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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 tests this year compared whole milo with steam rolled milo, and with ground milo when fed with a standard roughage ration of ground sorghum stover plus a protein supplement and supplemental salt and limestone. The roughage comparisons included: (1) all sorghum stover, (2) all alfalfa hay, (3) one-half alfalfa hay and one-half sorghum stover (with and without a protein supplement), and (4) part sorghum stover and part sorghum silage.

One lot of lambs received no supplemental salt; another lot received antibiotics with the standard ration of ground sorghum stover, milo grain, soybean pellets, ground limestone, and salt. In another lot receiving the standard ration all of the lambs received implants of stilbestrol. One lot of lambs was pastured for most of the feeding period on sorghum stubble plus a small amount of alfalfa.

One-half the lambs in all the lots were vaccinated against overeating disease and one-half the lambs in all lots (except the lot where all lambs received stilbestrol implants) were given stilbestrol implants at the beginning of the feeding period. A portion of these treated lambs received a second implant after they had been on feed approximately 70 days.

Lambs

Whiteface fine wool lambs from New Mexico were used in this year's tests. They were quite uniform in type and quality, weighing about 67 pounds. After a short preliminary period in dry lot, they were started on the tests.

Feed Prices for Lamb Feeding Experiments

Milo	\$ 2.50 cwt.
Grinding	.10 cwt.
Steam rolling	.15 cwt.
Soybean pellets	100.00 ton.
Alfalfa hay	46.00 ton
Axtell stover	15.00 ton
Axtell silage	10.00 ton
Sorghum stubble \$40.00 for 80 acres (furnished 92 days pasture for 47 lambs)	
Limestone	1.00 cwt.
Salt	.90 cwt.
Stilbestrol	.02 1/2 per head
Vaccine	.15 per head
Aurofac 2 A	.50 per pound

Table 1.—Feedlot Tests

1. Lot number	1	2	3	4
2. Ration fed	Milo (whole) Axtell stover Protein Limestone Salt	Milo (ground) Axtell stover Protein Limestone Salt	Milo (rolled) Axtell stover Protein Limestone Salt	Milo (whole) Alfalfa Salt
3. Number of lambs per lot	47	47	47	47
4. Number of days on feed	112	112	112	112

5. Initial weight per lamb	66.8	68.8	68.7	67.9
6. Final weight per lamb	103.5	105.5	108.4	120.4
7. Total gain per lamb	36.7	36.7	39.7	52.5
8. Daily gain per lamb .....	.327	.327	.354	.468
9. Feed per lamb daily				
Milo grain	1.27	1.29	1.29	1.33
Axtell stover	2.48	2.41	2.69	
Alfalfa hay				2.60
Soybean pellets .....	.204	.204	.204	
Ground limestone .....	.013	.013	.013	
Salt .....	.026	.022	.028	.012
10. Feed per cwt. gain				
Milo grain	388	394	364	284
Axtell stover	758	737	740	
Alfalfa hay				555
Soybean pellets	62	62	58	
Ground limestone	4	4	4	
Salt	8	7	8	3.9
11. Feed cost per cwt. gain....	\$18.59	\$18.97	\$18.20	\$19.89
12. Feed cost per lamb	\$ 6.82	\$ 6.96	\$ 7.22	\$10.44
13. Initial cost per lamb	\$15.22	\$15.67	\$15.65	\$15.47
14. Number of lambs lost	3	0	2	0
15. Total cost	\$22.04	\$22.63	\$22.87	\$25.91
16. Final cost per cwt.	\$21.29	\$21.45	\$21.09	\$21.51

Table 2.—Feedlot Tests

1. Lot number	5	6	7	8
2. Ration fed	Milo ½ Alfalfa ½ Stover Limestone Salt	Milo ½ Alfalfa ½ Stover Limestone Protein Salt	Milo Silage Stover Protein Limestone Salt	Milo Axtell Stover Protein Limestone Antibiotics Salt
3. Number of lambs per lot	47	47	47	47
4. Number of days on feed	112	112	112	112
5. Initial weight per lamb	67.6	68.7	67.2	67.4
6. Final weight per lamb	114.4	115.9	104.9	105.1
7. Total gain per lamb	46.8	47.2	37.7	37.7
8. Daily gain per lamb .....	.417	.421	.336	.336
9. Feed per lamb daily				
Milo grain	1.33	1.33	1.33	1.28
Axtell stover	1.52	1.42	1.03	2.52
Axtell silage			2.95	
Alfalfa hay	1.52	1.42		
Soybean pellets .....		.204	.204	.204
Ground limestone .....	.013	.013	.013	.013
Salt .....	.019	.013	.024	
Aurofac 2 A				7.2mg
10. Feed per cwt. gain				
Milo grain	319	315	396	380

