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**Rations for Fattening Western
Yearling Sheep**

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RATIONS FOR FATTENING WESTERN YEARLING SHEEP

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The object of this experiment was to secure data concerning the relative value of various rations and under different conditions for fattening western yearlings. The results of these trials are grouped to show:

1. The economy of feeding nitrogenous supplements with shelled corn;
2. To determine the relative efficiency of clover and timothy hay as roughages;
3. To study the effect of corn silage when added to a ration of shelled corn and clover hay;
4. To determine the efficiency of a self-feeder;
5. To gather data which would throw some light on feeding in an open lot.

Sheep Used in the Experiment. The 140 yearlings which were used in this experiment were classed as Wyoming yearlings. They were selected from a band of feeding yearlings purchased from Starr Brothers of Boone county. They were in good medium feeding condition and all sheep were of good general health.

The 140 yearlings were selected especially for uniformity of size, quality and condition. They were divided into seven lots of twenty sheep each. These lots were divided uniformly as to size, quality and condition. The following rations were fed:

Lot I. Shelled corn and timothy hay.

Lot II. Shelled corn and clover hay.

Lot III. Six parts shelled corn; one part linseed oil meal (by weight) and clover hay.

Lot IV. Shelled corn, six parts; cotton-seed meal, one part (by weight); and clover hay.

Lot V. Shelled corn, corn silage and clover hay.

Lot VI. Shelled corn and clover hay; self feeder.

Lot VII. Shelled corn and clover hay without shelter.

All lots excepting Lot VII were fed in the sheep barn in pens $6\frac{1}{2}' \times 34'$ in size. Each pen had doors opening to the south into an exercise lot $6\frac{1}{2}' \times 61'$ in size. The sheep had the run of these pens

during favorable weather. Lot VII was fed in an open yard $6\frac{1}{2}' \times 61'$ in size east of the sheep barn. This yard afforded no protection from the weather excepting on the west where the sheep barn sheltered it from the west winds.

The feeding racks were ten inch grain troughs with a V-shaped hay rack arranged above so the hay would feed down into the grain troughs.

Feeds and Plan of Feeding. The rations were divided into two equal parts, half of which was fed at 7:30 a. m., and the other half at 4:30 p. m.

All lots were started on one-fourth of a pound of grain per head per day. This was gradually increased until by the end of the second week, they were receiving three times that amount, and by the end of the third week they were on a full feed. The appetites of the yearlings varied a little. In all cases they were given as much grain as they would clean up. They did not eat all the hay. Some of the coarser stems and a few weeds were refused; these were saved and weighed back.

The corn which was fed was good quality No. 2 corn. The linseed oil meal and the cottonseed oil meal both were of the best grades that could be obtained. The clover and timothy hay was choice native hay. It contained very little foreign grasses or weeds and was bright and well cured. The corn silage was a little sour as it was put up greener than it should have been, otherwise it was of good quality. In feeding the corn silage extreme care was taken not to feed any which was mouldy. Water was provided for each lot in galvanized iron tubs. The water was furnished by the University water system. Salt was kept before the sheep all the time.

Weight Records. Weights of each lot were taken on three consecutive days at the beginning and at the end of this experiment. The averages of the three weights taken on successive days at the beginning and at the end of the experiment were used as the initial and final weights. The second day of the three weighing days was used as the base date. Each lot was also weighed at the end of each week.

Buying and Selling Prices. The yearlings cost \$4.25 per hundred pounds on track at Columbia, Missouri.

The lots were all marked before shipping and sold separately at the National Stock Yards, East St. Louis, Illinois. This experiment was carried on during the winter of 1906 and 1907, which accounts for the low prices.

Grading of Carcasses. After the carcasses had been in the cooling rooms for twenty-four hours, they were inspected by representatives of the packing company and the superintendent of the cooling room. Each carcass of all seven lots was graded individually. The grades used were prime, good, medium or not so good, common and culls.

**SHELLED CORN AND CLOVER HAY
VS.
SHELLED CORN, LINSEED OIL MEAL AND CLOVER HAY.**

Corn is the basal ration of all feeding operations in the Middle West states, but the high average value of corn and hay in late years has led to efforts for increasing the efficiency of corn for fattening animals. The addition of a nitrogenous supplement to the corn has proven a good practice in many cases. This trial was made to study the results of the addition of one part linseed oil meal to six parts of shelled corn by weight as compared to a ration of corn. Clover hay was used as a roughness in both lots. Both lots of yearlings showed a keen, healthy appetite throughout the experiment. Neither lot was off feed at any time. Table I shows the results of this trial.

