Pendleton, and also before the 1925 meeting of the National Wool Growers' Association at San Francisco. They have also been presented to and discussed by small groups of sheepmen in various parts of the state.

Two types of sheep raising. There are two distinct methods of handling ewes in Eastern Oregon; one method is for early lambs, and the other is for late lambs. By early lambs we mean lambs that are dropped while the ewes are still on hay and before grass comes. These usually will be marketed as fat lambs directly from the summer range. By late lambs we mean lambs not dropped until the ewes have gone out on the range. Such lambs are marketed in the fall. The early lambs are mostly sired by Hampshire or other black-faced rams, and out of cross-bred ewes. The most popular cross-bred ewe is a Rambouillet-Lincoln cross, but such ewes actually run to all mixtures of mutton and fine-wooled breeding. The late lambs are mostly sired by Rambouillet rams and out of ewes carrying a considerable percentage of Rambouillet or Delaine blood. In the case of early lambs, both ewes and wethers are generally sold for mutton, while in the case of late lambs of Rambouillet or Delaine breeding, the ewes are generally kept for breeding purposes. Rambouillet wether lambs sell for less money than Hampshire wether lambs, but Rambouillet ewe lambs bring a premium over Hampshire ewe lambs.

The choice between early and late lambs depends upon many factors.

(1) Early lamb production is not practical unless the summer range is of such quality that the lambs will get fat enough for market before they leave the summer range. (2) The summer range must be near enough to a railroad so that the ewes and lambs can be trailed to the loading point without the lambs losing too much weight. It is customary to wean these lambs at the railroad; that is, they do not leave their mothers until they are driven onto the cars. Plenty of good alfalfa is also necessary, as ewes cannot be lambed on hay if the hay is limited in amount or poor in quality. The southern Idaho district, accessible to the big alfalfa fields of Snake River valley, is almost altogether an early-lamb district. The Blue Mountain sections of Oregon, within fifty miles of a railroad, are largely, but by no means entirely, early-lamb districts, while the more

distant portions, together with Central and south-central Oregon, are largely devoted to late lambs. The dividing line, however, is not very well marked and many sheepmen in the northeastern part of the state produce both early and late lambs.

The production of late lambs. Since the raising of late lambs is the older and really the foundation industry, it will be studied first.

COST AND INCOME		1200 Head	Per Head
Expenses			
1 herder for 12 months at \$100 (including board).....		\$ 1,200.00	\$1.00
1/2 camp tender 12 months at \$120 (1 camp tender for 2 bands).....		720.00	.60
Extra help at lambing (2 men 2 months at \$90.00).....		360.00	.30
Interest, upkeep, and depreciation on camp tender outfit and miscellaneous.....		360.00	.30
Shearing and packing wool.....		300.00	.25
Cost of summer and winter range:			
Interest on 3 acres winter range (5 percent on \$7 per acre).....	\$1.05		
Taxes on 3 acres at 11 cents.....	.33		
Free range, 2 1/2 acres.....			
Summer range, two-thirds National Forest and one-third leased land.....	.24	1,944.00	1.62
Hay, 250 pounds per head at \$8 per ton.....		1,200.00	1.00
Ram service.....		240.00	.20
Taxes.....		180.00	.15
Interest at 8 percent on average value of \$8.44.....		810.24	.68
Losses at 10 percent, 120 head @ \$8.44.....		1,012.80	.84
Depreciation at \$1.17 on 1080 head.....		1,260.00	1.05
Total expenses		\$ 9,587.04	\$7.99
Returns			
960 lambs weighing 65 pounds @ 10 cents.....		\$ 6,240.00	\$5.20
9600 pounds wool at 40 cents.....		3,840.00	3.20
Total returns		\$10,080.00	\$8.40
Note: Death loss and depreciation may be made up by buying enough yearling ewes each year to keep the ewe band up to standard. The cost of such replacement should be as shown below:			
256 yearling ewes @ \$11.00.....		\$ 2,816.00	
Credit by 136 old ewes sold at \$4.00.....		544.00	
Net cost		\$ 2,272.00	\$1.89

It will be noted that the final cost of replacement is the same as the combined figure for losses and depreciation previously given.

