THESIS

Feeding + feeding stuffs

T H E S I S.

M E T H O D O F U S I N G C O R N C R O P
I N
F A T T E N I N G L A M B S.

by

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The Value of Different Rations in Fattening Lambs.

The Object.

The primary object of this experiment was to determine the relative value of three rations commonly fed to fattening lambs in this state. Other minor points of value and interest to the sheep feeder have presented themselves during the course of the experiment.

Feeds Used.

The different feeds used in composing the rations were as follows:

Ration one consisted of unhusked corn and clover hay. Ration two was made up of clover hay and ensilage with shelled corn for grain. The third ration was composed of clover hay and corn-meal. Aside from the feeds mentioned, a certain amount of oats was fed with each ration for the first six weeks of the experiment. In case of the ration given as number three shelled corn was substituted for corn-meal during the last five weeks of the feeding trial. The object of substituting corn for meal was to determine whether the lambs would make better gains on the whole grain than on the ground grain.

The Animals.

The animals chosen for the experiment were lambs purchased of farmers living in the vicinity of the College. They were grade Shropshires and good representatives of their class of lambs. They were in a thrifty condition when the feeding trial began. The

average weight at the beginning of the experiment was about seventy-eight pounds.

The Plan.

Out of a flock of about one hundred and fifty lambs, thirty as nearly equal in weight and feeding qualities as it was possible to get them, were chosen. These thirty lambs were then divided into lots of ten each. In dividing them into lots care was taken to get the individuals uniform in size in each lot and to have the lots as nearly equal in weight as possible. After being divided the lots were numbered one, two, and three, and each lot was weighed and the weights recorded. Each lot was then placed in a pen of suitable size and the feeding began. Number one received the ration consisting of unhusked corn and clover hay. Number two was fed the ensilage, clover hay and shelled corn ration, while number three received the corn-meal and clover hay. The lambs were accustomed to grain and indoor feeding by giving them small quantities of corn and oats in the bran for two or three weeks previous to the beginning of the experiment. The lambs were fed twice each day and at each feeding fresh water was given them. Salt was continually kept within their reach. They were allowed no exercise excepting such as they could get in the small feeding pens allotted to them.

The lambs were weighed for the first time on Thursday, Nov. 29, but were not fed on the experiment rations until Saturday, Dec. 8. The first nine days after being weighed each lot received a certain amount of corn, oats, and clover hay. After the lambs were once fed on their respective rations they received as much feed as they would consume without leaving any from one feeding time to the next. If any feed was left in the troughs the amount

was slightly reduced for a day or two.

The Tables.

To present to view the results of the experiment seven tables have been prepared. In making these tables the aim has been to give in figures everything that would be necessary to demonstrate the value, if any, of one ration over another according to the results obtained from the experiment. During the course of the feeding trial a record was kept of the weight of each food consumed daily and the lambs were weighed at intervals of two weeks throughout the experiment which lasted ninety-three days. The weights of the food consumed and the gains made by the lambs for every two weeks are shown in the tables. From these weights of the food and gains of the lambs, the average gains, average daily gains, total gains, cost per pound of gain, and the total cost for each period of two weeks have been determined. The total results were then arrived at by the same method employed in computing the semi-monthly results. It was not possible to determine the exact amount of grain consumed by lot one, because no weight could be made of the grain alone. The method used in computing the amount of grain was to find the per cent of ear corn in a certain weight of unhusked corn. The corn wasted by the lambs was picked up and weighed at the end of every week. These weights are recorded in table one under the head of waste corn.

Tables number one and two explain the results of the ten lambs comprising lot number one; the lot which received the unhusked corn and clover hay ration. Tables three and four illustrate the weights of feed consumed and gains made by lot two which received the ensilage, shelled corn, and clover hay ration. Tables five and six give the same illustration of the third lot which received the ration consisting of corn-meal and clover hay.

. Table number seven is a comparison of the financial summaries.

Ten Lambs. Lot I. Table I.

