

FEEDLOT TESTS

Table III—December 18, 1950 to March 20, 1951

1. Lot number	8	9	10	11	12
	Westland grain Alfalfa Axtell Stover Soybean pellets Salt	Westland grain 2-yr.-old Axtell Stover Soybean pellets Limestone Salt	Westland grain 1-yr.-old Axtell Stover Soybean pellets Limestone Salt	Westland grain Axtell tailings Soybean pellets Limestone Salt	Westland grain Axtell Stover Soybean pellets Limestone Salt Axtell tailings
2. Ration fed					
3. Number of lambs per lot	55	55	55	55	55
4. Number of days on feed	92	92	92	92	92
5. Initial weight per lamb	75.2	74.5	75.2	74.8	76.0
6. Final weight per lamb	93.5	80.9	81.9	84.0	85.5
7. Av. weight of shorn fleece	6.7	6.2	5.9	6.2	6.6
8. Total gain per lamb	25.0	12.6	12.6	15.4	16.1
9. Daily gain per lamb27	.14	.14	.17	.18
10. Feed per lamb daily					
Milo grain	1.17	1.17	1.17	1.17	1.17
Alfalfa hay	1.08	—	—	—	—
Axtell Stover ..	1.08	1.48	1.48	—	1.66
Axtell tailings ..	—	—	—	2.03	1.67
Soybean pellets	0.90	0.20	0.20	0.20	0.20
Limestone	0.10	.016	.016	.016	.016
Salt029	.026	.026	.026	.026
11. Feed cost per cwt. gain	\$17.74	\$26.70	\$26.18	\$23.96	\$23.42
12. Initial cost per lamb into feed lot	\$16.21	\$16.34	\$16.21	\$16.41	\$16.38
13. Feed cost per lamb	\$4.43	\$3.36	\$3.30	\$3.69	\$3.77
14. Lamb cost plus feed cost	\$20.64	\$19.70	\$19.51	\$20.10	\$20.15
15. Final cost per cwt.	\$20.60	\$22.62	\$22.22	\$22.28	\$22.34
16. Death loss by lots	0	1	0	1	0

SUMMARY

Wheat Pasture Tests

Gains on wheat pasture during the 39 day grazing period ranged from .26 pound per head daily to .29 pound. While gains are not as high as those obtained last year, the results are similar to those obtained in other tests conducted on wheat pasture.

Lambs fed in the drylot gained considerably more than lambs fed on wheat pasture but the cost per pound of gain in the feedlot was about three times the cost of gains on wheat pasture.

Lambs fed no salt on wheat pasture gained just as well as those having access to salt. It is probable that the grazing period was too short to show any ill effects of a diet containing no supplemental salt.

There was an indication that the addition of a small amount of alfalfa hay to wheat pasture increased the rate of gain but the cost per pound was also increased.

No losses occurred from over-eating disease or digestive trouble during the grazing period; therefore it was impossible to check the efficiency of either vaccination or soda in their control.

SUMMARY

Feedlot Tests

Feedlot gains shown in Tables II and III are much lower than in previous years when apparently similar lambs and similar feeds were used in the tests. The lambs were shorn the last week in February and may have been affected by some of the stormy weather occurring during early March. The final weights used in determining the amount of gains were taken on March 20. While conditions were apparently normal, weights taken six days later showed an average increase in weight per lamb of about seven pounds, indicating that the March 20 weights were lower than normally would be expected. However, all lots were weighed under similar conditions on that date so that comparisons between the various lots should not be biased.

Alfalfa fed as the sole roughage or replacing one-half of the sorghum roughage produced larger and more economical gains than the sorghum roughages. Alfalfa and Axtell stover, equal parts, produced slightly lower gains but at less cost per pound of gain than alfalfa as the only roughage.

The low gains of lot 3 indicate that salt is needed for good gains when the feeding period is of 130 days duration.

Drenching for worm control was ineffective in increasing the rate of gain. The drenched lambs appeared to be affected adversely by the drench and failed to gain the first 14 days of the feeding period.

One-year-old and two-year-old Axtell stover produced the lowest gains of any of the lots and at the highest cost per pound of gain. Chemical analyses failed to show much difference in sorghums grown the current year and the older Axtell stover but the lambs did not relish the older stover and would not consume as much roughage.

