

THESIS

Comparison of Western
And Michigan Lambs

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1902

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SENIOR AGRICULTURAL THESIS.

COMPARISON OF

WESTERN AND MICHIGAN LAMBS.

By

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Warren J. Geib.

1902.

B.S.

Michigan Agricultural College.

THESIS

Introduction.

Sheep raising is one of the great agricultural industries of this country. The breeder of this class of live stock, as well as the breeders of cattle, horses, and swine, have bent every energy in their efforts to produce perfect animals. The success which has thus far been attained in this industry is very evident, and those who have been instrumental in the evolution of the enterprise should be congratulated. For the man who can, by careful selecting, breeding and feeding, produce better animals than those with which he started, is as worthy of praise as he who is able to increase the quantity and quality of fruit produced from an acre of ground.

Those who are interested in sheep production may be divided into three classes.

First we have the breeder of pure bred stock. He endeavors to take at least one breed and by careful selection and breeding build up and establish a type which shall conform to the requirements of the breeder's association to which he may belong. This class is a comparatively small one, for there are but few men who thoroughly understand the principles of stock breeding and are capable of selecting in such a way as to get the best results.

The second class is much larger than the first and includes all those who raise sheep which are not thoroughbreds. The sheep are bred and fed for the wool and mutton they will produce and but little thought is given to the fancy points which are always considered by the breeder of pure bred stock.

The third class does not include breeders at all but simply those who buy sheep for the purpose of fitting them for market. They are not particularly interested in thoroughbreds, neither are they interested to a great extent in the breeding of grade stock. Their chief object is to secure good feeders at reasonable prices and by careful, economical feeding produce an article that will bring the highest price in the market. It has been demonstrated that certain crosses will produce better feeders than others, and in selecting stock this fact is taken into consideration.

The man who makes a business of feeding does not attempt to raise the standard of breeding by engaging in it himself. He may, however, demand a higher grade of sheep of the man from whom he purchases, and in this way encourage more careful breeding.

It is to this last class that this experiment will be of value. An attempt has been made to solve a problem which has never before been so carefully considered by any of the experiment stations of the country.

Objects of the Experiment.

Throughout the state there are many farmers who engage in feeding lambs for market during the winter months. Many of these lambs are brought from the western ranges to the Chicago market, where those not fit for the block are sold to the farmers of neighboring states who put them in proper condition. The other lambs which are fed are native born, that is, they are bred in the state. A large number of both classes of lambs are fed every year and the question which confronts the farmer is this. Is there a larger profit in feeding lambs from the west than there is in feeding home bred lambs. If there is any difference, even though it is small, the farmer should know it. The first object of this experiment then, is to compare lambs from the two regions and thus answer this question. The second object is to determine the relative value of several grain rations.

Since there are so many farmers of the state financially interested in the question of lamb feeding, the writer has certainly been justified in devoting considerable time to an experiment which, it is hoped, will solve this problem satisfactorily.

Plan of the Experiment.

The experiment was conducted in the grade herd barn at the Agricultural College. For the past two

years this building has been used as a sheep barn.

A lot of twenty-five western lambs was selected and placed in a pen in this barn. In a similar pen a lot of twenty-five Michigan lambs was placed. The two lots were fed and cared for in exactly the same way throughout the experiment.

The experiment continued for ninety days during which time three different grain rations were fed. For the first thirty days (Period I) the lambs were fed on whole corn and bran, mixed in the proportion of two pounds of corn to one pound of bran. One pound per day per lamb was fed during this period.

During the second thirty days (Period II) the grain ration consisted of cornmeal and bran, mixed in the proportion of two pounds of cornmeal to one pound of bran. One pound per day per lamb was fed during this period.

For the third thirty days (Period III) whole oats and bran were fed. The feed was mixed in the proportion of two pounds of oats to one pound of bran. The amount fed during this period was increased to one and one-half pounds per lamb per day.

As roughage the lambs received all the clover hay they would eat. No roots, silage or succulent feed of any kind was given them. The lambs were fed twice each day and watered three times. The grain was carefully weighed out before each feed so that no more nor

less than the proper amount was ever given. No account was kept of the amount of hay given to each lot, but as the hay was weighed before it was put into the barn, we know the whole amount eaten by both lots.

