T H E S I S .

C O M P A R A T I V E F E E D I N G
E X P E R I M E N T
B E T W E E N
B E L G I A N A N D G R A D E L A M B S.

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Introduction.

The object of this experiment was to compare the feeding qualities of Delaine Merino lambs and grade lambs. The latter were produced by crossing grade Merino ewes with a Shropshire ram. It would be reasonable to suppose that the grades would be better feeders than the full blood Merinos. In view of the fact that this idea is quite generally held throughout the State and that many such grades are fed by our Michigan farmers each year, we were led to conduct an experiment upon this line, ascertaining if possible whether it is an advantage to feed grades rather than the Merinos, and, if so, how great the advantage is.

The question is one of great importance to Michigan farmers who produce a large number of Merinos chiefly for their fleeces, which are as a rule much heavier and finer than those of the mutton breeds or of the grades produced by crossing the two breeds. Of course the Merino producer would prefer to keep his flock pure if there is no special advantage gained by crossing. On the other hand, if the grades proved to be much better feeders they could easily and cheaply be produced by crossing a ram of a mutton breed upon a flock of Merino ewes in case the Merino breeder wanted to sell part of his lambs for mutton.

For this purpose we selected ten Delaine lambs

ant ton grade lambs, and placed them in pens of the same size, containing similar feeding and watering facilities. The lambs were selected to compare well both in size and condition. They were weighed, tagged, and put in the pens on January 12, and the experiment was begun immediately.

We fed equal amounts of the same feed to each pen, and kept all the surrounding conditions identical. In this manner we obtained comparative results for the two classes of lambs. The experiment extended over a period of eight weeks, beginning on the 12th of January and ending on March 9th.

Lot 1 - Delaines.

Table 1 shows the weight of each lamb at 2 week intervals from the beginning to the end of the experiment. Also the total gains.

No. of animal.	Jan.12.	Jan.26.	Feb.9.	Feb.23.	Mar.9.	Total Gain.
17	" 62.5	" 65.5	" 67.5	" 74.0	" 76.5	" 14.0 "
10	" 59.5	" 65.5	" 61.	" 69.0	" 72.0	" 12.5 "
59	" 62.0	" 63.5	" 65.0	" 71.0	" 73.5	" 11.5 "
40	" 69.5	" 77.5	" 81.0	" 85.0	" 88.0	" 18.5 "
60	" 60.0	" 62.5	" 65.0	" 74.0	" 76.5	" 16.5 "
12	" 69.5	" 74.5	" 77.	" 84.0	" 88.0	" 18.5 "
52	" 69.0	" 70.	" 71.5	" 81.0	" 84.0	" 15.0 "
29	" 57.0	" 62.0	" 58.5	" 66.0	" 70.0	" 13.0 "
24	" 65.5	" 67.5	" 72.0	" 79.0	" 83.0	" 17.5 "
49	" 57.5	" 59.5	" 61.0	" 68.0	" 69.5	" 12.0 "
Totals-	632.0	"668.0	"679.5	"751.0	"780.0	"148.0

It is interesting to note in the table above that the lambs were fairly even in their gains, the highest being 18.5 and the lowest 11.5 pounds, and making an average of 14.8 pounds. This pen would appear to be a good representative lot for its breed.

Lot 2 - Grades.

Table 2 shows the weight of each lamb at 2 week intervals from the beginning to the end of the experiment. Also the total gains.

No. of animal.	Jan.12.	Jan. 26.	Feb.9.	Feb.23.	Mar.9.	Total Gain.
11	" 69.0	" 72.5	" 79.5	" 91.0	" 94.0	" 25.0 "
56	" 64.5	" 67.0	" 69.0	" 76.0	" 78.5	" 14.0 "
38	" 51.0	" 56.5	" 57.5	" 65.0	" 68.0	" 17.0 "
111	" 58.5	" 63.5	" 68.5	" 80.5	" 84.5	" 26.0 "
23	" 61.0	" 64.0	" 68.5	" 73.0	" 75.0	" 14.0 "
47	" 52.0	" 54.0	" 57.0	" 63.0	" 65.5	" 13.5 "
50	" 65.0	" 57.5	" 61.5	" 58.0	" 60.0	" -5.0 "
3	" 65.0	" 67.5	" 72.0	" 77.5	" 81.0	" 16.0 "
16	" 53.0	" 53.5	" 57.0	" 63.0	" 64.5	" 11.5 "
25	" 60.0	" 63.5	" 66.0	" 73.0	" 78.0	" 18.0
Totals-	598.0	"618.5	" 650.5	"719.5	" 749.0	"150.0

It might be noted in the above table that while one lost 5 pounds two gained 25 and 26 pounds. If we ignore these sports and take an average of those remaining, the results would be about even for the two lots.

