

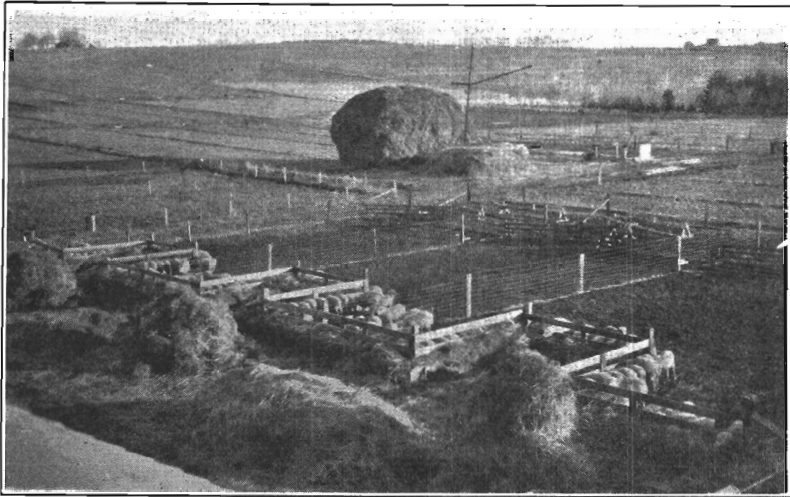
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Oregon Agricultural College  
Experiment Station

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Fattening Lambs on Alfalfa

By  
E. L. POTTER  
and  
H. K. DEAN



Lambs fed in the open at the Umatilla Experiment Station, 1922-23, made rapid and economical gains.

CORVALLIS, OREGON

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## SUMMARY

The ideal feeder lamb is a thrifty, healthy lamb, weighing not less than fifty and not more than sixty pounds.

Good thrifty lambs will gain one-third pound per day and will be fat in from forty to ninety days.

It requires three hundred pounds of grain and nine hundred pounds of alfalfa to put on one hundred pounds of gain with fattening lambs.

The standard ration on the alfalfa farms is one pound of whole grain and three pounds of alfalfa.

One ton of grain is worth three tons of hay for fattening purposes.

Lambs may be fattened on as little as three-fourths pound of grain per day, when grain is expensive, or as much as one and one-half pounds per day when grain is cheap.

Barley, wheat, oats, corn, or any mixture of these, are good for fattening lambs.

Grains are best fed without grinding and hay without chopping.

Silage has a feeding value of from forty to seventy percent that of good alfalfa hay, depending upon the kind and quality of the silage.

The cost of shipping to Portland is \$0.75 to \$1.25 per one hundred pounds.

The average increase in price of lambs on the Portland market during the winter season is forty-three cents a month.

The normal margin in fattening lambs, including improvement in quality of the lambs and raise in the winter market, is one dollar to three dollars per hundred pounds.

# Fattening Lambs on Alfalfa

By

E. L. POTTER and H. K. DEAN

## INTRODUCTION

This bulletin is aimed to give to the alfalfa raisers of Eastern Oregon the essential facts of the lamb fattening industry as conducted on the farms in that section of the state. It is especially our object to show what can be reasonably expected of lamb fattening as a means of marketing surplus alfalfa hay and the manner in which the largest possible amount of alfalfa hay may be utilized in the most efficient manner. It is not the object of this bulletin to boost or to discourage the lamb fattening industry, but rather to put in simple, condensed form the essential facts from which every alfalfa producer may base his own decisions.

This bulletin, however, does not apply to the big commercial lamb feeder in Portland and neighboring points, who is fattening lambs on a heavy feed of screenings or grain, and using a very limited amount of hay.

The facts given in this bulletin are based upon experiments conducted at the Experiment Stations at Hermiston and Union, and experimental data from other states, in so far as they may be applicable to Oregon conditions.

