

AGRICULTURAL EXPERIMENT STATION
Oregon State Agricultural College
W. A. Schoenfeld, Director
Corvallis

Circular of Information No. 135

January, 1936

Eastern Oregon Experiment Station, Union, Oregon

LAMB FATTENING TRIALS - 1935

By D. E. Richards, Superintendent

copy 1

In a feeding trial to gain practical information about fattening lambs in Eastern Oregon, ten lots of lambs were used. There were forty grade Hampshire lambs per lot, weighing 78 pounds at the beginning of the test, and they were fed 88 days. At the conclusion of the test, the lambs were weighed on two consecutive days, and the average of the two weights was taken as the final weight. During the test, the lambs were weighed at the end of each thirty-day feeding period, but the feed was weighed twice a day at the regular feeding time. The lambs were fed in open lots with no shelter other than a windbreak.

FEEDS

HAY: The roughages used were alfalfa hay, grain hay, and wheat chaff.

SUCCULENT FEEDS: Peavines and stock carrots.

GRAIN: Wheat and barley, fed whole were the grains used.

STOCK MOLASSES: Was used in one lot.

WHEAT VS BARLEY

To determine the comparative feeding value of wheat and barley when fed with alfalfa hay, two lots of lambs were used, one being fed whole wheat and chopped alfalfa hay, while the other lot was fed whole barley and chopped alfalfa hay. The results were practically similar, with a slight advantage in favor of the wheat. It required 183 pounds of alfalfa hay, fed with 119 pounds of whole barley to make choice fat lambs out of 78 pound feeder lambs. The lambs sold at \$9.75 per cwt. in Portland, and the selling weight was 103 pounds. The lambs being fed wheat instead of barley, ate the same amount of grain, and two pounds more hay, and sold at the same price, but weighed an average of .8 pound more per head. The results of this lamb feeding trial are consistent with the results of three other trials, in that the wheat lambs have made slightly greater gains each year.

CHOPPING HAY

Two lots of lambs getting whole barley as the grain ration, with alfalfa hay for roughage, were compared to determine the advisability of chopping alfalfa hay for fattening lambs. The lambs in Lot 1 were fed chopped alfalfa hay and whole barley, while the lambs in Lot 6 received

long alfalfa hay and whole barley. The lambs that were fed the long alfalfa hay with whole barley made a total gain of 27.4 pounds per head in the 88 day feeding period, while the lambs fed chopped alfalfa hay and whole barley made a slightly slower gain of 25.2 pounds per head. The hay used was about an equal mixture of first and second cutting alfalfa. There was a small amount of needle grass (cheat) in the first cutting alfalfa. The lambs that were fed the long hay discriminated against the needle grass and left it in the feed racks, but the lambs that were fed the chopped alfalfa hay could not choose just the good hay, for it became so thoroughly mixed when it was chopped that the lambs necessarily consumed some needle grass with the hay. The needles from this grass lodged in the mouths of the lambs being fed cut hay, and caused them to have sore mouths. At the end of the second period, the needles were cleaned from the lambs' mouths, and alfalfa hay entirely free from needle grass was chopped, and fed to them during the remainder of the test. This needle grass, causing the lambs to get sore mouths in the chopped hay lot, checked their consistent gains, thus the comparison between long versus chopped hay must be repeated before recommendations can be made.

The first month, the lambs that were fed the chopped alfalfa hay, consumed an average of 2.86 pounds per day, and made an average monthly gain of 12.2 pounds, while the lambs receiving the long alfalfa hay consumed less hay, or an average of 2.51 pounds per day, and only made an average monthly gain of 9.4 pounds. During the second month, the lambs being fed the chopped alfalfa hay began to get sore mouths, and thus did not eat as much hay per day as the lambs getting long hay, and made decidedly less gains. During the third month, or final feeding period, the gains were practically the same in each lot.

In figuring the feed cost per pound of gain, the long alfalfa hay was charged at \$6.00 per ton, and the chopped hay at \$7.00 per ton. The lambs were charged up with the hay "offered," not just the hay "consumed."

GRAIN HAY

Grain hay proved to be decidedly inferior to alfalfa hay in this lamb fattening trial. The lambs fed grain hay only made one-half of the total gain made by the lambs getting alfalfa hay. This slow gain cost more per pound, and the lambs were not as well finished at the end of the feeding period, and on the same market they would sell at some 50 to 75 cents per cwt. less than the alfalfa hay lambs. They were graded as "medium" lambs.

To mention the figures, the lambs in Lot 3, getting chopped grain hay with the same grain ration, gained only 13.1 pounds per head in the 88 day feeding period, while the lambs in Lot 1, being fattened on chopped alfalfa hay and whole barley, made a total gain of 25.2 pounds per head. On account of the very slow gains made by these grain hay lambs, the feed cost was 5 cents per pound of gain more than the feed cost of the lambs getting the same grain, but with alfalfa hay.

The grain hay fed was beardless barley. Although the grain hay was bright and of good quality, the lambs did not eat very much of it. The lambs only consumed an average of 1.35 pounds per day, which was practically a pound per day less than the lambs consumed of long alfalfa hay.