The lambs were carefully weighed before the experiment began and each week thereafter. They were also weighed at the close of each period. For the first three weeks the weighing was done on the large stock scales in the piggery but during the remainder of the experiment all the lambs were weighed separately on small Buffalo scales. This last method was found to be just as accurate, as quickly and nearly as easily done as the first. The change was made because the large scales were out of repair part of the time.

Tables on the following pages show the gains which were made during the experiment.

History and Breeding of the Lambs Used.

The western lambs were purchased from Clay, Robinson & Co., of Chicago. They were bred and raised on the range of Deneck and Wright of Casper, Wyoming. They were dropped between the 1st and 20th of May and at the age of one month were trailed up the mountain to the elevation of 7000 ft. where they remained until time of shipment to Chicago. These lambs, with others, were purchased in Chicago on October 7 and brought immediately to the College. On their arrival they were weighed,

dipped and placed in the pasture lot.

The rams used in breeding on the range, from which the western lambs came, were from a Shropshire Merino cross. The ewes were Oregon Merinos. The lambs would then be about one quarter Shropshire blood and three quarters Merino.

The Michigan lambs were bought from Frank Watson, a drover of Lansing, Mich. They were dropped between the 15th of March and the 1st of April.

They were nondescript farmers' lambs with a predominance of Hampshire blood.

From the time the lambs arrived at the College, until the experiment began they were kept in the pasture lot. No grain was fed during this time.

On November 30 the lambs of both lots were weighed and the experiment began on the morning of Dec. 1st.

Prices of Feed.

The prices used in figuring the cost of the feed for the experiment were as follows:

Bran per ton,	\$20.00
*Corn Meal per ton,	\$20.35
Shelled corn per bu.	.55
Oats per bu.	.40
Clover hay per ton,	\$6.00

*Two cents per bushel was added to the price of shelled corn to pay for the grinding.

The results of the experiment are tabulated in the following tables:

Table I gives the weights as taken each week, also the weekly gain or loss of each lot.

Table II gives the weights for each period, the gains for each period and the average weights of the lambs for each period.

Table III shows a comparison of cost in producing gains on the two lots.

Table IV gives the cost of feed for each period.

Table I.

Date of weighing	Weight of Mich. lambs	Weekly gain or loss	Weight of West. lambs	Weekly gain or loss.
Nov. 30,	1948		1577	
Dec. 7,	2003	+55	1604	+27
" 14,	2055	+52	1655	+51
" 21,	2080	+25	1673	+38
" 28,	2195	+115	1776	+103
Jan. 4,	2188	-7	1803	+27
" 11,	2196	+7	1795	-8
" 18,	2309	+113	1992.5	+97.5
" 25,	2361	+72	1961.5	+59
Feb. 1,	2340.5	-40.5	1968.5	+17
" 8,	2384.5	+44	2071	+102.5
" 15,	2426	+41.5	2043	-28
" 22,	2497.5	+71.5	2140.5	+97.5
" 28,	2533	+35.5	2148.5	+8
Total gains		584		571.5

Table II.

Date of weighing	Wt. of lambs	Gains for each per-iod.	Aver. weight.	Wt. of lambs	Gain for each per-iod.	Aver. weight.
Nov. 30	1948		77.9	1577		57.7
Dec. 30	2167	219	86.6	1755	178	63.
Jan. 29	2290	123	91.6	1938	183	77.5
Feb. 28	2533	243	101.3	2146.5	210.5	83.9
		585			571.5	

Table III.

Michigan Lambs.

Periods	Gains.	Cost of Grain fed.	Grain fed for 100# gain.	Cost of 1# gain.
I.	219	\$7.41	342.4	\$.034
II.	123	7.585	609.7	.061
III.	243	13.125	491.7	.054
	585	\$26.12	448.7	\$.048

Western Lambs.

Periods	Gains.	Cost of Grain fed.	Grain fed for 100# gain	Cost of 1# gain.
I.	178	\$7.41	421.3	\$.042
II.	183	7.585	409.8	.041
III.	210.5	13.125	534.4	.062
	571.5	\$26.12	457.5	\$.49

Table IV.

Period	Grain Fed			Cost of Feed.		
	Bran	Shelled corn	Hay Fed	Grain	Hay	Total
I.	500	1000	4500#	\$14.82	\$13.50	\$28.32
		Corn Meal				
II.	500	1000	4500#	15.17	13.50	28.67
		Oats				
III.	750	1500	4500#	26.25	13.50	39.74
Cost of feed for entire experiment						\$96.73

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that proper record-keeping is essential for transparency and accountability, particularly in financial matters. The text notes that without reliable records, it is difficult to track progress, identify issues, and make informed decisions.