Labor. The labor costs given are quite typical of most of the sheep country, and the monthly wages include board, which will generally run close to \$1.00 a day. It must be borne in mind, however, that many sheepmen are obliged to have one camp tender for each band, at least in the summer time. The extra help at lambing is the most variable item, but the figure given is about an average of the general practice. There are men with exceptional equipment and facilities who are able to lamb with half of the labor quoted, but such instances are rare. There are a great many outfits that have to have twice as much labor as has been indicated.

Grazing. Averaging together all of the sheep in Eastern Oregon, the grazing cost would be about as given in the table, or \$1.62 per head. In actual practice the cost of grazing is never twice the same. Some ranchmen own nearly all their range and some own very little. Some have paid \$10.00 to \$12.00 an acre and others less than \$5.00. Where all the range is leased, there would be about seven months of summer range at 15 cents a month, two months of fall grazing on the meadows and fields at 30 cents a month, making a total of \$1.65 a month; this may be taken as a fair average cost of grazing, at least when we consider any large number of outfits. There are perhaps outfits whose grazing costs would not exceed

\$1.00; on the other hand, there are a great many outfits that have invested heavily in high-priced land and whose costs will run more than \$2.50 per head. Neither of these cases, however, can be considered as typical, and the latter often includes land bought for speculative purposes rather than for grazing.

The valuation of \$7.00 an acre given to the winter range is an arbitrary figure, but represents our best judgment as to the present market value of average Eastern Oregon deeded range. It also represents a fairly reasonable capitalization of its earning capacity. The interest rate is figured at 5 percent, since we cannot very well expect land to return an interest rate much different from that paid by the best grade of bonds and other long-time conservative investments. This valuation, however, would not be possible if the deeded range were not supplemented by free range or

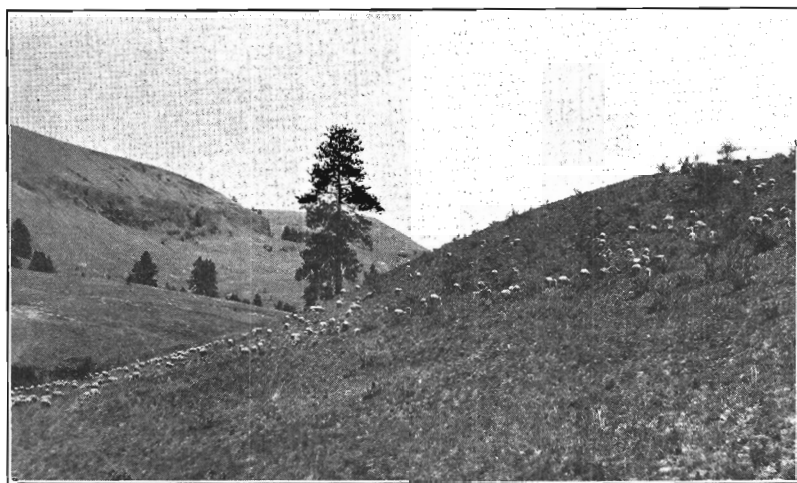


Fig. 2. Springtime. Land of this type is nearly all under private ownership.

National Forests where the grazing is relatively cheaper than on the deeded lands. The average sheep of Eastern Oregon grazes an area of 10 acres. This total area will pay taxes and interest on about \$27.00, or \$2.70 an acre.

Hay. The amount of hay required to winter sheep is exceedingly variable, and there is not the uniformity of practice as in the case of cattle. Not only does practice differ greatly in different localities, but it is not at all uncommon for the consumption of hay to be twice as much one winter as it is the next; in fact, on mild winters sheep will often winter out without hay and perhaps the next winter require 400 pounds per head. The gradually increasing number of stock on our ranges, combined with the deterioration of the ranges themselves, has led to a constantly increasing amount of hay required for winter. On the average, 250 pounds per head, or as it is commonly expressed, "125 tons per thousand," is probably about typical where the ewes do not lamb until after they go on grass. The price of the hay has varied greatly in recent years and will probably continue to vary. It is our judgment that \$8.00 a ton represents about the

average cost of production, allowing a reasonable interest on the investment, etc. Our observations teach us also that a price much less than \$8.00 discourages production to the point where we soon have a shortage, while a price much above \$8.00 encourages production to the point where we soon have a surplus. Until economic conditions change, therefore, we believe it safe to figure \$8.00 as a fair and reasonable valuation for alfalfa hay in the stock districts, recognizing, however, that close to railroads it will have a somewhat higher value than this, often high enough in fact to prohibit its use by the range stockmen.