TABLE I. SHELLED CORN AND CLOVER HAY VS. SHELLED CORN, LINSEED OIL MEAL AND CLOVER HAY.

	Lot II. Shelled corn, and clover hay.	Lot III. Shelled corn, linseed oil meal and clover hay
Average initial weight.....	78.15 lbs.	78.75 lbs.
Average final weight.....	101.25 lbs.	103.50 lbs.
Average total gains.....	23.10 lbs.	24.75 lbs.
Average daily gains.....	.235 lbs.	.252 lbs.
Average daily rations		
{ Grain...	1.23 lbs.	1.23 lbs.
{ Hay.....	1.72 lbs.	1.75 lbs.
Feed per 100 lbs. gain		
{ Grain...	524.89 lbs.	490.70 lbs.
{ Hay.....	730.73 lbs.	703.43 lbs.
Cost of 100 lbs. gain, with corn at 40c per bushel, hay at \$10 per ton, linseed meal at \$32 per ton	\$7.402	\$7.632
Average shrink per head from Columbia to National Stock Yards.....	5.75 lbs.	6.00 lbs.
Average weight per head at Na- tional Stock Yards.....	95.5 lbs.	97.5 lbs.
Selling price per 100 lbs.....	\$6.35	\$6.35
Average cost per head, Columbia, at \$4.25 per 100 lbs.....	\$3.321	\$3.346
Average cost of feed per head....	\$1.730	\$1.890
Average selling price per head, Columbia.....	\$5.681	\$5.808
Average profit per head.....	\$.630	\$.572
Dressing, per cent	52.2%	50.5%
Grade of carcasses.....	Good.	Good.

The above table shows that the two lots consumed on an average, the same amount of grain per head, and that the lot receiving the linseed oil meal in connection with the shelled corn ate a little more hay, but the difference is so small that it would have very little effect on the results, hence the advantage of 1.65 lbs. total gain per head can be attributed to the linseed oil cake.

Both lots sold for the same price, \$6.35 per hundred pounds at the National Stock Yards. The carcasses of both lots were graded as good, though ranked in the order of their selling value. Lot II was placed above Lot III.

The table also shows that one hundred pounds of gain required less grain and hay where linseed oil meal was added to the corn ration. The economy of feeding linseed oil meal will depend upon the cost of the hay, the oil cake and the corn.

**SHELLED CORN AND CLOVER HAY
VS.
SHELLED CORN, COTTONSEED MEAL AND CLOVER HAY.**

Cottonseed meal is a nitrogenous supplement which has come into common use in recent years among sheep and cattle feeders. It is less expensive than linseed oil meal in most cases. This trial was conducted to determine as far as it was possible the economy of feeding a grain ration of six parts shelled corn and one part cottonseed meal by weight as compared with shelled corn. Both lots received clover hay as a roughness. The results of this trial are shown in Table II.

TABLE II. SHELLED CORN AND CLOVER HAY VS. CLOVER HAY, SHELLED CORN AND COTTONSEED MEAL.