## BUYING FEEDERS

The ideal feeder lamb is a thrifty lamb weighing about 55 pounds, smooth and blocky in his conformation, and carrying a good deal of black-faced blood. In actual practice this ideal is not always obtainable, but the first two points, of thrift and proper size, are absolutely essential. One can sometimes get satisfactory results on lambs of poor conformation and breeding providing the lambs are thrifty and of the right size and bought at the right price; but lambs that are puny, stunted, wormy, and diseased are not worth feeding. Since feeder lambs are often those left after the fat lambs have been taken out of the flock the buyer of feeders cannot be too cautious. Good feeder lambs must also be small enough, so that they can be made fat before they weigh more than eighty pounds. Fat lambs weighing over eighty pounds will not bring as good a price as the smaller lambs and when they get up to ninety or one hundred pounds the cut in price is usually very heavy, regardless of their condition or quality. Since it usually takes twenty to twenty-five pounds of gain to make the lamb fat it will be seen that he must not weigh over sixty pounds at the start, unless he is already half fat. On the other hand, it is possible for a lamb to be so small that it will take too long and too expensive a feeding period to put him in market condition. It is generally considered that fifty pounds is about the minimum size for good feeder lambs, but if the lambs are thrifty, those as small as forty pounds may be fattened successfully. At the Umatilla Branch Experiment Station, last winter, fifteen lambs were culled out of a bunch of two hundred and fed separately. They seemed reasonably thrifty, but lacked breeding and quality, and weighed only 41 pounds at the start. They gained .31 pound per head per day, while the better lot from which these were culled weighed 49 pounds at the start and gained .33 pound per head per day on the same kind of feed. While the small lambs fattened more satisfactorily than was expected, the larger

lambs required nine percent less feed per pound of gain and were better lambs when finished. It was estimated that they were worth, when finished, sixty-seven cents per hundred pounds more than the cull lot. Considering all these differences when the good lambs cost ten cents per pound at the start the cull lambs should have been bought for  $8\frac{1}{4}$  cents. Our conclusions, therefore, were that lambs as small as forty pounds could be fattened satisfactorily, but that they should be purchased at a considerably reduced price.

On the other hand, some of the exceptionally large lambs fed at the Experiment Station at Union have sold at a discount on account of their large size, in spite of the fact that they were very choice in quality, breeding, and condition.

When lambs come in from the range in the fall those that weigh seventy pounds, or over, are, or should be, fat enough for slaughter. The smaller lambs will be cut back and used for winter feeding, while those that are very small and weigh less than fifty pounds are usually held over and marketed as yearlings. Lambs of good black-faced breeding that were lambed on hay before the grass season, and have been on reasonably good range will be fat enough for slaughter, and it will be only the less thrifty ones that will be cut back for feeding purposes. Lambs that were lambed on grass, instead of very early on hay, will in most cases, have a much smaller proportion of fat lambs in the fall and a higher proportion of feeders. The feeders will, also, be of better quality. Lambs that have been dropped late and that contain a high percentage of Merino blood will practically all be feeders, except those that are too small for feeding purposes and have to be carried over as yearlings. Late lambs and lambs from districts of scanty feed usually make good feeders, but an early lamb that has had good feed all summer and is still not ready for slaughter, very likely has something wrong with him.

A lamb of black-faced or long-wooled breeding is usually to be preferred when other things are equal, but the other things are not always equal and the top of a bunch of fine-wooled lambs will commonly be more satisfactory in the feed lot than the cut-backs from a black-faced band. In the matter of breeding, therefore, the buyer must often compromise between what he would like and what he can get. In the matter of weight and thrift, however, he can afford to make no compromises. If the lambs are unthrifty they will not gain, and if they are too large they will not sell. On the other hand, almost any thrifty lamb weighing around 55 pounds can be made into a market topper in sixty to ninety days. Condition is also an item in determining the price. A lamb that already carries a good deal of fat can be finished in less time and with less expense than one that is very thin, and he will, therefore, command a higher price.

In buying lambs it should be remembered that while a standard-size double-deck car will accommodate three hundred or more feeder lambs, it will not take care of them after they are fat. Two hundred and fifty in a car will be plenty then, and if exceptionally heavy and carrying a large amount of wool, two hundred may be enough. In weight the average car will carry 20,000 to 22,500 pounds.

Before lambs go into the feed lot they should be thoroughly examined by a veterinarian or competent sheep-man and if not free from ticks, scab, lip and leg ulceration, and other troubles, should be dipped and given such other treatment as may be necessary. Feeding ticky or diseased lambs is a waste of feed.

## EQUIPMENT

Feed yards for lambs must necessarily be located on reasonably dry, well drained ground, and in most cases, must be fenced dog tight. If they can be located where well protected from severe winds and storms so much the better. It will not ordinarily, however, be necessary to provide barns or sheds. In three tests at Union it was found that there was very little difference between feeding lambs in the open and giving them access to a good shed. A shelter shed 16x50 feet in dimensions, returned a profit of \$31.50 for three years' use, which would offer no profit over interest and depreciation.

The lambs used the shelter freely during wet, stormy weather, but were indifferent to it during cold dry weather. The lambs fed in the open, without shelter, made rapid and economical gains, and were well finished at the end of the tests. (See Oregon Station Bulletin 175.)