Axtell tailings or "pummies" appeared to be virtually equal to Axtell stover in feeding value. About the same rate of gain was obtained when the tailings were fed as the sole roughage as when they were fed in equal parts with Axtell stover.

PHYSICAL BALANCE IN SHEEP FATTENING RATIONS

THE RELATIONSHIP OF PHYSICAL BALANCE AND ENERGY VALUE IN SHEEP RATIONS STUDIES CARRIED OUT AT THE KANSAS AGRICULTURAL EXPERIMENT STATION MANHATTAN, KANSAS

by

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Lamb fattening rations varying in physical nature but virtually alike chemically have been studied at the Kansas Agricultural Experiment Station for a number of years. Previous tests have demonstrated

that the rate of gains and the efficiency of feed utilization by fattening lambs are associated closely with the physical balance or the concentration and bulkiness of the ration. The results of the experiments conducted during the summer of 1950 as well as the preliminary results of the 1951 trials are reported.

Objects:

1. To test the relative efficiency of rations which vary in the amount and in the nature or condition of the crude fiber consumed by fattening lambs.
2. To investigate the value of bicarbonate of soda in controlling digestive disorders in lambs consuming rations which are highly concentrated or which have had the roughage portion of the ration reduced by grinding and pelleting.

Plan of Feeding

Lot 1—Corn and alfalfa hay—medium concentration. (Crude Fiber: total digestible nutrients—CF:TDN—1:4)

Lot 2—Corn and alfalfa hay—highly concentrated. (CF:TDN ratio of 1:5.5)

Lot 3—Corn and alfalfa hay, plus bicarbonate of soda (CF:TDN ratio of 1:5.5)

Lot 4—Corn and pelleted alfalfa (CF:TDN ratio 1:4)

Lot 5—Corn and pelleted alfalfa (CF:TDN ratio 1:5.5)

Lot 6—Corn and pelleted alfalfa, plus bicarbonate of soda (CF:TDN ratio 1:5.5)

SUMMARY

1. The lambs in the 1950 tests were secured late in the spring and were not uniform in condition or quality. They refused to consume the amount of feed that the lambs have eaten in previous tests or in the 1951 studies. Because of the comparatively low consumption of feed, digestive disturbances were not common and very small differences in economy of gains were shown between the lots of lambs receiving corn and alfalfa in medium concentration and those receiving the same feeds in high concentration. The lots of lambs receiving the pelleted alfalfa gained just as well as those receiving alfalfa hay. These results are in decided contrast to the results obtained in the 1949 trials when the lambs consumed larger amounts of feed.

2. In the 1951 studies the lambs have eaten more corn and alfalfa than in the 1950 studies and difference in rate and economy of gain are indicated for the first 56 days of the feeding period in the accompanying table.

The lambs receiving corn and alfalfa in medium concentration are making as large or larger gains with less feed than the lambs receiving the higher proportion of concentrates.

The two lots of lambs receiving the pelleted alfalfa and corn in heavy concentration have had digestive disturbances and have been off-feed on several occasions. Bicarbonate of soda has not entirely prevented these digestive difficulties, but the lambs in the lot receiving the soda have made somewhat larger gains than the lambs fed the same amounts of corn and pelleted alfalfa without soda.

These results are similar to those obtained in the 1949 tests when the rations for the various lots were fed in virtually the same amounts.

EXPERIMENTAL LAMB FEEDING TEST

May 3, 1950 to August 21, 1950

Lot number	1	2	3	4	5	6
Ration fed	Corn Alfalfa Hay	Corn Alfalfa Hay	Corn Alfalfa Bicarbonate of Soda	Corn Pelleted Alfalfa	Corn Pelleted Alfalfa	Corn Pelleted Alfalfa Bicarbonate of Soda
Ratio	1	1	1	1	1	1
Crude Fiber	1	1	1	1	1	1
to						
T. D. N.	1.16	5.5	5.5	4	5.5	5.5
Number of lambs per lot	10	10	10	10	10	10
Deaths per lot	2	0	0	0	0	1
Number of days on feed	110	110	110	110	110	110
Initial weight per lamb	69	69	69	69	70	69
Final weight per lamb	90	95	92	97	95	96
Total gain per lamb	21	26	23	28	25	27
Daily gain per lamb	.20	.24	.21	.25	.23	.26
Feed per lamb daily						
Corn (pounds)	1.16	1.41	1.41	1.20	1.41	1.41
Alfalfa hay (pounds)	1.23	.92	.92	1.09	.92	.92
Soda (ounces)	0	0	.2	0	0	.24
Feed per cwt. gain						
Corn	576	609	672	482	631	584
Alfalfa Hay	613	395	436	438	408	377
Soda	0	0	6	0	0	5.7
T. D. N. per lamb daily	1.60	1.65	1.65	1.62	1.64	1.64
Gain per 100 pounds of T. D. N.	12.47	14.54	12.72	15.43	14.02	14.02