	Lot II. Shelled corn and clover hay.	Lot IV Shelled corn, cottonseed meal and clover hay.								
Average initial weight.....	78.15 lbs.	78.25 lbs.								
Average final weight.....	101.25 lbs.	102.00 lbs.								
Average total gains.....	23.10 lbs.	23.75 lbs.								
Average daily gains.....	.235 lbs.	.242 lbs.								
Average daily rations	<table style="border: none; margin-left: 20px;"> <tr> <td style="font-size: 2em; vertical-align: middle;">{</td> <td>Grain..</td> <td style="text-align: right;">1.23 lbs.</td> <td style="text-align: right;">1.23 lbs.</td> </tr> <tr> <td></td> <td>Hay....</td> <td style="text-align: right;">1.72 lbs.</td> <td style="text-align: right;">1.81 lbs.</td> </tr> </table>		{	Grain..	1.23 lbs.	1.23 lbs.		Hay....	1.72 lbs.	1.81 lbs.
{	Grain..	1.23 lbs.	1.23 lbs.							
	Hay....	1.72 lbs.	1.81 lbs.							
Feed per 100 bls. gain	<table style="border: none; margin-left: 20px;"> <tr> <td style="font-size: 2em; vertical-align: middle;">{</td> <td>Grain..</td> <td style="text-align: right;">524.89 lbs.</td> <td style="text-align: right;">511.15 lbs.</td> </tr> <tr> <td></td> <td>Hay...</td> <td style="text-align: right;">730.73 lbs.</td> <td style="text-align: right;">747.57 lbs.</td> </tr> </table>		{	Grain..	524.89 lbs.	511.15 lbs.		Hay...	730.73 lbs.	747.57 lbs.
{	Grain..	524.89 lbs.	511.15 lbs.							
	Hay...	730.73 lbs.	747.57 lbs.							
Cost of 100 lbs. gain, with corn at 40c per bushel, hay at \$10 per ton, cottonseed meal at \$28...	\$7.402	\$7.888								
Average shrink per head from Columbia to National Stock Yards.....	5.75 lbs.	4.5 lbs.								
Average weight per head at National Stock Yards.....	95.5 lbs.	97.5 lbs.								
Selling price per 100 lbs.....	\$6.35	\$6.30								
Average cost per head, Columbia at \$4.25 per 100 lbs.....	\$3.321	\$3.325								
Average cost of feed per head....	\$1.730	\$1.873								
Average selling price per head, Columbia.....	\$5.681	\$5.759								
Average profit per head.....	\$.630	\$.561								
Dressing per cent.....	52.2%	50.2%								
Grade of carcasses.....	Good	Good								

Both of the above lots of yearlings ate well and were not off feed at any time during this trial. The amount of grain consumed by each lot was practically the same, though the lot receiving the cottonseed meal consumed a little more hay. This lot also made slightly better gains. The lot receiving the cottonseed meal required 13.78 pounds less grain and 16.84 pounds more hay per hundred pounds gain.

The yearlings of Lot IV were not in quite as good condition as those of Lot II at the end of the ninety-eight day feeding period. They made a little greater gain, but seemed to use their feed for growing rather than fattening. This lot sold for five cents less per hundred pounds than did Lot II.

The carcasses of the two lots were both graded good, but in the order of their selling value, Lot II ranked above Lot IV.

The economy of adding cottonseed meal to a ration of shelled corn was dependent on the price of the corn, hay, and cottonseed meal.

SHELLED CORN, LINSEED OIL MEAL AND CLOVER HAY VS. SHELLED CORN, COTTONSEED MEAL AND CLOVER HAY.

The relative value of linseed oil meal as compared with cottonseed meal as a nitrogenous supplement is a much discussed question. It is one of the objects of this experiment to gather data and to study the relative effects of these two supplements for fattening western yearlings. The results are shown in Table III. It should be borne in mind that these results cover only one year's work with forty sheep.

TABLE III. SHELLED CORN, LINSEED OIL MEAL AND CLOVER HAY VS. SHELLED CORN, COTTONSEED MEAL AND CLOVER HAY.

	Lot III	Lot IV.
	Shelled corn, linseed oil meal and clover hay.	Shelled corn, cottonseed meal and clover hay.
Average initial weight.....	78.75 lbs.	78.25 lbs.
Average final weight.....	103.5 lbs.	102.00 lbs.
Average total gains.....	24.75 lbs.	23.75 lbs.
Average daily gains.....	.252 lbs.	.242 lbs.
Average daily rations	{ Grain... 1.23 lbs.	{ Grain... 1.23 lbs.
	{ Hay.... 1.75 lbs.	{ Hay.... 1.81 lbs.
Feed per 100 lbs. gain	{ Grain... 490.70 lbs.	{ Grain... 511.15 lbs.
	{ Hay.... 703.43 lbs.	{ Hay.... 747.57 lbs.
Cost of 100 lbs. gain, with corn at 40c per bushel, hay at \$10 per ton, cottonseed meal \$28 per ton, linseed oil meal at \$32 per ton.....	\$7.632	\$7.888
Average shrink per head from Co- lumbia to National Stock Yards	6.00 lbs.	4.5 lbs.
Average weight per head at Na- tional Stock Yards.....	97.5 lbs.	97.5 lbs.
Selling price per 100 pounds.....	\$6.35	\$6.30
Average cost per head, Columbia, at \$4.25 per 100 lbs.....	\$3.346	\$3.325
Average cost of feed per head....	\$1.890	\$1.873
Average selling price per head, Columbia.....	\$5.808	\$5.759
Average profit per head.....	\$.572	\$.561
Dressing per cent.....	50.5%	50.2%
Grade of carcasses.....	Good	Good

Throughout this particular experiment the linseed oil meal proved the more efficient supplement. The yearlings of this lot required less grain and hay per hundred pounds gain, and made a greater gain than did the lot which received the cottonseed meal. The carcasses of both lots were graded good, but Lot III ranked above Lot IV on the basis of their selling value.