Twelve to fifteen square feet of lot room, exclusive of feed racks and troughs, is sufficient, although most lots are made three or four times this large. Exclusively large lots are not only unnecessary, but are hard to keep clean, and much of the manure is wasted.

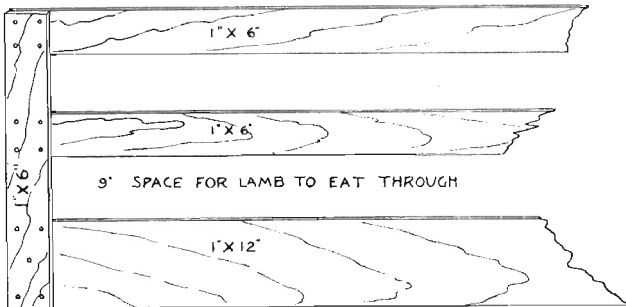


FIG. 1 PANEL FOR FEEDING ALFALFA TO FATTENING LAMBS.

Where alfalfa is the chief feed the most popular method of feeding the hay is by an arrangement of panels set at right angles to each other, as is shown on the cover. These panels are made of one-by-six fence boards with a twelve-inch board at the bottom. The second board is nine inches above the bottom board, and the lambs feed by putting their heads through this nine-inch space. A third and even fourth board are added to give the panel the desired height. (See Fig. 1.) The hay is placed in piles outside of the lot and small quantities pushed up to the panels three or four times a day. Lambs will not eat large quantities of hay if given fresh hay only once a day. The amount of panel space is usually estimated at one foot for each lamb, but on account of the space lost in the corners this is hardly enough and one should figure on about ten lambs to each twelve feet of panel.

The best grain trough is one about twelve inches wide, three to four inches deep, and placed twelve inches from the ground. It should also have a bar along the top to prevent the lambs from jumping into it. This kind of trough is strong and simple and may be turned over on its side for cleaning. (Fig. 2.) These troughs should be in a separate pen into which the lambs are turned after the feed has been distributed. About twelve

inches of space on one side of the trough is required for each lamb. It is important to have about the right amount of trough room. If too much, the greedy lambs get a second helping; if not enough, the weak lambs will not get their share.

Plenty of good, clean water and salt must be provided so that the lambs can have easy access to them at all times. In very cold weather tank heaters placed in the water troughs are of great assistance in preventing freezing. Warm water, however, is not necessary. There is a lot of argument about water, but the essential thing is clean water where the lambs can walk up and take a drink at any time without wading in the mud or slipping on the ice. Creeks and ditches are seldom very satisfactory on account of the difficulty the lambs have in getting to them in muddy or icy weather.

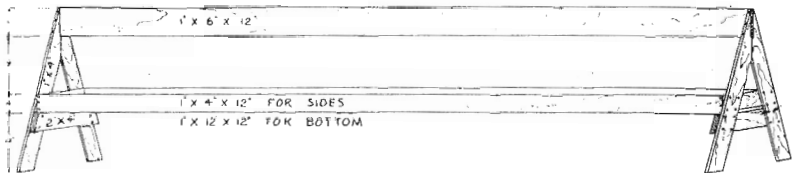


FIG 2 GRAIN TROUGH FOR FATTENING LAMBS

## FEEDING

If proper feed trough space has been provided, lambs can be started on one-fourth pound of grain a day without the slightest danger. In two of our tests the lambs were started on oats and then changed to barley, but this did not seem necessary, as the lots started on barley never gave any trouble. When once started on grain, increases may be made at the rate of 1-10 pound per day. Grinding grain for fattening lambs is not advisable, although it may pay to both grind the grain and chop the hay for old ewes with broken mouths. Feed troughs should in all cases be turned over and cleaned every day. Lambs will not eat from dirty troughs. The grain must be very evenly distributed in the troughs before the lambs are turned in. If not evenly distributed, or if there is too much or too little trough room some lambs will get too much and others too little. The lambs must be fed at the same time each day as they are very sensitive to the least irregularity. If these simple precautions are followed to the letter the newest amateur should get good results: good gains and no lambs off feed.

## LENGTH OF THE FEEDING PERIOD

Any lamb worth feeding and on good feed will be fat in ninety days and as large as the market will stand; while extra large, fleshy feeders will be ready for market in forty to fifty days. The large proportion of the lamb feeding is from sixty to eighty days. Of course, if the lambs are fed only hay for awhile, that time should not be counted, as the lambs do not fatten on hay alone. Lambs are often fed hay alone, or a very light ration of grain and hay, in order to hold them for a later market. This is done, however, with full knowledge of the fact that a better and cheaper finish may be made with a heavier feed.