EXPERIMENTAL LAMB FEEDING TEST

(First portion of feeding period)

February 2, 1951 to March 30, 1951

Lot number	1	2	3	4	5	6
Ration fed	Corn Alfalfa Hay	Corn Alfalfa Hay	Corn Alfalfa Bicarbonate of Soda	Corn Pelleted Alfalfa	Corn Pelleted Alfalfa	Corn Pelleted Alfalfa Bicarbonate of Soda
Ratio	1	1	1	1	1	1
	Crude Fiber					
	4	5.5	5.5	4	5.5	5.5
	T. D. N.					
Feed per lamb daily	1.37	1.62	1.62	1.37	1.62	1.62
Corn	1.45	1.02	1.02	1.45	1.02	1.02
Alfalfa	0	0	.2	0	0	.2
Soda (ounces)						
Daily gain per lamb	.40	.38	.41	.42	.32	.35

FACTORS INFLUENCING SALT REQUIREMENTS OF SHEEP

Preliminary Report on the Effects of Withholding Salt and the Effects of High and Low Potassium-Sodium Ratios Upon the Feedlot Performance of Lambs.

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Many of the feeder lambs coming into Kansas have not had access to salt for several weeks and some of the lamb feeders do not add salt to their lamb fattening rations because of the possible losses in getting the lambs again accustomed to eating salt. The experimental studies, initiated this year, should indicate whether such a practice results in poorer feedlot performance. The studies should also lead to a clearer understanding of the physiological function of salt in the sheep's diet.

EXPERIMENTAL PROCEDURE

Fifty-four feeder lambs were divided into four lots and treated according to the following plan.

Lot 1 (17 lambs)—Basal ration (1.25 pounds corn and 1.45 pounds chopped alfalfa hay).

Lot 2 (17 lambs)—Basal ration plus salt ad libitum.

Lot 3 (10 lambs)—Basal ration plus potassium bicarbonate sufficient to provide a potassium-sodium ratio of 60:1.

Lot 4 (10 lambs)—Basal ration plus sodium bicarbonate sufficient to provide a potassium-sodium ratio of 2:1.5.

At the conclusion of the test mineral balance studies with three lambs from each lot will be conducted. Balance of sodium, potassium, and chlorine in the lambs from each of these groups will be determined. Blood samples will be taken and analyzed for sodium, potassium, magnesium, calcium, chlorine, bicarbonate, plasma protein, and hemoglobin.

OBSERVATIONS

After 67 days of experimental treatment the following results are indicated:

1. The largest average daily gains (0.33 pound) are shown by the lambs in Lot 2 receiving the basal ration plus salt. The lambs in Lot 1, receiving the basal ration without salt, have gained 0.29 pound per head daily. They have consumed the same amount of corn as the lambs in Lot 1, but have eaten a little less alfalfa hay.

2. The exact potassium-sodium ratios initially planned in Lots 3 and 4 could not be attained. Lot 3 received a potassium-sodium ratio of 57:1 and Lot 4 a potassium-sodium ratio of 2:1.5. Lot 4 gained an average of 0.30 pound per head daily, while Lot 3 gained only 0.23 pound per head daily during the first 67 days of the experimental feeding period. The salt consumption ad libitum in Lot 2 has been 0.04 pound per head daily.

Project Commercial No. 65

Performance of Steers Sired by Bulls of Different Sizes
A Comparison of Hereford Steers Sired by Small, Medium,
and Large Size Bulls

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The Kansas, Oklahoma, and Ohio Agricultural Experiment Stations co-operated in this study, which was supported by grants from the American Hereford Association. The project involved comparisons of steer