A separate charge for feeding hay is not made since the herders and camp tenders usually do that.

Taxes. The average assessed valuation of all sheep in Eastern Oregon for the years 1923 and 1924 was \$5.55 per head. The average levy, exclusive of city taxes, was approximately 2.7 percent. This gives a tax of 15 cents per head.

Depreciation and losses. It is generally estimated in the range districts that a ewe will not produce more than six crops of lambs and that the annual death and stray losses are approximately 10 percent. In actual practice, there are three ways of meeting losses and depreciation. First, a man may buy a band of yearling ewes and run them as long as possible and then sell the remainder. In this case the financial statement should show a constant marking down of the ewes, since a band of yearlings which would cost around \$15,000 at the beginning would, at the end of six years, be worth not over \$3,000. Second, he may retain a portion of the ewe lambs, carrying them over for a year and putting them into the breeding flock at the age of about eighteen months. In this case, he must add to the expense bill, instead of loss and depreciation, the cost of maintaining these extra yearling ewes; while on the receipt side, he must subtract the value of the ewes kept and add the value of the cull ewes sold. The balance sheet will then be very much the same as that given above. A third method, and the one which is quite common in districts producing only early lambs or among small operators handling only one band, is to cull out each fall the old and undesirable ewes and then buy enough yearling ewes to make up for the death losses of the year just passed and for the cull ewes that have been taken out.

On the basis of six crops of lambs per ewe and an annual death loss of 10 percent, a theoretical flock would consist of the following at breeding time:

<i>Number of head</i>	<i>Percentage</i>
256 yearlings	21.3
230 two-year-olds	19.2
208 three-year-olds	17.3
187 four-year-olds	15.6
168 five-year-olds	14.0
151 six-year-olds	12.6
Total 1200 ewes of breeding age	100.00
136 cull ewes taken out	11.3

It will be seen from the above that in order to maintain a band of 1200 ewes, it would be necessary to buy each fall about 256 head of yearling ewes, and to sell 136 culls. In our expense account \$1260 has been allowed

for depreciation and \$1012.80 for losses, or a total of \$2272.80. Suppose that to this \$2272.80 was added the receipts from 136 cull ewes at \$4.00 a head, or \$544.00; this would give a total of \$2816.80 with which to buy 256 yearling ewes at \$11.00.

The estimate of \$1.00 for depreciation and 10 percent for the losses is the figure in very common use at present among the Eastern Oregon sheepmen. Our studies, however, indicate that this is a little low. If a yearling ewe is worth \$11.00 and at the end of six years is worth only \$4.00, the depreciation would be \$1.17. This depreciation can be properly charged only against the ewes that live and not against those that are lost. In this particular case it is charged against the 1,080 ewes remaining at the end of the year rather than on the 1,200 ewes with which the year

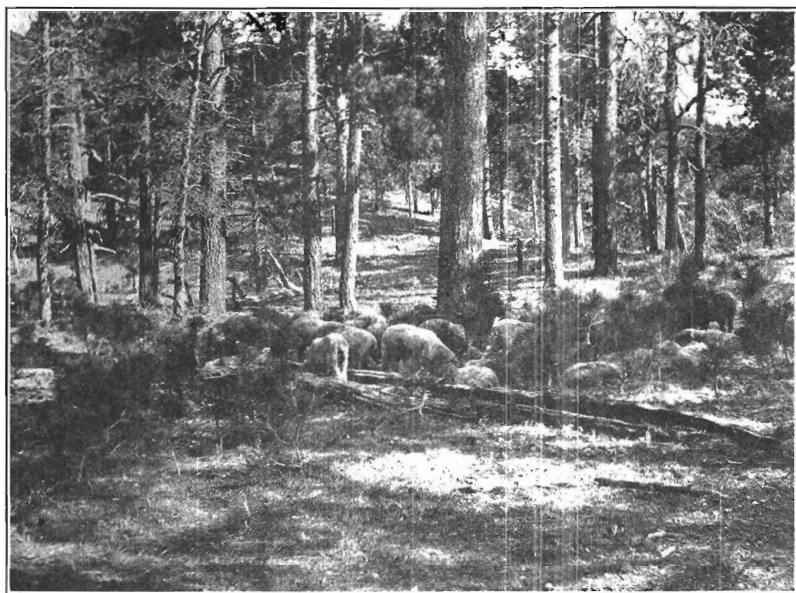


Fig. 3. Summer-time in the National Forests.