Dates	Ear Corn lbs.	Corn Fodder lbs.	Oats lbs.	Hay lbs.	Waste Corn lbs.	Ave. gain for two Wks. lbs.	Ave. daily gain lbs.	Total gain or loss lbs.	Cost per lb. of gain $	Total cost. $
Nov. 29	28.1		22.5	180						
Dec. 8	13	21.6	17.5	140				Lost 14		1.918
Dec. 15	69.25	82.1	35.	245	40	.35	.025	Gain 3.5	.5063	1.77
Dec. 29	100	120	31.5	210	11	4.35	.31	43.5	.0422	1.837
Jan. 12	215.45	258.54		175	43.5	4.7	.335	47.	.0403	2.313
Jan. 26	215.45	258.54		140	27.5	2.6	.185	26	.0837	2.176
Feb. 9	215.45	258.54		140	25.75	4.2	.3	42.	.0518	2.178
Feb. 23										
Mar. 2	107.73	129.26		70	9.5	1.6	.228	16	.0681	1.089
Total	969.43	1128.6	106.5	1300	157.25	16.4	1.174	164	.0803	13.264
Cost of Waste Corn										.398
After subtracting cost of waste corn									.0754	12.865

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Ten Lambs. Lot I. Table II.

	Weights	Prices	Cost
Ten Lambs	758 lbs.	.04½ per lb.	$34.11
Corn	969.43 lb	.20 per bu.	5.539
Corn Fodder	1128.60	$3.00 per ton	1.69
Oats	106.5	25¢ per bu.	.83
Hay	1300	$8.00 per ton	5.20
Total cost			47.37
Ten lambs after experiment	922	5¢ per lb.	46.10
Loss			1.27