## HAY

On the farms of the Northwest, alfalfa is practically the only kind of hay used in fattening lambs and is likewise the only kind that should be used for that purpose. The use of a good legume hay is more important with lambs than with any other animal. To attempt to fatten lambs with wild hay, grain hay, or timothy would be a serious mistake wherever it is the object to feed as much hay and as little grain as possible.

The method of feeding hay has already been outlined. In some places the hay is chopped before being fed. If the hay is carefully handled it is probable that the cutting increases its value somewhat, although the tests on record have so far failed to show any real advantage from cutting or grinding, except for old ewes with bad teeth. The quality of the hay is, however, of considerable importance and hay that is bright and palatable will produce larger gains and save grain. In two years' tests the Irrigation Branch Station at Prosser, Washington, found that second cutting was a little less palatable and made slightly less daily gains than first or third cutting. In the final cost per pound gain, however, there was but very little difference. The difference between cuttings is doubtless largely a local question and depends greatly on the way the hay is put up and handled; but it is fairly safe to say that the first cutting is the best with the third very close behind. The second cutting is not quite as good as the other two, but may nevertheless be used for fattening purposes with entire satisfaction.

**Amount of Hay.** On the farms of Eastern Oregon, alfalfa is usually fed in just as large quantities as the lambs can be induced to eat. The skill of the feeder is often measured by the amount of hay he can get the lambs to eat. The amount fed will vary from two to four pounds, depending upon the size of the lambs, kind of hay, other feed, and weather conditions. With one pound of grain the hay fed per day will usually be about three pounds.

**Waste Hay.** All of the figures used in this bulletin are based upon the total amount of hay fed. Where the lambs are fed all the alfalfa hay they can be made to eat there will be a considerable proportion of stems and coarser hay that will be refused. This waste or refuse hay will average about twenty percent. It is often a temptation to force the lambs to eat up all this hay, but this is poor policy and usually results in unsatisfactory gains. This refused hay, while entirely unsuitable to lamb fattening does make a very satisfactory feed for wintering stock cattle or horses. Horses in the winter time will do splendidly on the hay cleaned out of the feed racks. For this purpose the refused hay may be considered to have a value of at least fifty percent of that of good hay.

## KINDS OF GRAIN

Any of the common cereals, as well as screenings and other by-products, may be used for lamb feeding purposes. The feeds available to the farmer of the Northwest are chiefly barley, wheat, and oats, and corn in some years when the prices are right. Any one of these four, or any mixture of them, will give satisfaction for lamb fattening providing it be fed unground and in reasonable amounts, along with good alfalfa hay. In a test recently

conducted by the Umatilla Branch Station at Hermiston comparing corn, wheat, barley, and oats the following results were obtained:

TABLE I. FEEDING CORN, WHEAT, OATS, AND BARLEY TO FATTENING LAMBS

	Lot 1 corn	Lot 2 wheat	Lot 3 oats	Lot 4 barley
Weight at beginning .....	52.4	51.5	52.1	48.9
Weight at close .....	88.6	86.0	85.0	82.0
Total gain .....	36.2	34.5	32.9	33.1
Daily gain .....	.366	.348	.332	.334
Hay offered—daily ration .....	3.32	3.19	2.92	3.00
Hay refused .....	.90	.81	.79	.83
Hay consumed .....	2.42	2.38	2.13	2.17
Grain .....	.95	.95	.95	.95
Feed per 100 pounds gain				
Hay .....	905	939	879	898
Grain .....	259	279	285	283

From this it will be seen that all four grains gave entire satisfaction. Comparing the other grains with barley we find that the corn was worth eight percent more, wheat three percent less, and oats practically the same. Other tests conducted at various places throughout the country indicate that on the average barley is probably worth ten to twelve percent less for lamb fattening than the number three corn, which we commonly get in the Northwest. If compared with a strictly high grade corn the difference would probably be twelve to fifteen percent. While wheat in this test proved slightly less valuable than barley it has in most cases proved a better feed than barley and but very slightly inferior to corn. Oats are commonly looked upon as unsatisfactory for fattening purposes; yet they gave satisfactory results for fattening lambs. Tests conducted at other stations confirm our own tests and indicate that oats are similar in fattening value to barley. A mixture of grains, however is usually better than any one grain alone. The important fact shown in this test, however, is that all four grains, fed whole and in moderate amounts, together with all the alfalfa hay they would eat, gave good daily gains and produced a good finish. These results were fully as satisfactory as those obtained in the corn belt where the lambs were fed all the corn they would eat, together with a less palatable and nutritious hay. The choice of grains should therefore depend entirely upon the purchase price.

