

alfalfa. This is in agreement with previous observations.

5. The feed cost per hundredweight of gain was lowest for those lots in which a higher proportion of the ration was made up of roughage. The feeds used in the 1951 tests were purchased at the following prices:

Corn	\$ 1.50 per bushel
Alfalfa hay	20.00 per ton
Alfalfa pellets	24.00 per ton
Sodium bicarbonate	4.85 per cwt.

Chemical Analysis of Feeds Used in 1951 Tests

	Protein	Ether extract	Crude fiber	Moisture	Ash	Nitrogen-free extract	Carbo-hydrates
Corn	7.81	4.08	2.06	12.06	1.43	72.56	74.52
Alfalfa hay	15.81	1.48	30.00	8.51	8.43	35.77	65.77
Alfalfa pellets	16.13	1.36	28.19	9.45	8.25	36.62	64.81

Project 111 GC: Lamb Feeding Experiments

Feedlot and Milo Stubble Fattening Tests with Feeder Lambs.

Studies Carried on by the Department of Animal Husbandry and the Garden City Branch Experiment Station.

T. Donald Bell and A. B. Erhart

The lamb feeding tests at the Garden City Branch Agricultural Experiment Station during the fall and winter feeding season of 1951-52 included the following studies:

1. A comparison of alfalfa hay and cottonseed cake as supplements for lambs running in harvested milo fields.
2. A comparison of ground milo grain and whole milo grain for fattening lambs.
3. A comparison of a ration including ground sorghum stover as the only roughage, and a ration including both stover and sorghum silage as sources of roughages.
4. Comparative performance of lambs that have received salt, with lambs that have not received salt during the entire feeding period.
5. A test of the effectiveness of vaccination against enterotoxemia and of bicarbonate of soda in the diet, in controlling "overeating" disease.
6. A comparison of hand-feeding and self-feeding.
7. Tests of the value of drenching for worm control.

Experimental Procedure

The lambs in this year's experiments were secured directly from the mountain range in Southern Utah, and included Columbia-Rambouillet crosses as well as lambs of Suffolk-Rambouillet breeding. They averaged 76 pounds at the range shipping point and 68 pounds off the cars at Garden City; after a period of 50 days of pasture and roughage feeding they were started on the experimental tests weighing 78 pounds.

The lambs were lotted into eight groups of 60 lambs each and given standard western rations of sorghum stover, sorghum grain, protein supplement, and limestone. After two lots of lambs reached an average daily grain ration of 1 pound per head, they were turned in to milo stubble. One lot was given alfalfa hay as a supplement and the other lot was given soybean pellets.

Two other lots of lambs were hand-fed grain until they were consuming nearly 2 pounds per head daily. They were then fed all of the grain and roughage that they would consume free choice. One-half

of the lambs in all lots were vaccinated against overeating disease, and one of the lots being fed free choice was given soda.

A portion of the sorghum stover was replaced by sorghum silage in one lot, the grain was ground for another lot, and the lambs in another lot received no salt.

One-half of the lambs in all lots were drenched and their gains compared with those of the undrenched lambs.

Feed Prices:

Westland milo	\$ 2.50 per cwt.
Ground milo	2.60 per cwt.
Soybean pellets	101.45 per ton
Axtell stover	7.50 per ton
Alfalfa hay	40.00 per ton
Limestone	1.00 per cwt.
Salt	.90 per cwt.
Soda	4.85 per cwt.
Sorghum stubble	.01 per head per day
Axtell silage	8.00 per ton

TABLE 1.—Feedlot Tests with Fattening Lambs. November 19, 1951, to February 21, 1952

1. Lot number	1	2	3	4
	Milo Axtell stover	Milo (ground) Axtell stover	Milo Axtell silage	Milo Protein Axtell stover
2. Ration fed	Limestone Salt	Protein Limestone Salt	Protein Limestone Salt	Ground limestone No salt
3. Number of lambs per lot	60	59	60	60
4. Number of days on feed	94	94	94	94
5. Initial wt. per lamb	79.75	77.97	78.54	77.69
6. Final wt. per lamb	107.60	109.89	111.17	102.34
7. Total gain per lamb	27.85	31.92	32.63	24.65
8. Daily gain per lamb .....	.296	.339	.347	.262
9. Feed per lamb daily				
Milo grain	1.26	1.26	1.15	1.26
Axtell stover	2.40	2.40	.53	2.29
Axtell silage			5.56	
Alfalfa hay				
Soybean pellets .....	.20	.20	.20	.20
Ground limestone .....	.019	.019	.019	.019
Salt .....	.022	.027	.017	
10. Feed per cwt. of gain				
Milo grain	425.6	370.8	331.4	480.9
Axtell stover	810.8	707.4	152.7	874.0
Axtell silage			1602.3	
Alfalfa hay				
Soybean pellets	67.6	59.0	57.6	76.3
Ground limestone	6.4	5.8	5.5	7.2
Salt	7.4	7.9	4.9	
11. Feed cost per cwt. of gain	\$17.24	\$15.41	\$18.29	\$19.24
12. Feed cost per lamb	\$ 4.80	\$ 4.92	\$ 5.97	\$ 4.74
13. Initial cost per lamb	\$26.81	\$26.21	\$26.40	\$26.12
14. Number of lambs lost	0	0	0	0

15. Cost of lamb loss*	0	0	0	0
16. Total cost**	\$31.61	\$31.13	\$32.37	\$30.86
17. Final cost per cwt.	\$29.37	\$28.33	\$29.12	\$30.15

* Includes initial value and cost of feed consumed by lambs lost up until death.