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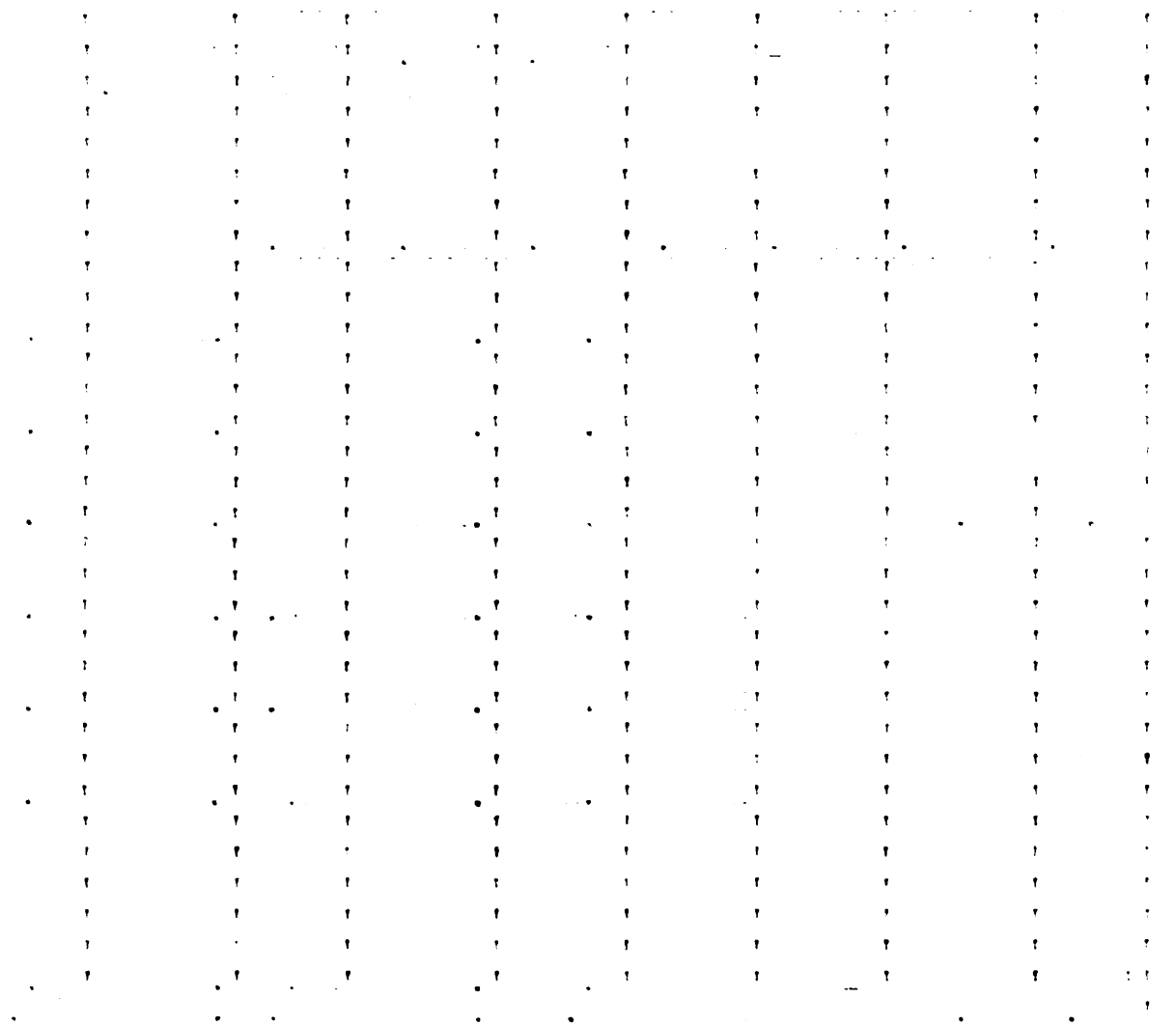
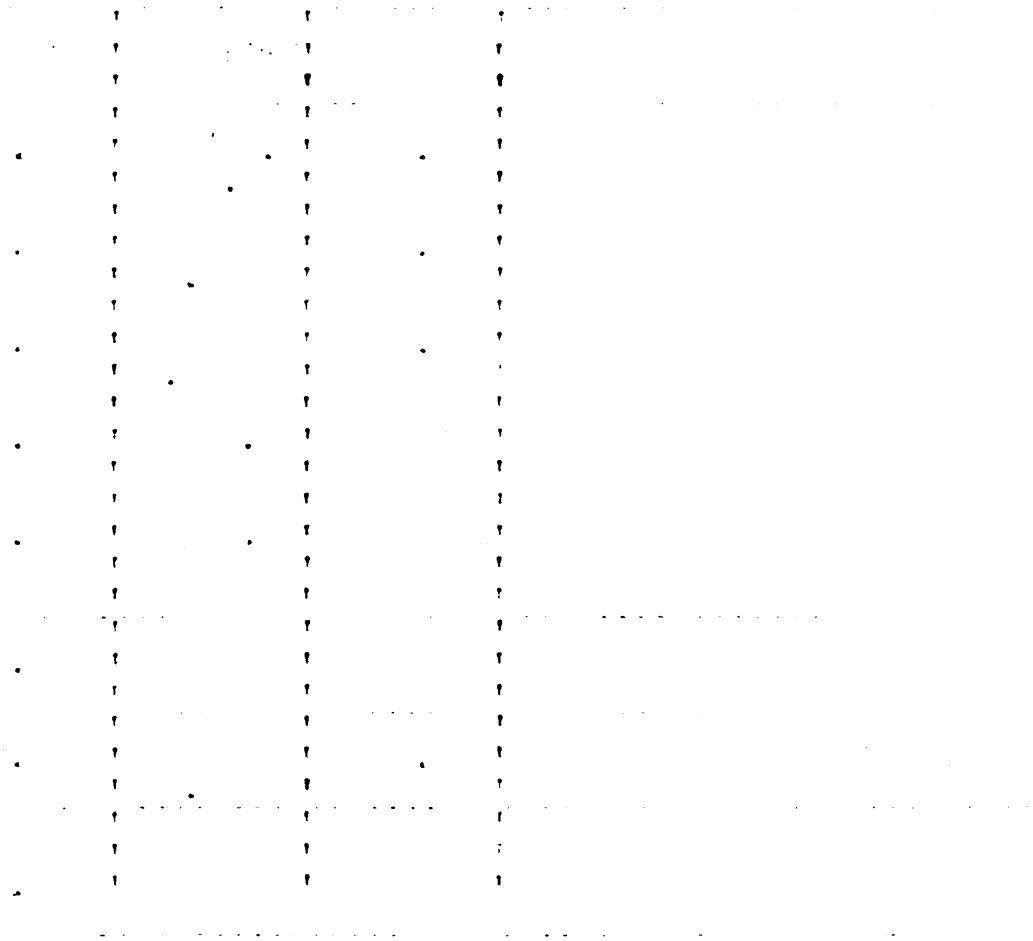
Ten Lambs. Lot II. Table III.