Lot 1.

The following table shows the kinds and amounts of feed consumed, and the weights and gains produced during 3 weeks.

At the beginning of the experiment on January 13, Lot 1, or the Delaines, weighed 638 pounds, or an average of 63.8 lbs.

Periods..	Lbs. Hay.	Lbs. Corn.	Lbs. Oats.	Total Weight.	Total Gain for 2 Weeks.	Average Weight.	Average Gain for 2 Weeks.
Jan. 13-	"	"	"	"638.	"	"	"
2nd Week	" 140	" 84	" 41	"678.0"	36.0	" 68.80	" 3.6#
4th Week	" 140	" 96	" 56	"679.5"	11.5	" 67.95	" 1.15#
6th Week	" 154	" 112	" 56	"751.0"	71.5	" 75.10	" 7.51#
8th Week	" 147	" 103	" 56	"780.0"	29.0	" 78.00	" 2.9#
Total-	" 581	" 400	" 209	"	"148.0	" 71.96	" 5.54#

On March 9, Lot 1 weighed 780, making a gain of 148 pounds, or an average weekly gain of 1.77 pounds per head. The cost per 100 of gain was $4.60. In Lot 1 it took 392 pounds of hay and 411 pounds of grain to produce 100 pounds of mutton.

Lot 2.

The following table shows the kinds and amounts of feed consumed, and the weights and gains produced during 8 weeks.

At the beginning of the experiment on January 12, Lot 2, on the grades, weighed 599 pounds, or an average of 59.9 pounds.

Periods.	Lbs. Hay.	Lbs. Corn.	Lbs. Oats.	Total Weight.	Total Gain for 2 Weeks.	Average Weight.	Average Gain for 2 Weeks.
Jan. 12-	"	"	"	"599.0	"	" 59.90	"
2nd Week	" 140	" 84	" 41	"618.5	" 19.5	" 61.85	" 1.95#
4th Week	" 140	" 96	" 56	"659.5	" 39.0	" 65.95	" 3.90#
6th Week	" 154	" 112	" 56	"719.5	" 60.0	" 71.95	" 6.00#
8th Week	" 147	" 108	" 56	"749.0	" 29.5	" 74.90	" 2.95#
Total-	" 581	" 400	" 209	"	"150.0	" 68.73	" 3.70#

On March 9 Lot 2 weighed 749 pounds, making a gain of 150 pounds, or an average weekly gain of 1.35 pounds per head. The cost per 100 pounds of gain was $4.54, and it took 387 pounds of hay and 406 pounds grain to 100 pounds of gain.

Lot 1.

Debits.

10 lambs	632 lbs.	at $.04- - - - - - - - - -	$25.28
Hay	581 "	" $8.00 per ton- - - - -	2.32
Corn	400 "	" $ .40 per bu.- - - - -	2.36
Oats	209 "	" $ .25 " " - - - - - - -	1.64
	Total expenditures- - - - - - - -		-$32.10

Credits.

10 lambs 730 lbs. at $.05- - - - -	$39.00
Total gain- - - - - - - - - - - - - - -	-6.90
Total average gain- - - - - - - - - -	.69
Per cent realized on capital invested for 2 months- - -	21.4%

Lot 2.

Debits.

10 lambs	599 lbs.	at $.04- - - - - - - -	$23.96
Hay	931 "	" $3.00 per ton- - -	2.32
Corn	400 "	" $.40 per bu.- - - -	2.36
Oats	209 "	" $.35 " " - - - -	1.64
		Total expenditures- - - - -	$30.78

Credits.