was started. If charged against the entire 1,200, the depreciation per head would be \$1.05 instead of \$1.17. The stockman's practice of estimating depreciation at \$1.00 per head on the entire band, therefore, works out all right, even if it is not mathematically absolutely accurate.

From the standpoint of building up a good band of ewes, there are many advantages in retaining the ewe lambs rather than in buying yearlings, and this practice is very strongly recommended for farm flocks. On the range, however, this may not always be practical. The operator, for example, who has range for only one band of ewes may find a small bunch of 200 or 300 yearlings very much of a nuisance and in this case the raising of the yearlings had best be left to the man who can handle enough to make up a straight yearling band. Also, in the early-lamb districts, the big black-faced ewe lambs produced there will be both more expensive and less desirable than the Rambouillet ewe lambs from the late-lamb districts.

Interest. In these estimates the ewes are valued at \$8.44 a head. This is the average value of the ewes of breeding age where the yearlings are worth \$11.00 and the culls \$4.00, allowing for the fact that on account of death loss there are more young ewes than old ewes. These values are based as nearly as possible upon the cost of production rather than upon current market values. In the long run, the value of a ewe must be the market value of the ewe lamb plus the cost of keeping her until she is of breeding age. Any other valuation must be temporary.

Interest on the ewes is figured at 8 percent, the standard bank rate in most localities. While it is true that loan companies often charge 9 and 10 percent, such a high rate of interest seems prohibitive for the sheep business. Furthermore, we feel that most sheepmen would be very well satisfied to receive 8 percent on their livestock investment.

All of the above estimates have been made upon the basis of six lamb crops per ewe. With good ewes under good care this may reasonably be expected, but there are many cases in which the ewes do not last this long. With ewes having a high percentage of mutton blood but a small percentage of fine wool blood, it is often difficult to get an average of more than five lamb crops. Likewise, ewes that are run in a sandy country wear out their teeth rapidly and must be discarded at an early age. Ewes wintered on the sands of the Columbia river do not produce much more than four lamb crops.

Some sheepmen keep their ewes until they die and then sell the pelts, but this is not the general practice. It is also possible to get one or two extra lamb crops out of worn-out ewes by wintering them on chopped hay and a little grain, and summering them on irrigated pastures. This has been profitable when sheep and wool are high, but not when prices are low.

Ram service. The cost of ram service per ewe in this estimate is figured at 20 cents. This is for a ram costing \$25.00 as a yearling, and worth for mutton \$2.50 at the end of four years' service. In this case the annual depreciation would be \$5.63; interest at 8 percent on his average value, \$1.32; insurance or death loss, \$1.32; labor, \$2.00; pasture charge, \$2.00; hay, \$1.60; shearing and marketing wool, \$0.25; taxes, \$0.17; or a total annual cost of \$14.29. The ram should shear 10 pounds of wool worth \$0.40 which amounts to \$4.00. Subtracting this from the total cost, leaves a net cost of \$10.29 for the year. If the ram is used on 50 ewes, the cost per ewe amounts to \$0.20. It seems hardly practicable to use a ram costing less than \$25.00 as a yearling, and usually the cost will be higher rather than lower.

Returns. Returns are for lambs figured on the basis of 80 lambs for each 100 ewes bred. This means a lamb crop of about 90 percent when we allow for the death of some ewes before lambing time and for the death of some lambs after marking time. This is probably better than the average for the state but is about correct for the bands that receive reasonably good management. Returns for wool are figured at 8 pounds, which is the average for the state. It is quite true, however, that some of our range men have, by careful selection, increased this figure to 12 or 14 pounds.