Dates	Corn lbs.	Oats lbs.	Ensilage lbs.	Hay lbs.	Aver. gains for two weeks lbs.	Aver. daily gain lbs.	Total gain lbs.	Cost per lb. of gain $	Cost $
Nov. 29	40	40	70	235	1.2	.075	12	.152	$1.8255
Dec. 15	56	35	210	210	.7	.05	7	.253	1.7759
Dec. 29	73.5	31.5	210	210	2.4	.171	24	.078	1.8732
Jan. 12	140		280	175	2.35	.167	23.5	.0872	2.05
Jan. 26	168		280	140	6.65	.475	66.5	.0317	2.11
Feb. 9	168		280	140	4.1	.292	41.	.0514	2.11
Feb. 23									
Mar. 2	84		140	70	1.85	.264	18.5	.0561	1.055
Total	729.5	106.5	1470	1230	19.25	.207	192.5	.0668	$12.85



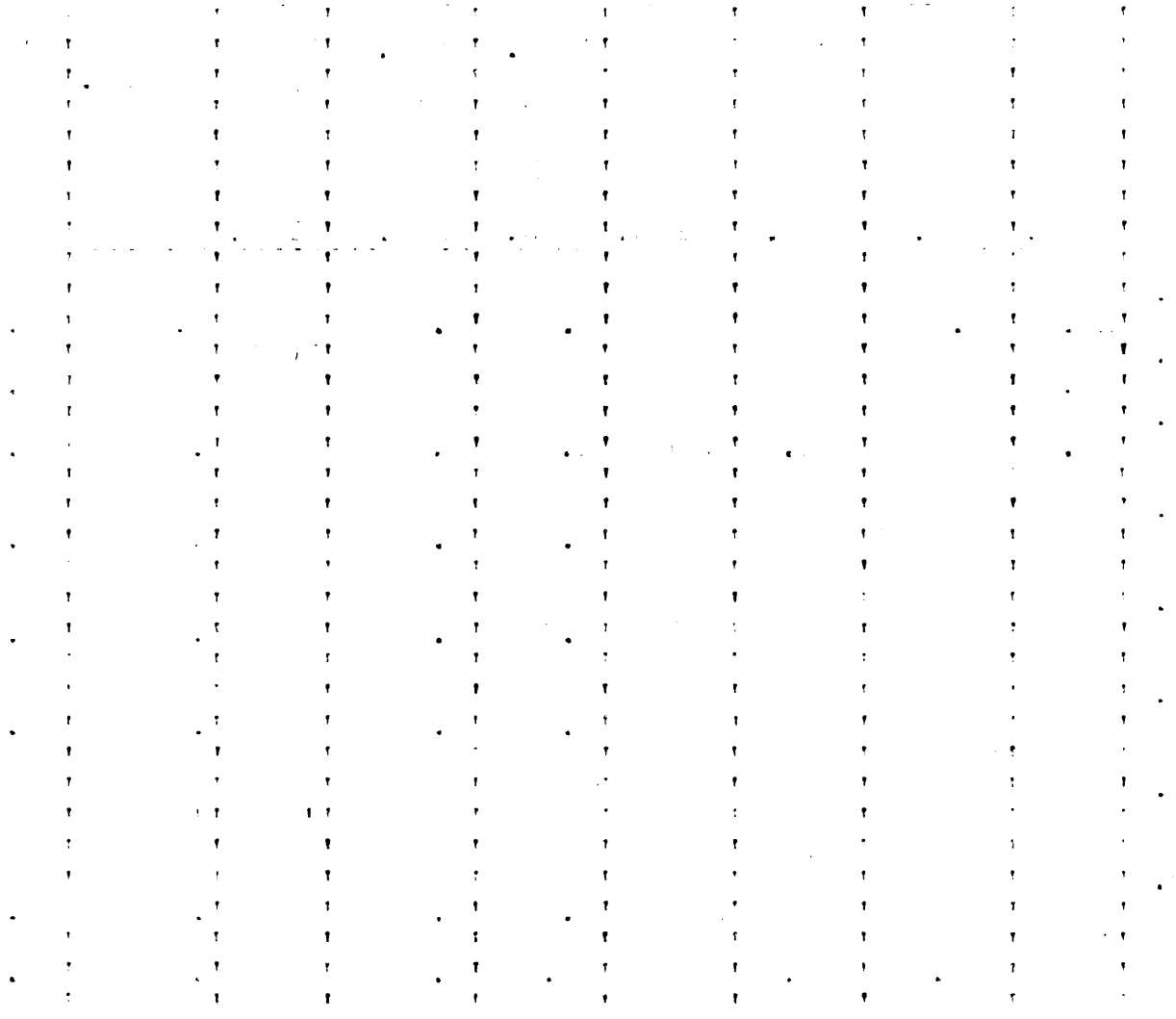
Ten Lambs. Lot II. Table IV..