**SHELLED CORN AND CLOVER HAY
VS.
SHELLED CORN AND TIMOTHY HAY.**

The importance of clover as a hay crop in Missouri is increasing rapidly. This crop has the advantage of being much superior to timothy from the standpoint of maintaining soil fertility. From the standpoint of the stock feeder it also ranks above timothy, as it contains more protein than timothy hay; hence, when fed it will reduce the amount of commercial nitrogenous concentrates that need to be purchased in order to balance a ration of shelled corn. These two lots of yearlings were fed to illustrate the effect of these two roughnesses as a feed for fattening western yearlings. Table IV shows the results obtained from this trial.

TABLE IV. SHELLED CORN AND TIMOTHY HAY VS. SHELLED CORN AND CLOVER HAY.

	Lot I Shelled corn and timothy hay.	Lot II Shelled corn and clover hay.
Average initial weight.....	77.8 lbs.	78.15 lbs.
Average final weight.....	98.7 lbs.	101.25 lbs.
Average total gains.....	20.9 lbs.	23.10 lbs.
Average daily gains.....	.213 lbs.	.235 lbs.
Average daily rations	1.17 lbs.	1.23 lbs.
	1.40 lbs.	1.72 lbs.
Feed per 100 lbs. gain	549.28 lbs.	524.89 lbs.
	660.28 lbs.	730.73 lbs.
Cost of 100 lbs. gain, with corn at 40c per bushel, and hay at \$10 per ton.....	\$7.514	\$7.402
Average shrink per head from Co- lumbia to National Stock Yards	5.7 lbs.	5.75 lbs.
Average weight per head at Na- tional Stock Yards.....	93. lbs.	95.5 lbs.
Selling price per 100 pounds....	\$6.15	\$6.35
Average cost per head, Columbia, at \$4.25 per 100 lbs.....	\$3.306	\$3.321
Average cost of feed per head....	\$1.51	\$1.730
Average selling price per head, Columbia.....	\$5.33	\$5.681
Average profit per head.....	\$0.514	\$0.630
Dressing per cent.....	49.6	52.2
Grade of carcasses.....	Fair	Good

Lot I which received timothy hay did not eat their hay well. They mused over and wasted more of it than did Lot II. This was especially true towards the latter part of the experiment. It required more care and attention to keep the timothy hay lot from going "off feed" than it did with the lot receiving clover hay; however, by careful feeding, neither lot were "off feed" at any time during this experiment.

Clover hay proved to be a superior roughness to the timothy hay in every way during this trial. Lot II required less grain though a little more hay was consumed per hundred pounds gain. The cost of one hundred pounds gain is in favor of the lots receiving the clover hay. The yearlings in Lot II were in better condition and sold for fifteen cents per hundred pounds more than did the yearlings which received timothy hay.

The difference in the condition of flesh was especially noticeable in the carcasses. The backs and ribs of the carcasses of Lot I which received the timothy hay lacked a shading of fat which the butchers like to see. The caul and kidney fat was very light and the carcasses of the timothy hay lot were graded medium. They ranked last of all the seven lots. The carcasses of Lot II were graded good. They had sufficient kidney and caul fat, and the backs and ribs were well shaded with fat.

SHELLED CORN AND CLOVER HAY

VS.

SHELLED CORN, CORN SILAGE AND CLOVER HAY.

The high price of hay and the lack of an efficient means of utilizing cornstalks has led to the more general use of corn silage as a feed for meat producing animals. The results of experimental feeding and the opinion of practical feeders agree that corn silage fed alone as a roughness is not as satisfactory as when fed in connection with hay. In order to obtain some accurate data as to the relative value of corn silage and clover hay as compared with clover hay alone, as a roughness for fattening yearlings, the Missouri Experiment Station fed two lots of yearlings on the above named roughnesses. The results are recorded in Table V.

TABLE V. SHELLED CORN AND CLOVER HAY VS. SHELLED CORN, CLOVER HAY AND CORN SILAGE.