The raising of early lambs. In the handling of early lambs, the general items of expense are practically the same as for late lambs, but ap-

proximately double the amount of hay is required, together with some investment in sheds for lambing time. This is compensated by a somewhat larger lamb crop, heavier lambs, and usually a better price. Estimates are based upon 5 percent more lambs, 10 pounds per head more weight, and 50 cents per 100 pounds better price. Where conditions are reasonably favorable for early lambs, they are usually more profitable than late lambs, but this will depend much upon local conditions. There is ample room for both practices and no general change seems necessary.

A typical budget is as follows:

Expenses.		
Expenses as for late lambs.....	\$ 9,587.04	\$7.99
Additional hay, 250 lbs. per head @ \$8.00.....	1,200.00	1.00
Interest and depreciation on sheds (15 percent on \$4,000).....	600.00	.50
Total expenses	\$11,387.04	\$9.49
Returns.		
1020 lambs weighing 75 pounds @ \$10.50.....	\$ 8,032.50	\$6.69
9600 pounds of wool @ 40 cents.....	3,840.00	3.20
Total returns	\$11,872.50	\$9.89

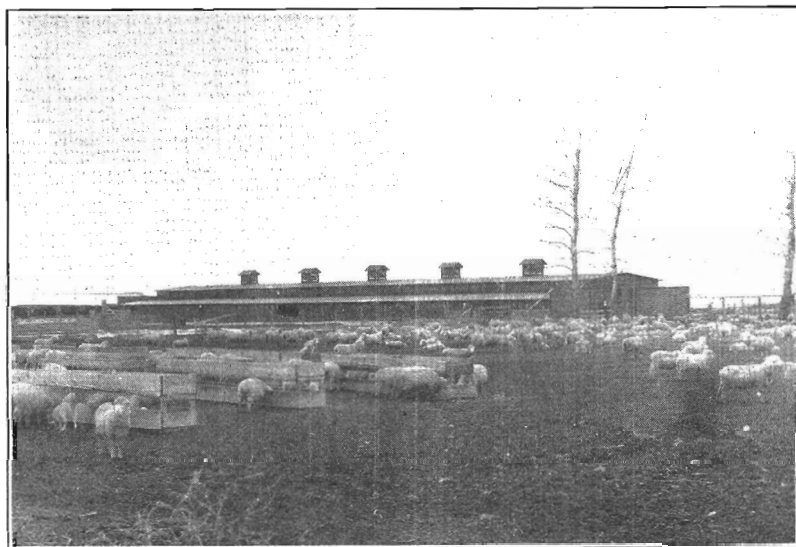


Fig. 4. Sheds for early lambing (Jos Cuhna, Echo).

It should not be assumed from the above that merely supplying 250 pounds more hay and the building of a lamb shed will convert a range suitable to late lamb production into a range upon which early lambs will be profitable. Likewise, it must not be assumed that on a range essentially suited to the production of early lambs, a change to late lambs would reduce the hay required by 250 pounds and eliminate the necessity of lambing sheds. As a rule, the early lambs are produced in the more mountainous districts having a greater variety of summer feed and more alfalfa, but often a longer winter. The late lambs, on the other hand, are generally produced in the areas having a less satisfactory summer feed and less

hay for winter, but a milder and more open winter with more winter range. The valleys of the Blue Mountains run more largely to early lambs, while Central and southeastern Oregon run more to late lambs.

The business of raising early lambs is comparatively new, and the past few years have seen a very considerable shifting from late lambs to early lambs. This movement, however, seems to have gone far enough. At first the early lamb producers had a marked advantage over their rivals, but the large development of the early lamb business, especially in Idaho and Washington, has made feeder lambs and ewe lambs for breeding purposes relatively scarce, and has thereby put the late lamb producers of Central and south-central Oregon in a strong position. Any change from early lambs to late lambs or vice versa should at the present time be made only upon the basis of the adaptability of the range and not on the assumption that either form of the sheep industry is inherently more profitable than the other.

Profits and losses. Financially, the budgets given mean that a band of sheep should return to the owner \$8.00 a ton for the hay, \$1.62 for range, 8 percent on livestock investment, current wages for labor, and about 40 cents a head additional. If he owns the ewes outright, grows his own hay, owns his own pasture, and does his own labor, all of these various items mentioned will come into his own pocket. On the other hand, if he borrows the money to buy the ewes, buys the hay, rents the range, and hires the labor, all that will be coming to him will be the 40 cents a head. The probabilities are that under these circumstances his management will not be very good, and he will not even get the 40 cents.