	Weights	Prices	Costs
Ten Lambs	887.	$.04½ per lb.	$36.31
Corn	729.5	40¢ per bu.	5.21
Oats	106.5	25¢ per bu.	.86
Ensilage	1470	$2.50 per ton	1.83
Hay	1250	$8.00 per ton	4.92
Total cost			$49.13
Lambs after experiment	999.5	5¢ per lb.	$49.975
Profits			.845



Ten Lambs. Lot III. Table V.

Dates	Corn Meal lbs.	Corn lbs.	Ground Oats lbs.	Hay lbs.	Aver. gain for two weeks lbs.	Aver. daily gain lbs.	Total gain lbs.	Cost per lb. of gain	Cost
Nov. 29	17.5	22.5	40	320	.9	.056	9	$$.2273	$2.0465
Dec. 15	56.		35	280			Lost 4		1.8696
Dec. 29	61.5		31.5	280	1.8	.128	Gain 18	.1132	2.0382
Jan. 12	138			245	4.8	.343	48	.0482	2.3144
Jan. 26	124	60		210	4.6	.328	46	.0489	2.2534
Feb. 9		205		210	4.8	.342	48	.048	2.3042
Feb. 25							"	"	
Mar. 2		105		105	3.9	.557	39	.03	1.17
Total	447	392.5	106.5	1630	20.4	.219	204	.0674	13.757