2. The second part of the document outlines the specific steps and procedures for implementing a robust record-keeping system. This includes identifying the types of records that need to be maintained, determining the frequency of updates, and establishing clear roles and responsibilities for data entry and review. The document also highlights the importance of using standardized formats and templates to ensure consistency across all records.

3. The third part of the document addresses the challenges commonly associated with record-keeping, such as data loss, corruption, and unauthorized access. It provides practical advice on how to mitigate these risks, including the use of secure storage methods, regular backups, and access controls. The text also discusses the importance of training staff on proper record-keeping practices and the consequences of non-compliance.

4. The fourth part of the document discusses the benefits of a well-maintained record-keeping system. It notes that accurate records can improve decision-making, enhance communication, and provide a clear audit trail. The document also mentions that proper record-keeping can help in identifying trends, patterns, and areas for improvement, leading to more efficient operations and better overall performance.

5. The fifth part of the document provides a summary of the key points discussed and offers final recommendations. It reiterates the importance of record-keeping and encourages the implementation of the outlined procedures. The document also mentions that ongoing monitoring and evaluation are necessary to ensure the system remains effective and up-to-date.

From a study of Table I we find that during two weeks of the experiment both lots lost in weight. During the week from Dec. 26 to Jan. 4 the Michigan lambs lost 7 $\frac{1}{2}$ and from Jan. 25 to Feb. 1 they lost 39.5 $\frac{1}{2}$. From Jan. 4th to 11th the western lambs lost 6 $\frac{1}{2}$ and from Feb. 8th to 15th they lost 28 $\frac{1}{2}$.

The losses with the Michigan lambs might be attributed to the change of feed. It will be noticed that the western lambs did not lose during the weeks in which the feeds were changed but the gains were below the average. It will also be noticed that the western lambs did not lose as much during their two weeks of failure as did the Michigan lambs. The westerns lost but 36 $\frac{1}{2}$ while the Michigans lost 46.6 $\frac{1}{2}$. On the whole the Michigan lambs gained 13.6 $\frac{1}{2}$ more than the western lambs.

We would conclude from this that the western lambs are better able to stand a change of grain than are the Michigan. Also that the gains of the western lambs, though not as large as for the Michigan lambs, are more uniform.

From Table II we see that the largest gains were made during the last period. This is due to the fact that the grain ration was increased from one to one and one half pounds per lamb per day. By a careful study we find that the entire gain during the last period was not in proportion to the extra grain fed.

For the amount of grain fed the Michigan lambs made the best gains when fed on whole corn and bran; the

western lambs when fed on corn meal and bran.

From a study of Table III we find that the most economical gains were made by the Michigan lambs. Taking the whole ninety days there is but little difference between the two lots, but for the separate periods there is a great difference. During the first period the Michigan lambs produced 100# gain from 342.4# of grain. This was done at a cost of 3.4¢ per pound, not counting the cost of hay. The western lambs for the same period produced 100# gain for 421.3# of grain at 4.2¢ per pound.

During the second period the western lambs produced one pound of gain for two cents less than did the Michigan lambs. During the third period the Michigans produced a pound of gain for .8 cents less than the westerns.

We would conclude from the figures given in this table that the Michigan lambs produce better gains and do it more economically than the western lambs.

Michigan lambs do the best when fed on whole corn and bran; western lambs do the best when fed on corn meal and bran.

It must be remembered that the cost of the hay is not considered in this table because the amount fed to each lot was not weighed separately. It is a fact, however, that the western lambs did not eat quite as much hay as the Michigan lambs. Since we do not know the exact weights of the hay for each feed, we dare not

say that these conclusion are entirely wrong for the difference between the two lots was very slight.

Financial Statement.

Cost of Michigan lambs @ \$4.35 cwt.-----	\$84.74
Cost of feed for Michigan lambs-----	<u>48.37</u>
Total cost of Michigan lambs-----	133.11
Selling price of Michigan lambs @ \$6.25 cwt.-----	<u>158.31</u>
Net gains for Michigan Lambs,-----	\$25.20

Cost of Western lambs @ \$4.00 cwt.+18.2 cents	
per head for transportation-----	\$67.63
Cost of feed for Western lambs-----	<u>48.37</u>
Total cost of Western lambs,-----	116.00
Selling price of Western lambs @ \$6.25 cwt.-----	<u>134.28</u>
Net gain for Western lambs,-----	\$18.28

At the close of this experiment the lambs were sold to a local butcher who had them sheared and then put on a grain ration of corn meal and bran mixed in the same proportion as in the experiment. $1\frac{1}{2}$ # per lamb per day was fed.