	Lot II Shelled corn and clover hay.	Lot V Shelled corn, clover hay and corn silage.
Average initial weight.....	78.15 lbs.	78.35 lbs.
Average final weight.....	101.25 lbs.	105.00 lbs.
Average total gains.....	23.10 lbs.	26.65 lbs.
Average daily gains.....	.235 lbs.	.271 lbs.
Average daily rations	Grain..	1.23 lbs.
	Hay....	1.72 lbs.
	Silage..	.80 lbs.
Feed per 100 lbs. gain	Grain..	455.72 lbs.
	Hay....	489.11 lbs.
	Silage..	278.61 lbs.
Cost of 100 lbs. gain, with corn at 40c per bushel, hay at \$10 per ton, silage at \$3.50 per ton....	\$7.402	\$6.187
Average shrink per head from Co- lumbia to National Stock Yards	5.75 lbs.	6.5 lbs.
Average weight per head at Na- tional Stock Yards.....	95.5 lbs.	98.5 lbs.
Selling price per 100 lbs.....	\$6.35	\$6.35
Average cost per head, Columbia, at \$4.25 per 100 lbs.....	\$3.321	\$3.329
Average cost of feed per head....	\$1.730	\$1.644
Average selling price per head, Columbia.....	\$5.681	\$5.871
Average profit per head.....	\$.630	\$.902
Dressing per cent.....	52.2%	49.7%
Grade of carcasses.....	Good	Good

The corn silage used in this trial was grown on land that averaged forty-five to fifty bushels of corn to the acre. Lot II consumed on the average .39 pounds more hay per head per day than did the lot receiving clover hay and corn silage. The .80 pounds of corn silage eaten by Lot V was equivalent to the .39 pounds of additional hay which Lot II consumed as compared with Lot V. That is, it required approximately two pounds of corn silage to replace one pound of clover hay.

The corn silage lot made a greater gain than did the clover hay lot. The two lots sold for the same price per hundred pounds live weight. The shrink in shipping was slightly more with the lot receiving corn silage. Under the heading of "Feed per hundred

pounds gain," 278.61 pounds of corn silage was equivalent to 69.17 pounds of shelled corn, and 241.62 pounds of clover hay in producing gains. Figuring the replacement value of corn silage on the above figures and valuing corn at forty cents per bushel, and clover hay at \$10.00 per ton, one ton of corn silage is worth \$11.23 in this specific trial.

The carcasses in both lots were graded good. However, when placed according to their selling value, the silage-fed lot (Lot V) was ranked above Lot II.

The silage fed in this experiment was of good quality. It is generally dangerous to feed mouldy silage to sheep. In general, the bad results from feeding silage to sheep have been due to mouldy and sour silage. Silage of poor quality cannot be recommended as a sheep feed. Even with good quality silage, the feeder should be very careful to pick out any mouldy spots which sometimes occur in good silage.

REGULAR FEEDING VS. SELF-FEEDERS.

The high cost and difficulty of obtaining satisfactory farm help have prevented many from feeding sheep. To determine whether the self-feeder might be used in solving the help problem, Lot VI was fed grain by means of a self-feeder during the last eight weeks of the trial. A V-shaped hopper was constructed above the ten-inch grain trough so arranged that the shelled corn would feed down into the grain trough. This lot was handled in exactly the same manner as all the other lots for the first six weeks, i.e., they were started on corn gradually and three weeks were spent in getting them onto full feed. They were then carried along in the usual way until the end of the sixth week. During the remaining eight weeks, this lot received their grain from a self-feeder, fresh grain being put in the feeder every four or five days. Table VI shows the value of a self-feeder as compared with hand feeding.

TABLE VI. REGULAR FEEDING VS. SELF-FEEDING.