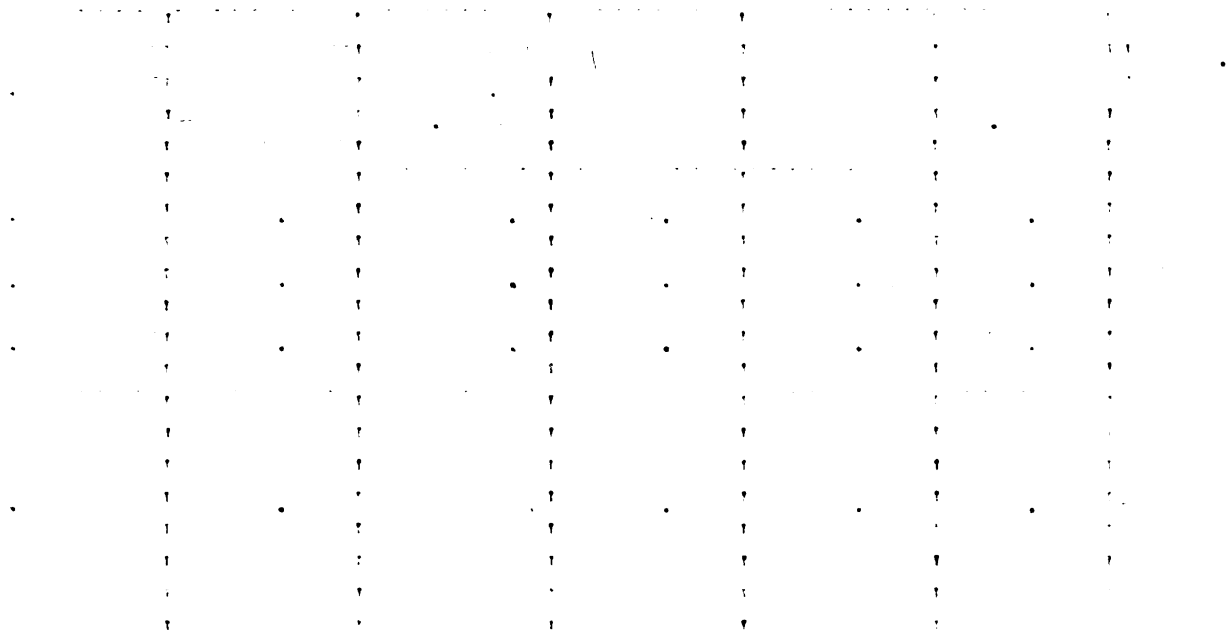
Ten Lambs. Lot III. Table VI.

	Weights	Prices	Costs
Ten Lambs	777 lbs.	4½¢ per lb.	$34.965
Corn	392.5	40¢ per bu.	2.803
Oats	40	25¢ per bu.	.312
Corn-meal--8¢ per 100 lbs. for grinding.	447.	40¢ per bu.	3.55
Ground oats " " " "	66.5	25¢ per bu.	.572
Hay	1630	$8. per ton	6.52
Total Cost			48.72
Ten Lambs after the experiment	981	5¢ per lb.	49.05
Profits			.33

Table VII. A Comparison of Lots I, II, and III.

No. of Lots	First Cost of Lambs.	Cost of Feed	Total Cost	Cost per lb. of gain.	Value at the end of experiment	Loss and Profits.
Lot I	$34.11	$13.26	$47.37	$.0808	$46.10	Loss $1.27
Lot II	36.31	12.83	49.13	.0666	49.97	Profit .84
Lot III	34.96	13.75	48.72	.0674	49.05	Profit .33
Lot I after subtracting cost of waste corn	$34.11	$12.36	$46.47	.0754	$49.05	Loss .37

The length of the experiment had been planned for just twelve weeks, but, as stated above, for a period of nine days after the first weight of the lambs was taken, all three lots were fed a ration of equal parts of corn and oats for grain and clover hay for coarse feed. On Dec. 8, each lot was fed on its respective ration for the first time, and so continued for the twelve following weeks. On Dec. 15, the lambs were weighed for the second time, and they were then weighed at the end of each succeeding two weeks. In the tables the results have been determined for each of the two weeks. The first nine days plus the first seven days of the regular experiment have been taken for the first period of two weeks.



The Results as Shown by the Tables.

Table one shows that during the first two weeks lot number one lost fourteen pounds. This loss was expected for the lambs consumed but very little of the unhusked corn for several days and most of them refused to eat any of it at first.

Lot two made the greatest gain during the first two weeks and their total cost of feed was the least for this period. Throughout the second period of two weeks lots one and two made but slight gains while number three lost weight. These small gains are due to warm and rainly weather which prevailed at the time. The next four weeks from Dec. 29 to Jan. 26, lots one and three made good gains as compared with number two during the same time. The reason that number two made such small gains was because the ensilage fed to them was not first class, it was taken from the bottom of one and top of another silo, and while it did not look bad it was probably more or less musty, at least the lambs refused to eat as much as they had been eating before. From Feb. 9, throughout the rest of the experiment there was nothing more to interfere. The weather was cold and all the other circumstances seemed favorable for the lambs to make good gains.