It should be remembered that the above costs are all for lambs sold in the summer or fall. Any lambs kept into the winter after grass is gone must be fed hay or hay and grain, in which case the cost will be increased 50 cents per hundredweight for each month that the lambs are held. (For details of winter feeding, see Oregon Experiment Station Bulletin 218, *Fattening Lambs for the Late Winter Market.*)

The above is for average conditions. There are always possibilities of doing better than average, and equal possibilities of not doing as well. It is true that large profits are often made through investing when prices are low, and likewise large losses often occur from investing when prices are excessively high, but in the long run success depends upon efficient management. The more important points of management which seem to have a bearing upon profit and loss in Oregon are as follows:

1. The size of the band and the number of bands should be such as to insure efficient operation. Usually about 1200 ewes can be handled satisfactorily. Too large a number will result in heavy losses and a smaller lamb crop, while too small a number makes the overhead too heavy. Ordinarily where one camp tender can take care of two bands, the two-band unit is the more efficient, although there are many very economically managed one-band units in which the owner takes care of the camps and looks after various miscellaneous items. Large outfits of four or five bands or more are seldom so efficiently handled; the owner has difficulty in keeping in personal touch with all of his operations, with the result that the work is poorly done and the expense bills too high. Also, too much time and money are spent in travel.

2. Inadequate finances often lower the profits, partly in that the man with limited means cannot do the things which he knows should be done,

partly because too much of the management is in the hands of the bank or loan company, and partly because the interest rates are too high. If the owner has an equity of 50 percent or more in the entire plant, including both sheep and land, he should be able to borrow the remainder at an interest rate of not over 7 percent, especially if most of it is borrowed on the land. On the other hand, if his equity is much less than 50 percent, he will probably have to pay 9 to 10 percent interest and this will, of course, absorb any reasonable profits which he might make. A 75 percent equity in a one-band outfit is much better than a 25 percent equity in three or four bands.

3. A large lamb crop has been the key to the success of many of our better sheep operations. Lamb crops of 60 and 70 percent are entirely too common. Most of these are due to carelessness in culling the ewes, not enough good rams, dry feed at breeding time, or insufficient care at lambing time. It is our judgment that the sheepman who does not get an 85 percent lamb crop or better will eventually be unable to stay in the business. The size of the lambs at marketing time is as important as the number, and big, fat lambs are the result of good bucks and of plenty of green feed throughout the season. Of course, it is not always possible to have feed conditions ideal, but most of the poor lambs are the result of poor bucks or careless herding, or both.

4. One of the greatest opportunities for increased profit lies in the increased wool crop. The progress that has been made by the sheepmen of America in the last seventy-five years in increasing the wool clip is remarkable. Seventy-five years ago the average wool clip was less than 4 pounds per head. Today it is almost 8 pounds, and in Oregon more than this amount. The process of improvement is still going on. The Oregon Agricultural College Extension Service, in its Wool Improvement Campaign, has demonstrated that by careful culling of the ewes, combined with the use of heavy shearing bucks, a wool clip of 12 pounds and more on large bands is an actual possibility. These large wool clips have been obtained with no sacrifice of the lamb crop; in fact, the heavy shearing bands of the state are producing more than an average lamb crop. What these additional pounds of wool mean to the profits is easily seen, and it has been obtained with no expense other than a few days' careful work once a year.

On the whole, sheep raising is like any other industry; merely being "in the sheep business" does not mean either profit or loss. As in any other business, success depends upon the intelligence and efficiency with which the business is conducted. The sheep business, during the recent depression, however, has had an advantage over nearly all other phases of agricultural production in that its total production has been below rather than above normal. While beef and pork have been so abundant that they can be sold only at sacrifice prices, lamb has been scarce enough to be in the luxury class. Likewise, wool production is enough below domestic consumption to give the sheepman the advantage of a protective tariff and to relieve him of the necessity of depending upon a demoralized European market.

Note: Since this bulletin was begun, Oregon has put her average clip over the 9-pound mark. This is the first and only time that the U. S. Department of Agriculture has credited any state with a wool clip of over 9 pounds.