**Amount of Grain.** The amount of grain that may be satisfactorily fed to fattening lambs varies from  $\frac{3}{4}$  pound per head per day, up to all that they will eat, which will be about  $1\frac{1}{2}$  pounds. If fed less than  $\frac{3}{4}$  pound the lambs will not fatten readily and at the end of the feeding period will be found to have grown a little in size, but not to have improved in condition. Three-fourths pound will make them fat, although we usually recommend one pound. Whether to feed a larger amount than one pound will depend upon the relative price of hay and grain. We usually figure that one pound of grain is worth three pounds of hay and if the grain does not cost more than three times the price of hay it would be advisable to feed all the grain they would eat. The cost per hundred pounds would be about the same and the lambs having the larger amount of grain would probably sell a little better. Where the price of grain is as much, or more, than four times the price of hay it is best to limit the grain to not over one pound per day. In all cases the lambs should be started on a small amount of

grain and worked up gradually; one-fourth pound per day is about right for the first day. As soon as all the lambs are eating, which is usually the first day, the amount of grain can be gradually increased at the rate of not over 1-10 pound per day until the ration reaches one pound. It can then be left at this figure for the remainder of the time. The grain is ordinarily fed in two feeds—one-half in the morning and one-half in the evening.

## SILAGE

Silage has proved a very satisfactory feed for fattening lambs, but since it must be used as a substitute for hay rather than for grain, and since its use does not increase the daily gains or the finish of the lambs it has not given such phenomenal results with lambs as it has with fattening steers. Besides corn silage we have available, especially in the higher altitudes of Eastern Oregon, peas-and-bald-barley silage, and sunflower silage. These silages have been given careful tests through two or more years at the Eastern Oregon Branch Station, at Union, with the results shown below:

TABLE II. AVERAGE OF 1918-19 AND 1921-22 TESTS ON FEEDING PEAS-AND-BALD-BARLEY SILAGE TO FATTENING LAMBS

	Lot 1 alfalfa and barley	Lot 2 alfalfa, silage, and barley
Weight at beginning .....	82.1	81.9
Weight at close .....	102.7	103.6
Total gain .....	20.6	21.7
Daily gain .....	.266	.28
Alfalfa offered .....	2.29	1.96
Alfalfa refused .....	.33	.35
Alfalfa consumed .....	1.96	1.61
Barley .....	1.0	1.0
Silage .....		1.0
Feed per 100 pounds gain:		
Alfalfa offered .....	861	700
Barley .....	372	354
Silage .....		350

TABLE III. AVERAGE OF 1918-19 and 1921-22 TESTS ON FEEDING SUNFLOWER SILAGE TO FATTENING LAMBS

	Lot 1 alfalfa and barley	Lot 2 alfalfa, silage, and barley
Weight at beginning .....	73.7	73.8
Weight at close .....	93.7	94.3
Total gain .....	20.0	20.6
Daily gain .....	.246	.254
Alfalfa offered .....	2.4	2.14
Alfalfa refused .....	.32	.35
Alfalfa consumed .....	2.08	1.80
Barley .....	1.0	1.0
Silage .....		1.0
Feed per 100 pounds gain:		
Alfalfa offered .....	976	846
Barley .....	402	390
Silage .....		385

In these tests it will be seen that silage increased the gains only very slightly. One ton of peas-and-bald-barley silage replaced 1229 pounds of alfalfa hay, or in other words, had 61 percent of the feeding value of alfalfa. In the case of sunflower silage one ton of silage replaced 862 pounds of

alfalfa hay, and had, therefore, 43 percent of the feeding value of the hay. Other tests indicate that corn silage of the variety commonly grown in the cool climates will have a value slightly less than peas-and-bald-barley silage; while corn silage grown in the lower altitudes where the grain is well matured, will have a feeding value somewhat higher. One ton of strictly first-class corn silage may be considered as having sixty to seventy percent of the value of one ton of good alfalfa hay. It will be understood, however, that silage from any crop varies greatly in feeding value, even when preserved. Silage with a lot of mature grain in it will have a high value, while silage made from immature, watery material will have a low value. On the basis of these figures the corn-belt farmer is justified in using as much silage as possible, but in Eastern Oregon where hay is so much easier grown than silage the growing of silage extensively for feeding lambs is not usually to be recommended.