PEAVINE SILAGE

"Peavines," the by-product of the pea canning industry, furnished certain Oregon livestock men with a new and valuable feed. Very little definite information is available as to how best to feed the "peavines," and how their feeding value compares with that of other available feeds.

To gain some information of their feeding value, and how best to feed them, the Experiment Station trucked some "peavines" direct from a viner in the Milton-Freewater country to Union, and run the vines through a hay chopper and trampled them into a trench silo. The "peavines" changed into "peavine silage," which was in good condition when it was fed some two months later.

Three lots of lambs were fed a grain ration of whole wheat, varying amounts of alfalfa hay, together with all of the "peavine silage" they would clean up.

When the "peavines" were fed in the ration with one pound of chopped alfalfa hay per head per day, and whole wheat, then the "peavines" had a feeding value of practically one-third that of alfalfa hay. Fed in this ration, the lambs consumed 3.7 pounds of "peavines" per head per day. To quote the figures, 14.20 pounds "peavines" equaled or replaced 4.81 pounds alfalfa hay.

When the "peavines" were fed with less than one pound of chopped alfalfa hay per head per day, the lambs did not make satisfactory gains.

The following table will show the comparative results of the different "peavine" rations.

Lambs Weighed 78 Pounds at Start
Fed 88 days

	Peavines Wheat $\frac{1}{2}$ # Cut Alfalfa Hay Daily	Peavines Wheat 1# Cut Alfalfa Hay Daily
Total Gain	13.7	26.3
Daily Gain	.156	.299
Selling Weight	91.7	104.3
Daily Feed:		
Hay		1.11
Peavines	4.39	3.71
Wheat	1.31	1.35
Feed Cost Per Pound Gain	\$0.114	\$0.073

The slow gains made by the lambs getting no hay, also by the lambs getting only one-half pound of hay per day, made their feed cost per pound gain \$0.114 and \$0.104 respectively. The rapid gains of the lamb in the lot receiving one pound alfalfa hay per day during the feeding period, made the cost of the gain \$0.073 per pound.

The lambs from the lot getting the one pound of alfalfa hay per day, graded "choice," while the other lots graded "medium" - very little difference between the two low lots.

STOCK CARROTS

At the end of the first thirty-day feeding period, the lambs in the grain hay lot were making such poor gains that it was evident that something had to be added to improve this ration. It was decided to feed stock carrots, a cheap succulent feed, to part of the lambs. The forty lambs, getting the grain hay and barley, were divided into two equal lots - twenty of these lambs were continued on the grain hay and barley, and the other twenty lambs were fed stock carrots in addition to the grain hay and barley. The lambs getting carrots started to make excellent gains as soon as the carrots were added to the ration. If the additional gain of the lambs was credited to the carrots, they would have a feeding value of \$12.40 per ton. This does not include the value of some hay replaced by the carrots.

The lambs relished the carrots, and consumed an average of 2.01 pounds carrots per head per day.

The following table shows the comparative results of the two lots.

Lambs Weighed 81 Pounds at Start

Fed 58 Days

	Barley Cut Grain Hay	Barley Cut Grain Hay Carrots
Total Gain	9.4	16.8
Daily Gain	.162	.290
Selling Weight	90.4	97.8
Daily Feed:		
Hay	1.29	1.17
Barley	1.52	1.52
Carrots		2.01
Feed Cost Per Pound Gain	\$0.125	\$0.076

WHEAT CHAFF

Wheat chaff is available as a sheep feed in many locations in Eastern Oregon. It is rated as a valuable feed, but very little information is available as to its value in a lamb feeding ration.

Stock molasses was poured over the wheat chaff at the rate of one-half pound per head per day to increase the palatability of the wheat chaff. The molasses was diluted with water at the rate of one quart warm water to one gallon of molasses. This seemed to be the best proportion - if more water was used, the molasses mixture became too thin, and the lambs did not like it,

and there was also more waste. However, at the rate suggested, it was a good thick mixture that worked well into the chaff and was relished by the lambs. The grain fed with this ration was whole wheat. Lambs in this lot made very slow and unsatisfactory gains. At the end of the first month, they had made a monthly gain of only 7.4 pounds per head on all of the wheat chaff they would eat, together with one-half pound molasses, and wheat, as compared to 12.9 pounds for lambs receiving alfalfa hay and the same grain ration. At the end of the second month, the gains were even smaller, and to help this lot of lambs, one pound of chopped alfalfa hay per head per day was added to their ration. After the alfalfa hay was added, the lambs made very satisfactory gains, and the results of this feeding trial proved that some alfalfa hay or other roughage must be fed with wheat chaff to make it a satisfactory roughage for lamb fattening.

SALT REQUIREMENTS

The lambs consumed an average of practically one pound salt per head per month. The lambs that were making the best gains consumed the largest amounts of salt. To illustrate, the forty lambs getting alfalfa hay and barley and making good gains, consumed 114 pounds of salt during the 88 day feeding period, while the forty lambs getting grain hay and whole barley, and making slow gains, only consumed a total of 96 pounds.