The last four weeks lot three was fed whole grain. As stated before this change was made to determine whether the lambs would gain best on whole corn or corn-meal. The trial in this case apparently shows that lambs do best on whole grain. The gain of the lot for the last seven days was thirty-nine pounds, or nearly four pounds per head per week. It was the largest gain made in any one week throughout the experiemnt. But this one test does not give sufficient evidence to warrant a definite conculsion as to

the value of whole corn over corn-meal. It may perhaps be inferred from this trial that it does not pay to go to the expense of grinding corn for fattening lambs.

Table number two represents the financial statement of lot one, table four gives the same of lot two, and table six that of lot three. By comparing tables one, three and five it will be seen that the ten lambs receiving the unhusked corn ration have made the least total gain with the highest cost per pound of gain. The lot receiving ensilage in their ration have made their gain at the least cost per pound, while they have made nearly as large a total gain as lot three which made the greatest total gain but the cost per pound was slightly higher than that of lot two.

Turning now to table seven or the table of comparison of the financial statement of the three lots, it will be seen that the cost of feed of lot one is nearly as great as that of lot three and that the total cost is less than that of either of the other two lots. Then by subtracting the total cost from the value at the close of the experiment, there is a loss of one dollar and twenty-seven cents ($1.27). The table also gives the results of lot one after the cost of the waste corn has been subtracted from the total cost and then there is a loss of only thirty-seven cents. But it seems that the waste corn should be charged up to the sheep just as if it had been eaten. For unless the feeding of unhusked corn could be so arranged as to utilize the waste it would be an absolute loss, excepting the manurial value that it would have. The total cost of lot two, and their cost per pound of gain is less than that of either of the other two lots. Their value at the end of the

experiment is greater than that of lot one and three. The profits are more than twice those of lot three which has a greater cost of feed, a little less total cost, and a slightly greater cost per pound of gain. The following conclusions may be drawn from the results of this experiment. There is a loss in fattening lambs on shock-corn especially when the cost per pound of the lambs at the beginning is but little less than the cost per pound at the end. Lambs receiving ensilage in their ration will eat less grain and lay on fat with less expense than those fed grain and hay alone. But it should be remembered that if this experiment were duplicated the results in case of lot two and three might be reversed. It is also doubtful whether the ensilage fed lambs would dress as high a percent as those fed on dry feeds, if not they would be worth less for the block thus buyers could not pay as much for them unless their quality of mutton should be superior to the other . One other thing seems to favor the ensilage rationn It was noticed that through the entire experiment not one of the lambs receiving ensilage went off of feed. Of the corn meal fed lambs, two refused to eat but very little grain for several days. While of the ten lambs fed on unhusked corn, getting off of feed seemed to be the principle reason that they did not make better gains. The unhusked corn appeared to be unpalatable to the lambs.

Owing to the low market value when the lambs were sold, the high price paid for them at the beginning and high price of feeds, it would seem from the results of the experiment that there was none or very little profit in feeding lambs. But had the market value at the close of the feeding trial been one-half cent higher,

a fair profit would have been realized even in case of lot one. The value of the manure will compensate for the time spent in feeding.

Price of Feeds.

Clover Hay, $8 per ton.

Corn Fodder, $3. per ton.

Ensilage, $2.50 per ton.

Shelled Corn, 40¢ per bushel.

Ear Corn, 20¢ per bushel.

Corn-meal, 40¢ per 56 lbs. plus 8¢, per 100 lbs. for grinding.

Oats, 25¢ per bu.

Ground Oats, 25¢ per 32 lbs. plus 8¢ per 100 lbs. for grinding.

First cost of lambs, 4½¢ per pound.

Market value at the end, 5¢ per pound.