Perhaps the chief reason why we do not need silage is that in alfalfa hay and the common Eastern Oregon cereals we already have a ration that can scarcely be improved.

## MARKETING

Nearly all of the lambs fattened in Eastern Oregon and put on the market during the winter and early spring, are shipped to Portland; some are sold on the home ranch, but these, ordinarily, are bought by shippers who in turn send them to Portland. Where the lambs are sold at home and weighed out of the feed lot full of feed and water it is customary to dock the weight about four percent. In case the lambs are shipped to Portland they are given what feed and water they wish at the stock-yards and sold full without dockage. In spite of this, however, there is a heavy loss of weight between the home feed yard and the Portland market and this will generally range from about  $4\frac{1}{2}$  percent to 7 percent, based upon the full feed yard weight. The lambs fed at Hermiston last year shrank 4.4 percent. Lambs shipped during the last seven years from Union have shrunk from five to seven percent. As previously stated, where the lambs are sold at home it is usually customary to dock the weight four percent, so that the difference between the selling weight at Portland and the weight at which they would be sold at home will generally be from  $\frac{1}{2}$  to 3 percent.

In addition to freight, the shipping expenses include commission, yardage, and feed in Portland, generally amounting to \$45 to \$50 a car-load, the expenses of a man to take care of the stock enroute, and the shrinkage. Lambs will have to sell at from \$0.75 to \$1.25 per hundred more in Portland than at home in order to cover the expenses of shipping. This is without allowing salary for the man in charge; if the latter is allowed, the margin will be somewhat greater. It is never possible to forecast exactly the expenses since the shrink will generally vary considerably without any apparent reason. A rough average, however, would be to figure the shrink on a two-hundred mile shipment at four to six percent of the full feed yard weight; and for three-hundred miles at five to seven percent. For longer shipments, such as to Missouri River markets or Chicago, the shrinkage will be about ten percent.

Top prices for lambs in Portland are usually not hard to obtain. Lambs that are fat enough to kill well and that are within the required weights will ordinarily bring the top price. Naturally, however, when lambs are

scarce the buyers are less particular and when they are plentiful they are extremely particular.

The average monthly prices on lambs at Chicago and the average top prices on lambs at Portland are shown in the accompanying chart.

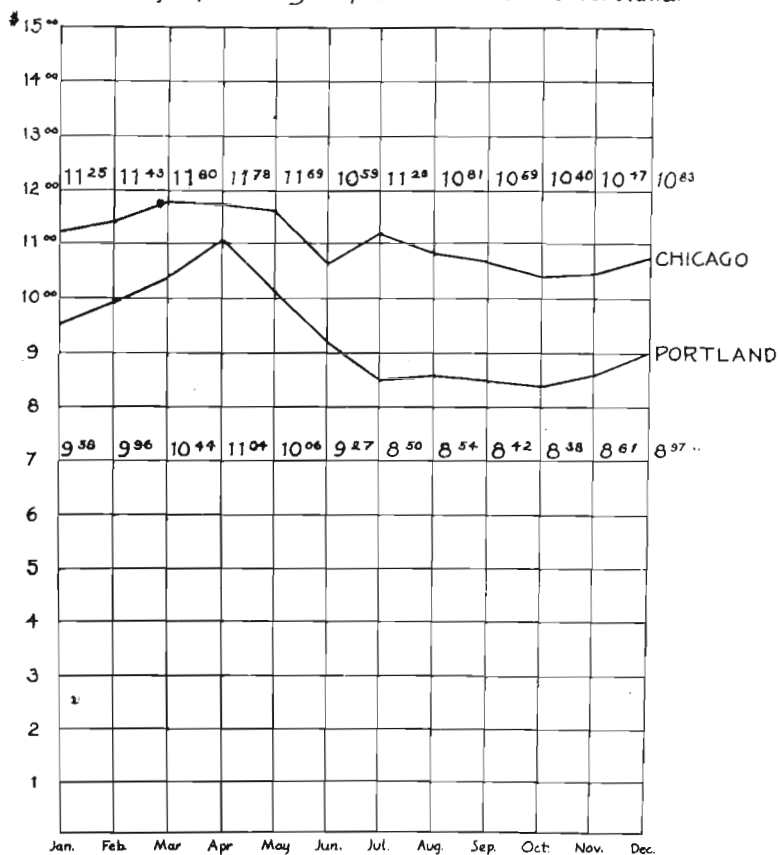
### CHART I

#### Monthly Lamb Prices at Chicago and Portland

For twelve Years 1910 ~ 1922 Inclusive.

(Upper) Average of Monthly Chicago Lamb Prices.