	Lot II Shelled corn and clover hay. Regular feeding.	Lot VI Shelled corn and clover hay. Self feeding.
Average initial weight.....	78.15 lbs.	77.95 lbs.
Average final weight.....	101.25 lbs.	102.00 lbs.
Average total gains.....	23.10 lbs.	24.05 lbs.
Average daily gains.....	.235 lbs.	.245 lbs.
Average daily rations { Grain....	1.23 lbs.	1.55 lbs.
{ Hay.....	1.72 lbs.	1.38 lbs.
Feed per 100 lbs. gain { Grain....	524.89 lbs.	637.42 lbs.
{ Hay.....	730.73 lbs.	564.86 lbs.
Cost of 100 lbs. gain, with corn at 40c per bushel and hay at \$10 per ton.....	\$7.402	\$7.377
Average shrink per head from Columbia to National Stock Yards.....	5.75 lbs.	5.2 lbs.
Average weight per head at Na- tional Stock Yards.....	95.5 lbs.	96.8 lbs.
Selling price per 100 lbs.....	\$6.35	\$6.40
Average cost per head, Columbia, at \$4.50 per 100 lbs.....	\$3.321	\$3.312
Average cost of feed per head....	\$1.730	\$1.688
Average selling price per head, Columbia.....	\$5.681	5.47
Average profit per head.....	\$.630	\$.47
Dressing per cent.....	52.2%	49.8%
Grade of carcasses.....	Good	Prime

It can be seen in this table that the lot fed by means of a self-feeder consumed 26% more corn and 19% less hay per hundred pounds gain in live weight. It required 112.53 pounds, or two bushels more corn per hundred pounds gain for the lot which was fed by means of a self-feeder as compared with the lot fed in the usual manner.

The yearlings of Lot VI, fattened on a "self-feeder," were in better condition at the end of the ninety-eight-day feeding period, and sold for five cents more per hundred pounds. Their carcasses were graded prime, and ranked the best of all seven lots.

The cost of one hundred pounds gain with corn at forty cents per bushel and hay at \$10 per ton was three cents less with the self-fed lot than with the lot fed by the usual method. With fifty-cent

corn and ten-dollar hay, the cost of one hundred pounds gain is sixteen cents more in the lot with the self-feeder. Feeding by means of a self-feeder has some objections. Sheep are dainty eaters and do not like grain that has been mused over. The feeder should vary the amount of feed given according to the weather conditions and the general conditions of the sheep. The advantage of a self-feeder, even at a low price of corn is small, as it will be found necessary to feed by hand the first five or six weeks of the feeding period in order to accustom the sheep to a full feed of grain before them all the time. The successful feeder always spends considerable time with the sheep to see that every individual is doing well. If any should require his attention it can be looked after immediately. When a self-feeder is used one will not so readily notice the sheep that are off feed.

BARN FEEDING VS. OPEN LOT FEEDING.

South of Missouri and in the dry climates of the west open lot feeding is a common practice. In the southern part of Missouri cattle are sometimes fed in the open with only such shelter as is afforded by bluffs and thickets of trees. The success of feeding in the open is directly dependent on the season. The temperature of Missouri during an average winter would not seriously interfere with open lot feeding, but the rains and snows common during our winter season makes this practice an unprofitable one. The results of indoor feeding as compared with open lot feeding can be seen in Table VII.

TABLE VII. BARN FEEDING VS. OPEN LOT FEEDING.

	Lot II Shelled corn and clover hay. In barn.	Lot VII Shelled corn and clover hay. In open lot.
Average initial weight.....	78.15 lbs.	78.0 lbs.
Average final weight.....	101.25 lbs.	97.6 lbs.
Average total gains.....	23.10 lbs.	19.6 lbs.
Average daily gains.....	.235 lbs.	.200 lbs.
Average daily rations { Grain....	1.23 lbs.	1.23 lbs.
Hay.....	1.72 lbs.	1.77 lbs.
Feed per 100 lbs. gain { Grain....	524.89 lbs.	887.50 lbs.
Hay.....	730.73 lbs.	617.09 lbs.
Cost of 100 lbs. gain, with corn at 40c per bushel and hay at \$10 per ton.....	\$7.402	\$9.424
Average shrink per head from Columbia to National Stock Yards.....	5.75 lbs.	4.6 lbs.
Average weight per head at National Stock Yards.....	95.5 lbs.	93. lbs.
Selling price per 100 lbs.....	\$6.35	\$6.30
Average cost per head, Columbia, at \$4.25 per 100 lbs.....	\$3.321	\$3.315
Average cost of feed per head....	\$1.730	\$1.733
Average selling price per head, Columbia.....	\$5.681	\$5.383
Average profit per head.....	\$.630	\$.335
Dressing per cent.....	52.2%	50.6%
Grade of carcasses.....	Good	Good

The yearlings fed in the open lot received the same amount of grain and consumed a little more hay than did those fed in the barn. The total gains made by the yearlings fed in the barn averaged three and one-half pounds per head more than those fed outside. The barn-fed lot required 362.61 pounds, or 6.4 bushels less corn per hundred pounds gain than did the lot which was fed in the open. The cost of one hundred pounds gain in Lot VII was \$2.02 greater than the same amount gained in Lot II with corn at forty cents per bushel, and hay at \$10 per ton.