10 lambs	749 lbs. at $.05- - - -	$37.45
Total gain- - - - - - - - - - - - -		6.67
Total average gain- - - - - - - -		.67

Per cent realized on capital invested for 2 months-21.3%

Results.

I might say that at the beginning and all through the experiment the Delaines had the advantage, in that they were, in appearance, more thrifty to start with and that their results were not lowered by the presence of a runt. Lot No. 2 averaged 59.9 pounds on January 12 against an average of 63.8 pounds for Lot No. 1, both lots being approximately of the same age. This shows plainly that these lambs were from the first at a slight disadvantage. Moreover, Lot 2 contained a runt that lost 5 pounds during the experiment, thus appreciably lowering the results! We must also note that this Lot contained 2 extraordinary good feeders which would offset the poor one.

You will notice that the average weekly gains are rather low in both lots; the average weekly gain of Lot 1 being 1.77 pounds, and that of Lot 2 being 1.85 pounds. This is due to the season, which was an unusually poor one for lamb fattening. Lot 1 made the poorest gain from January 26 to February 9, during which period the average weekly gain was only .57 pounds. The lowest weekly gain made by Lot 2 was .97 pounds from January 12 to January 26. The largest weekly gains made were by Lot 1,- 3.75 pounds. The lowest weekly gain of Lot No. 2 was

3.45 pounds. These large gains were made during the two weeks of very cold weather extending from February 9 to February 23. The numerous warm spells that occurred during the experiment kept the ration lower and had a tendency to throw the animal off feed; otherwise the lambs might have consumed much more feed and made much better gains.

Although it would be unsafe to draw general conclusions from the results of one experiment, this experiment is one of much interest and importance in that it was carried on with lambs similar to those fed by the average farmer. The feeds being corn, oats and hay, are the most commonly fed in Michigan. The lambs were confined in rather small pens of the same size, in a large airy barn. They were fed and watered morning and evening, and allowed to rest through the day. The care given them was about equal to that given to the animals on the average farm. The manure was drawn out upon the fields at intervals, and was estimated to offset the work of feeding.

(Feeds). The hay was of a very poor quality, being very coarse clover. It was valued at $8.00 per ton, which was a very liberal price. It was all weighed accurately at each feeding. 581 pounds were fed to each lot during the experiment, each lot consumed in addition 400 pounds of shelled

corn and 209 pounds of oats. The corn and oats were of good quality, Yellow Dent and American Banner. The ratio of corn to oats was about 2 to 1. The feed boxes were kept clean, all the remains being swept out each time before feeding. The water was supplied in new zinc pails of the same size. They were carefully rinsed out each morning and evening before being filled. Rock salt blocks were kept constantly before the lambs.

The experiment proved for the same question that the grade Delaine lambs were better feeders than the full blooded Delaines. Of course other experiments along the same line will be required before we can form any general and definite conclusions. To any conscientious student who intends to raise or fatten lambs in the future, such an experiment is of the highest value. It enables him to put into practice the technical work of the Agricultural class-room. The carrying on of such an experiment is also of inestimable to one who intends to teach any subject connect with live stock, or one who aspires to a position in an Experiment Station; while the training derived from such work is of great value to a man in any walk in life.

The importance of this and of similar experiments becomes obvious when one sees its practical significance to lambfeeders and to feeders. Grades

[illegible] grade ewes and the grade ram can be purchased at a cheaper rate than can full blooded sheep. If they fatten as well or better we want to know it and we can stock our fattening pens accordingly. If they fatten much better the farmers can easily cross their Merino ewes with rams of the mutton breeds, and at the same time have the advantages gained from feeding good feeders and shearing good heavy fleeces from the Merino flock of ewes.

While Lot No. 2 comes out ahead in this experiment the results are so close that we would not be justified in saying that grades are better feeders than the full full blooded Delaines.. The grades weighed 43 pounds less in the beginning than did the Delaines, yet both lots were fed the same amount of hay and grain. The grades, however, utilized their feed a little better than the Delaines, they requiring 382 pounds of hay and 406 pounds of grain to produce 100 pounds of mutton, against 392 pounds of grain to produce 100 pounds of mutton in Lot No. 1.