(Lower) Average of Monthly Top Lamb Prices at Portland.



It will be noted that in Portland there is a normal tendency for lambs to increase in price from October to April. This increase has averaged through the past twelve years, 43 cents a month. It should be understood, however, that this average increase of 43 cents a month is only an average and that in reality there have been many exceptions. We would assume that during the three months winter period, from November to February, the price of lambs would improve \$1.39 a hundred pounds. The actual

difference, as nearly as the figures can be estimated for the past few winters, is as follows: 1914-15, \$1.62; 1915-16, \$1.38; 1916-17, \$1.12; 1917-18, \$0.75; 1918-19, \$1.87; 1919-20, \$5.50; 1920-21, \$0.75 decrease; 1921-22, \$3.87; 1922-23, \$1.87. The year 1920-21 was peculiarly treacherous. The lambs fattened and marketed early made a fair profit, while those marketed late stood tremendous losses. During the month of February when lambs ordinarily are expected to increase in price the price went down \$3.00. The next year, however, was remarkable in the other way and many lambs were put on feed at 5c and 6c and sold at 12c.

The lambs usually have to come off the grass in November and if put on feed at that time would be ready for market in February. The market chart indicates, however, that April is ordinarily the best month in which to market fat lambs. As a general rule, fat lambs held until the late market cost enough more to about offset the additional price. It will be noted that the spread between Portland and Chicago prices is greatest in the summer and least in the late winter and early spring, which, of course, accounts for the fact that during the summer Oregon ships most of her lambs East, while in the winter most of them go West.

## FINANCIAL DISCUSSION

The question of profit or loss is always the most vital one to the stockman or feeder. The fluctuation in the market during the time the lambs are on feed will always be the most important factor in determining the profit or loss of the feeding operation. In addition to fluctuations in the market there will always be some variations in the quality of the feed, the weather, and the feeding quality of the lambs. When we take a considerable number of lambs through a period of years, however, we find that we can forecast very accurately the amount of feed needed and the gains that will be made. Therefore, if we know the price of the feed and the price of the feeder lamb, we can forecast very accurately the cost of the finished product, although unfortunately we cannot forecast the price that will be received. When on full feed a lamb will require about 3 pounds of hay and 1 pound of grain a day and on this feed should make a gain of  $\frac{1}{3}$  pound a day. This means that 300 pounds of grain and 900 pounds of hay will be required to produce 100 pounds of gain. Where the lambs are not on full feed, or where the feed is not strictly choice the gains will be slightly less than this. An average of all the grain and alfalfa tests on record shows a daily gain of .31 pound and a feed consumption of 2.8 pounds of alfalfa and .93 pound of grain. The feed per 100 pounds of gain would be the same in this case as quoted above; that is, 300 pounds of grain and 900 pounds of hay. On this basis where a 55-pound feeder lamb costs 10c a pound, alfalfa \$10.00 a ton and barley \$30.00 a ton, the cost of the finished lamb may be figured as follows:

Cost of 55 pound feeder lamb at \$10 per 100 pounds .....	\$ 5.50
Interest on above at 8% for 75 days .....	.09
Insurance at 1.6% .....	.09
225 pounds of alfalfa (3 pounds a day for 75 days) at \$10 a ton .....	1.13
75 pounds of barley (1 pound a day for 75 days) at \$30 a ton .....	1.13
Labor at \$5 a day for 1000 lambs .....	.38
Lumber, dip and incidentals .....	.05
<hr/>	
Final cost per head .....	\$ 8.37
Gain per head .....	25 pounds
Final weight per head .....	80 pounds
Final cost per 100 pounds .....	\$10.46

This means that a lamb costing \$10.00 a hundredweight must, at the feed prices quoted, sell for \$10.46 a hundredweight after 75 days feed, in order to pay for feed, interest, insurance, and labor. These are farm prices; if the lambs are bought or sold at more distant points, allowance for shipping costs must be made. In order that we may see at a glance the approximate cost of a finished lamb under a range of prices for feeder lambs, hay, and grain, the accompanying cost chart has been prepared (Table IV).

TABLE IV. FATTENING LAMBS ON HAY AND GRAIN.