** Includes lines 12, 13, and 15.

TABLE 2.—Feedlot and Sorghum Stubble Pasture Fattening Tests.
November 19, 1951, to February 21, 1952

1. Lot number	—Grain and stover— free choice			
	Milo Axtell stover Protein Limestone Salt	Milo Axtell stover Protein Limestone Soda Salt	Milo stubble plus Alfalfa	Milo stubble plus Soybean pellets
2. Ration fed				
3. Number of lambs per lot	60	60	60	60
4. Number of days on feed	94	94	94	94
5. Initial wt. per lamb	77.86	77.36	77.77	78.61
6. Final wt. per lamb	114.69	113.09	109.23	108.14
7. Total gain per lamb	36.83	35.73	31.46	29.53
8. Daily gain per lamb .....	.392	.380	.335	.320
9. Feed per lamb daily				
Milo grain	2.07	2.04	.11	.11
Axtell stover	1.76	1.76	.29	.29
Axtell silage				
Alfalfa hay .....			.56	
Soybean pellets .....	.20	.20	.02	.22
Ground limestone .....	.019	.019	.019	.019
Salt .....	.027	.019	.018	.018
Soda .....		.020		
10. Feed per cwt. gain				
Milo grain	528.1	536.8	32.8	34.4
Axtell stover	449.0	463.1	86.6	90.6
Axtell silage				
Alfalfa hay			167.2	
Soybean pellets	51.0	52.6	6.0	68.7
Ground limestone	4.8	5.0	5.7	5.9
Salt	6.9	5.0	5.4	5.6
Soda		5.3		
11. Feed cost per cwt. gain..	\$17.57	\$18.19	\$ 7.87	\$ 7.91
12. Feed cost per lamb	\$ 6.47	\$ 6.50	\$ 2.47	\$ 2.33
13. Initial cost per lamb	\$26.18	\$26.01	\$26.15	\$26.43
14. Number of lambs lost	0	0	1	1
15. Cost of lamb loss*	0	0	\$.41	\$.68
16. Total cost**	\$32.65	\$32.51	\$29.03	\$29.44
17. Final cost per cwt.	\$28.47	\$28.75	\$26.58	\$27.22

* Includes initial value and cost of feed consumed by lambs lost.

** Includes lines 12, 13, and 15.

Observations

1. The two lots of lambs receiving their grain and stover free choice made larger gains than the lambs hand-fed a similar ration, but the gains were more expensive. These results are in accord with those obtained in previous years.

2. Larger and somewhat cheaper gains were made by the lambs receiving ground grain instead of whole grain. These results are in contrast to results obtained in similar studies in previous years at this and at other stations. The difference in the rate of gain of the two lots as indicated by the bi-weekly weights was small and the comparatively wide difference appeared only in the final weigh period.

3. The inclusion of silage in the ration increased the rate of gain but also increased the cost of gain by slightly more than \$1.00 per hundredweight. The silage-fed lambs, however, gained at virtually the same rate as those receiving only stover as their roughage until the last 11 days of the feeding period; this test, as well as the comparison of ground and whole grain, needs to be repeated before reliable conclusions can be drawn.

4. The lambs receiving no salt in their ration made slower and more expensive gains than the lambs in any of the other lots.

5. The average daily gains of the variously treated lambs in all of the lots were as follows:

	Number of Lambs	Av. Daily Gain
Vaccinated	119	.355 lb.
Drenched	120	.321 lb.
Vaccinated and drenched	119	.331 lb.
No treatment	120	.345 lb.

The comparatively low rate of gain made by the drenched lambs was shown in nearly all of the lots and is consistent with a similar test a year ago.

The slightly larger gains made by the vaccinated lambs were not consistent in all lots and probably not significant. The death loss (two in all lots) was too low to allow any conclusions concerning the effectiveness of the vaccine or of the soda. The only lamb dying of overeating disease during the test, however, had been vaccinated.

6. The cheapest gains were made by the lambs running on the milo stubble. Slightly larger and cheaper gains were made by the lambs receiving alfalfa hay than those receiving soybean pellets. Gains were slow on the stubble during the first part of the grazing period, because of digestive disturbances; but once the lambs became accustomed to the grain, the gains were as high as those made by the self-fed lambs in the dry lot.

Comparative Lambing Dates of Untreated Ewes and Ewes Treated with Various Hormone Preparations.

T. Donald Bell and Walter H. Smith

Introduction

Many of the producers of commercial lambs in Kansas prefer to have their ewes lamb in the fall months, in order to secure more favorable lamb prices during the spring months and to avoid having the lambs on hand during the hotter summer months when parasites are more troublesome. Unfortunately, not all of the ewes will breed for fall lambs, and various systems of management as well as different treatments have been used to encourage earlier and more uniform lamb crops. In recent years considerable publicity has been given to hormones of various types and their possible effectiveness in producing earlier lamb crops. Because of this publicity and its