DEATH LOSS

Two lambs died during this feeding trial (cause unknown).

This death loss was less than one per cent.

The lambs that were well finished made less shrinkage enroute to market than the lambs that were not as fat.

The average shrinkage of the lambs enroute to Portland was six per cent. The shrinkage was calculated by using the "full weight" of the lambs out of the feed lots at Union, and the "selling weight" at North Portland.

FEED ANALYSES

Feed	% of Crude Protein	% of Calcium	% of Phosphorus
Long alfalfa hay (first cutting)	13.89	1.53	.16
Chopped alfalfa hay (second cutting)	14.01	1.36	.17
Wheat chaff	4.38	.35	.06
Barley hay (chopped)	5.78	.48	.13
*Peavine silage (dry)	11.95	1.72	.19

*Peavine silage: 69.7% moisture.

Above feed analyses furnished through courtesy of Dr. J. R. Haag, Nutrition Chemist, Oregon State College.

*LAMB FEEDING

40 Lambs Per Lot - Weighing 78 Pounds at Start - Fed 88 Days

Per Head Basis

	Lot 1	Lot 2	Lot 3	Lot 4	Lot 5	Lot 6
	Barley	Wheat	Barley	Wheat	Wheat	Barley
	Cut	Cut	Cut	Cut	Molasses	Long
	Alfalfa	Alfalfa	Grain	Alfalfa	Wheat	Alfalfa
			Hay	Peavines	**Chaff	
Total Gain	25.2	26.0	13.1	26.3	20.1	27.4
Daily Gain	.286	.295	.149	.299	.228	.311
Daily Feed:						
Hay	2.08	2.11	1.35	1.11	1.00	2.36
Grain	1.35	1.35	1.35	1.35	1.35	1.35
Peavines				3.71		
Wheat Chaff					2.24	
Molasses					.50	

The "cut" alfalfa hay was "chopped" with lawn mower type mill (not hammer mill). The wheat and barley were fed whole. The wheat chaff was from a field of Hybrid 128 (winter wheat, yielding about 45 bushels per acre) grown near the Station. The molasses was diluted with hot water at rate of one gallon of molasses to one quart of water. The lambs in Lots 1, 2, 3, and 6 were fed all of the hay they would "clean up" before the next regular feeding period.

*The lambs were fed by Otto Schuck.

**Last 24 $\frac{1}{2}$ days one pound of cut alfalfa hay per head per day was fed.

LAMB FEEDING

Financial Statement (Per Head Basis)

	Lot 1	Lot 2	Lot 3	Lot 4	Lot 5	Lot 6
	Barley Cut Alfalfa	Wheat Cut Alfalfa	Barley Cut Grain Hay	Wheat Cut Alfalfa Peavines	Wheat Molasses Wheat **Chaff	Barley Long Alfalfa
Initial Value @ $6\frac{1}{2}$ Pound	\$5.07	\$5.07	\$5.07	\$5.07	\$5.07	\$5.07
Feed Cost:						
Hay	.70	.72	.48	.34	.09	.79
Grain	1.19	1.19	1.19	1.19	1.19	1.19
Peavines				.38		
Wheat Chaff					.10	
Molasses					.44	
Total Cost (Lamb and Feed)	6.96	6.98	6.74	6.98	6.89	7.05
Selling Weight, Pounds	103.0	103.8	90.4	104.3	98.4	104.4
*Total Selling Price	\$9.27	\$9.34	\$7.68	\$9.39	\$8.36	\$9.40
MARGIN	2.31	2.36	.94	2.41	1.47	2.35
Feed Cost Per Pound Gain	0.075	0.073	0.127	0.073	0.091	0.072

NOTE: *The choice lambs in lots 1, 2, 4, and 6 were valued at \$9.00 per cwt. at Union. This was deducting 75 cents freight and selling costs and shrinkage to North Portland, where the lambs sold at \$9.75 per cwt. The medium lambs in lots 3 and 5 were valued at \$8.50 per cwt. at Union.

**Last $24\frac{1}{2}$ days 1 pound of cut alfalfa hay per head per day was fed.

Feed Prices:

Long alfalfa hay @ \$6.00 per ton
 Cut alfalfa hay @ \$7.00 per ton
 Cut grain hay @ \$7.00 per ton
 All grain @ \$20.00 per ton
 Peavines @ \$2.00 per ton
 Wheat chaff @ \$1.00 per ton
 Molasses @ \$20.00 per ton

CONCLUSIONS

Alfalfa hay fed with either wheat or barley is a good practical ration for fattening lambs.

Lambs will consume an average of some $2\frac{1}{4}$ pounds of alfalfa hay per day.

Starting lambs on $\frac{1}{4}$ pound grain per day and working up to $1\frac{3}{4}$ pounds gave good results, and no death loss.

Grain hay and grain was a very poor ration, although the hay was of good quality.

Wheat chaff (from Grande Ronde Valley wheat) was not a satisfactory roughage for fattening lambs.

Peavine silage had a feeding value of practically one-third that of alfalfa hay when fed with 1 pound alfalfa hay per day and wheat.

Lambs consumed practically 1 pound salt per month.

---oOo---