The Michigan lambs clipped 176#, an average of 7.04# per head.

The western lambs clipped 123#, an average of 4.92# per head.

1. The first step in the process of the scientific method is to make an observation or ask a question.
2. The second step is to do background research.
3. The third step is to form a hypothesis.
4. The fourth step is to test the hypothesis by conducting an experiment.
5. The fifth step is to analyze the data and draw a conclusion.
6. The sixth step is to communicate the results of the experiment.
7. The seventh step is to repeat the experiment to verify the results.
8. The eighth step is to publish the results of the experiment.
9. The ninth step is to have the results of the experiment reviewed by other scientists.
10. The tenth step is to use the results of the experiment to make a new hypothesis or to refine an existing one.
11. The eleventh step is to use the results of the experiment to make a prediction.
12. The twelfth step is to use the results of the experiment to make a model.
13. The thirteenth step is to use the results of the experiment to make a theory.
14. The fourteenth step is to use the results of the experiment to make a law.
15. The fifteenth step is to use the results of the experiment to make a principle.
16. The sixteenth step is to use the results of the experiment to make a rule.
17. The seventeenth step is to use the results of the experiment to make a guideline.
18. The eighteenth step is to use the results of the experiment to make a recommendation.
19. The nineteenth step is to use the results of the experiment to make a suggestion.
20. The twentieth step is to use the results of the experiment to make a proposal.
21. The twenty-first step is to use the results of the experiment to make a plan.
22. The twenty-second step is to use the results of the experiment to make a strategy.
23. The twenty-third step is to use the results of the experiment to make a policy.
24. The twenty-fourth step is to use the results of the experiment to make a procedure.
25. The twenty-fifth step is to use the results of the experiment to make a protocol.
26. The twenty-sixth step is to use the results of the experiment to make a standard.
27. The twenty-seventh step is to use the results of the experiment to make a norm.
28. The twenty-eighth step is to use the results of the experiment to make a convention.
29. The twenty-ninth step is to use the results of the experiment to make a custom.
30. The thirtieth step is to use the results of the experiment to make a tradition.
31. The thirty-first step is to use the results of the experiment to make a habit.
32. The thirty-second step is to use the results of the experiment to make a practice.
33. The thirty-third step is to use the results of the experiment to make a routine.
34. The thirty-fourth step is to use the results of the experiment to make a habit.
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62. The sixty-second step is to use the results of the experiment to make a practice.
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69. The sixty-ninth step is to use the results of the experiment to make a routine.
70. The seventieth step is to use the results of the experiment to make a habit.
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73. The seventy-third step is to use the results of the experiment to make a habit.
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76. The seventy-sixth step is to use the results of the experiment to make a habit.
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78. The seventy-eighth step is to use the results of the experiment to make a routine.
79. The seventy-ninth step is to use the results of the experiment to make a habit.
80. The eightieth step is to use the results of the experiment to make a practice.
81. The eighty-first step is to use the results of the experiment to make a routine.
82. The eighty-second step is to use the results of the experiment to make a habit.
83. The eighty-third step is to use the results of the experiment to make a practice.
84. The eighty-fourth step is to use the results of the experiment to make a routine.
85. The eighty-fifth step is to use the results of the experiment to make a habit.
86. The eighty-sixth step is to use the results of the experiment to make a practice.
87. The eighty-seventh step is to use the results of the experiment to make a routine.
88. The eighty-eighth step is to use the results of the experiment to make a habit.
89. The eighty-ninth step is to use the results of the experiment to make a practice.
90. The ninetieth step is to use the results of the experiment to make a routine.
91. The ninety-first step is to use the results of the experiment to make a habit.
92. The ninety-second step is to use the results of the experiment to make a practice.
93. The ninety-third step is to use the results of the experiment to make a routine.
94. The ninety-fourth step is to use the results of the experiment to make a habit.
95. The ninety-fifth step is to use the results of the experiment to make a practice.
96. The ninety-sixth step is to use the results of the experiment to make a routine.
97. The ninety-seventh step is to use the results of the experiment to make a habit.
98. The ninety-eighth step is to use the results of the experiment to make a practice.
99. The ninety-ninth step is to use the results of the experiment to make a routine.
100. The hundredth step is to use the results of the experiment to make a habit.