This is the result of only one trial. However it is sufficient to indicate that under average weather conditions which prevail in Missouri one must have barns or sheds which will protect the sheep from rains and snow in order to make sheep feeding profitable. When a sheep's fleece becomes thoroughly soaked, it will require four or five days for it to dry out. There is always great danger of pneumonia, colds and other attendant difficulties under these conditions.

During the ninety-eight days of this feeding trial, fifty-one days were clear, twenty-nine days were cloudy or partly cloudy and the other eighteen days it either rained or snowed. The maximum temperature was seventy degrees which occurred in the second week in January. The minimum was eight degrees which occurred the second week in February. The average range of temperature for most weeks varied from twenty to forty-five degrees.

TABLE VIII. SUMMARY OF ENTIRE FEEDING TRIAL WITH SEVEN LOTS OF YEARLING SHEEP.

	Lot I.	Lot II	Lot III	Lot IV	Lot V	Lot VI	Lot VII
Average initial weight (pounds)	77.8	78.15	78.75	78.25	78.35	77.95	78.
Average final weight (pounds)..	98.7	101.25	103.5	102.	105.	102.	97.6
Average total gains (pounds)...	20.9	23.10	24.75	23.75	26.65	24.05	19.6
Average daily gains (pounds)...	.213	.235	.252	.242	.271	.245	.2
Average daily rations {							
Grain (pounds).....	1.17	1.23	1.23	1.23	1.23	1.55	1.23
Hay (pounds).....	1.40	1.72	1.75	1.81	1.33	1.38	1.77
Silage (pounds).....	.....	.....	.....	.....	.80	.....	.....
Feed per 100 lbs. gain {							
Grain (pounds).....	549.28	524.89	490.70	511.15	455.72	637.42	887.50
Hay (pounds).....	660.28	730.73	703.43	747.57	489.11	564.86	617.09
Silage (pounds).....	.....	.....	.....	.....	278.61	.....	.....
Cost of 100 lbs. gain*.....	\$7.514	7.402	7.632	\$7.888	\$6.187	\$7.377	\$9.424
Average shrink per head(pounds)	5.7	5.75	6.	4.5	6.5	5.2	4.6
Average weight. (pounds).....	93.0	95.5	97.5	97.5	98.5	96.8	93.
Selling price per 100 lbs.....	\$6.15	\$6.35	\$6.35	\$6.30	\$6.35	\$6.40	\$6.30
Average cost per head.....	\$3.306	\$3.321	\$3.346	\$3.325	\$3.329	\$3.312	\$3.315
Average cost of feed per head..	\$1.51	\$1.730	\$1.890	\$1.873	\$1.644	\$1.688	\$1.733
Average selling price per head.	\$5.330	\$5.681	\$5.808	\$5.759	\$5.871	\$5.47	\$5.383
Average profit per head.....	\$.514	\$.630	\$.572	\$.561	\$.902	\$.47	\$.335
Dressing per cent.....	49.6%	52.2%	50.5%	50.2%	49.7%	49.8%	50.6%
Grade of carcasses.....	Fair	Good	Good	Good	Good	Prime	Good

*See previous tables for prices of feeds.

SUMMARY

1. In this experiment feeds were figured at the following prices: Hay, \$10 per ton; corn silage, \$3.50 per ton; corn, 40 cents per bushel; linseed oil meal, \$32 per ton; cottonseed meal, \$28 per ton.

2. At the above prices a ration of shelled corn, clover hay, and corn silage was the most economical.

3. The ration of shelled corn and clover hay ranked second as an economical feed for yearling sheep.

4. As the price of corn and hay increases, it will be found economical to add a nitrogenous supplement. In these trials linseed oil cake was superior to cottonseed meal.

5. Clover hay proved to be greatly superior to timothy hay as a roughness for fattening western yearling sheep, with shelled corn as the grain ration.

6. The lot fed in the open required 6.4 bushels more corn for each one hundred pounds gain, than did the lot fed on the same ration in the barn. Feeding sheep in an open lot without shelter from the winter rains and snows is undoubtedly a poor practice.