	Price per 100 pounds at which the finished lamb must be sold in order to pay for feed, interest, and labor.			
	If feeder lambs cost 5c a lb.	If feeder lambs cost 7½c a lb.	If feeder lambs cost 10c a lb.	If feeder lambs cost 12½c a lb.
With alfalfa @ \$ 5.00 and grain @ \$15.00....	\$5.49	\$ 7.28	\$ 9.05	\$10.81
With alfalfa @ \$ 7.50 and grain @ \$22.50....	6.19	7.98	9.74	11.51
With alfalfa @ \$10.00 and grain @ \$30.00....	6.91	8.70	10.46	12.24
With alfalfa @ \$12.50 and grain @ \$37.50....	7.61	9.40	11.16	12.94
With alfalfa @ \$15.00 and grain @ \$45.00....	8.31	10.10	11.86	13.63

It is apparent that under all ordinary price conditions the finished lamb in order to pay out must sell for more per hundred pounds than his original cost as a feeder. This difference between the price per hundred pounds of feeder lambs and the price per hundred pounds of fat lambs we call "margin." Fat lambs ordinarily sell for more than feeder lambs, partly because of their higher dressing percentage and better quality of mutton, and partly, in case of winter fed lambs, on account of the better market later in the winter. A fat lamb is ordinarily worth from 50c to \$1.50 more per hundred pounds than a feeder lamb on the same market. When we add to this the improvement in the market later in the winter we usually expect a total margin of from \$1 to \$3 per hundred pounds. This is about what the lamb feeder gets as an average over a long series of years. On any particular year, however, he may get as high as \$5 or \$6 margin, or he may sell his lambs for \$3 or \$4 a hundred less than they cost. Lamb feeding for one or two years may rightly be considered as highly speculative, but when conducted through a long series of years, by men who are financially in a position to stand the losses of the bad years and counterbalance them with the good years, the speculative element very largely disappears and lamb feeding becomes about as stable a business as any other line of agriculture, and especially so since lambs are very dependable in the feed lot. Thrifty lambs given reasonably good feed and care practically never fail to make satisfactory gains and to take on a good finish.

Many feeders measure their financial returns in the terms of the price received for the feed used. Table V therefore gives the probable returns for the feed under various conditions:

TABLE V. NET PRICE RECEIVED FOR THE FEED NEEDED FOR FATTENING ONE LAMB: (225 POUNDS OF HAY AND 75 POUNDS OF GRAIN)

	Net price received for the feed
If lambs cost 5c and sell for 6c .....	\$1.53
If lambs cost 5c and sell for 7c .....	2.33
If lambs cost 7½c and sell for 8½c .....	2.10
If lambs cost 7½c and sell for 9½c .....	2.90
If lambs cost 10c and sell for 11c .....	2.69
If lambs cost 10c and sell for 12c .....	3.49

Translated into tons and figuring one ton of grain the same as three tons of hay the prices received for the feed per ton would be as follows:

	Price received for feed per ton hay	grain
If lambs cost 5c and sell for 6c .....	\$ 6.84	\$20.52
If lambs cost 5c and sell for 7c .....	10.40	31.20
If lambs cost 7½c and sell for 8½c .....	9.33	27.99
If lambs cost 7½c and sell for 9½c .....	12.89	38.67
If lambs cost 10c and sell for 11c .....	12.00	36.00
If lambs cost 10c and sell for 12c .....	15.56	46.68

No credit has been allowed in these estimates for the refused hay. As previously noted, about twenty percent of the hay will be refused but this refused hay has a value of fifty percent that of fresh hay for stock cattle and horses. If this twenty percent of refused hay were utilized in such a way as to recover half of its original value it would represent a saving of ten percent in the total hay bill and the feeder would therefore do that much better financially than the figures we have quoted. In the estimates no credit has been allowed for the manure produced, although it may in many cases have a very considerable value. It may be safely figured that for each ton of hay or grain fed to fattening lambs there will be produced 1¾ tons of manure. From this the farmer may make his own estimate to the credit he can allow for this item.

### WHO SHOULD FEED LAMBS

The fattening of lambs should be considered as a means of marketing surplus alfalfa hay and grain, for which there is no other satisfactory outlet. The fattening of lambs, one year with another, has afforded a very satisfactory market, but owing to the extreme fluctuations in prices it has been dangerous and often disastrous. No one should attempt the business of fattening lambs unless his financial position is strong enough to permit him to stand a heavy loss and still continue. In the long run the good years will offset the bad, but if a man is not in a fairly strong financial position and the bad year comes first he will not be in a position to continue.

No one should attempt to fatten lambs without a thorough understanding of the amounts of feed required and the probable gains that will be produced. The feeder necessarily should have a liking for the business and the intention to stay with it. It is not, however, necessary for him to have long or extensive experience in the handling of sheep. Any feeder who will follow carefully the instructions in this circular will have no trouble in making good gains and in producing fat lambs.