Conclusion.

From the work of the experiment the following conclusions have been drawn.

I. Michigan lambs make more economical gains when fed on whole corn and bran, than when fed on corn meal and bran or oats and bran.

II. Western lambs make best gains when fed on corn meal and bran. The difference between this feed and whole corn and bran being very slight.

III. Michigan lambs are more profitable feeders than are western lambs.

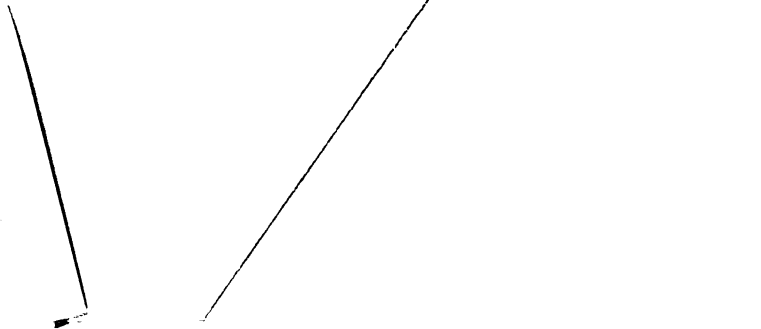
IV. Whole corn and bran makes a better grain ration for feeding lambs, than either corn meal and bran or oats and bran.

It must be remembered that these conclusions have been drawn from a single experiment and that under different conditions the results might be different. As all the work in connection with the experiment was carefully done, the writer does not hesitate in saying that the results are correct for the existing conditions.

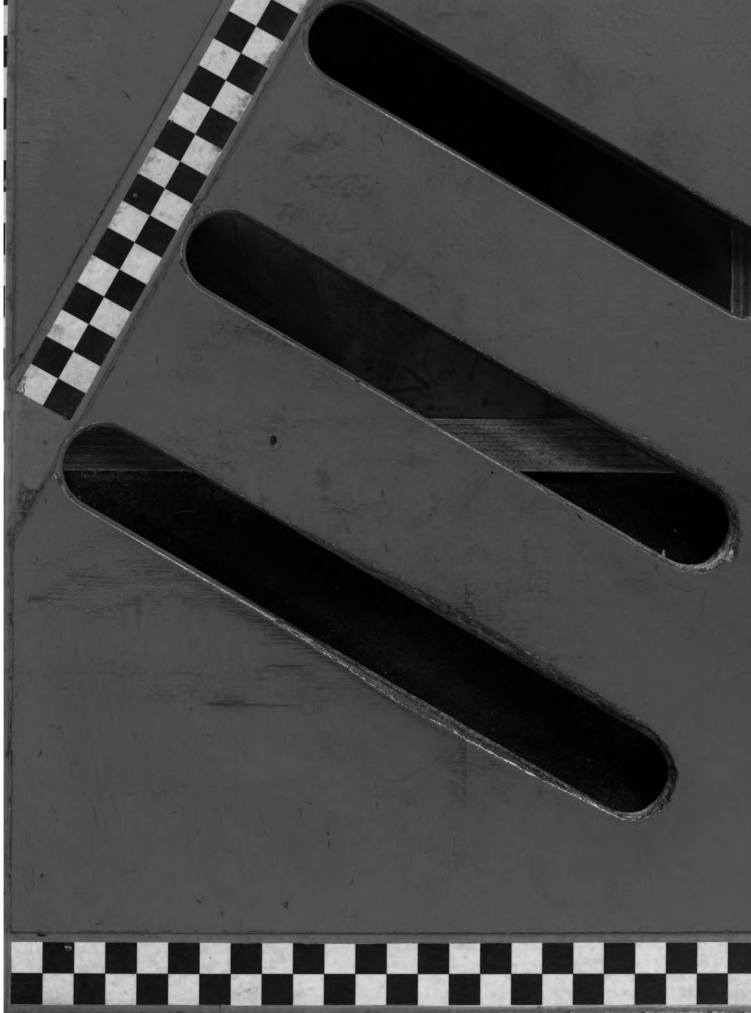
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