Axtell stover	364	337	306	750
Axtell silage			878	
Alfalfa hay	364	337		
Soybean pellets		48	60	60
Ground limestone	3	3	4	4
Salt	4	3	7	
Aurofac 2 A				2gm.
11. Feed cost per cwt. gain...	\$19.14	\$20.61	\$19.68	\$18.22
12. Feed cost per lamb	\$ 8.96	\$ 9.72	\$ 7.41	\$ 6.86
13. Initial cost per lamb	\$15.40	\$15.65	\$15.33	\$15.35
14. Number of lambs lost	0	0	0	0
15. Total cost	\$24.36	\$25.37	\$22.74	\$22.21
16. Final cost per cwt.	\$21.29	\$21.88	\$21.67	\$21.13

Table 3.—Sorghum Pasture Feedlot Tests

1. Lot number	9	10	11
2. Ration fed	Milo stubble plus alfalfa Salt	Milo Axtell stover Protein Limestone Salt (All lambs given stilbestrol implants)	Milo Axtell stover Protein Limestone No salt
3. Number of lambs per lot	47	47	47
4. Number of days on feed	112	112	112
5. Initial weight per lamb	67.9	66.8	69.1
6. Final weight per lamb	112.5	108.4	95.2
7. Total gain per lamb	44.6	41.6	26.1
8. Daily gain per lamb .....	.398	.371	.233
9. Feed per lamb daily			
Milo grain .....	.61	1.49	1.24
Axtell stover .....	.12	2.88	2.21
Alfalfa hay .....	.92		
Soybean pellets .....		.204	.204
Ground limestone .....		.013	.013
Salt .....	.014	.018	.013
Sorghum stubble pasture*			
10. Feed per cwt. gain			
Milo grain	153	402	532
Axtell stover	30	776	948
Alfalfa hay	231		
Soybean pellets		55	87
Ground limestone		4	6
Salt	4	5	6
Milo stubble			
11. Feed cost per cwt. of gain	\$11.34	\$18.70	\$24.87
12. Feed cost per lamb	\$ 5.06	\$ 7.78	\$ 6.49
13. Initial cost per lamb	\$15.47	\$15.22	\$15.74

14. Number of lambs lost	0	1	1
15. Total cost	\$20.53	\$23.00	\$22.22
16. Final cost per cwt.	\$18.24	\$21.21	\$23.34

* On pasture for 92 days where .64 pound of alfalfa hay was fed daily per lamb. Remainder of feeding period in dry lot.

Observations

1. Slightly larger gains were made by the lambs receiving steam rolled milo than those made by the lambs receiving either whole or ground milo and, while the lambs on rolled milo ate a little more roughage, they still produced their gains at a slightly lower cost than the other two groups. The differences, however, are small and may be due entirely to chance.

2. Alfalfa fed as the sole roughage or as a part of the roughage speeded up the gain but also increased the cost of gains. Silage also increased the rate of gain when it replaced a large portion of the stover, but at current prices the gains were more expensive in the silage-fed group.

3. The addition of a protein supplement to a ration, including one-half alfalfa and one-half sorghum stover, increased the rate of gain slightly but also increased the cost of gain slightly.

4. The lot of lambs receiving Aurofac 2 A with the standard ration of milo grain, Axtell stover, protein, limestone, and salt gained slightly more at a little less cost than the lot of lambs given the standard ration alone. The differences were small, however, and are probably not statistically significant.

5. Excellent gains were made by the lambs on sorghum stubble plus alfalfa hay and at a cost of approximately 60 percent of cost of gains made in the feedlot. The pasture-fed lambs probably are not carrying quite as much finish as those kept in the dry lot, however.

6. The lambs given no salt with their standard ration made the poorest gains and at the greatest cost of any of the groups.

7. Table 4 shows the average daily gains by lots of the lambs receiving one and two hormone implants either with or without vaccination against enterotoxemia compared to the gains made by the untreated lambs.

Table 4.—Average Daily Gains of Vaccinated, Hormone Treated, and Untreated Lambs (Wethers).

	No treatment	Vaccinated	One hormone implant	One hormone implant and vaccine	Two hormone implants	Two hormone implants and vaccine
Lot 1 .....	.295	.291	.335	.419	.358	.328
2 .....	.257	.283	.512	.335	.388	.383
3 .....	.330	.325	.353	.404	.379	.428
4 .....	.403	.408	.497	.580	.445	.546
5 .....	.350	.369	.478	.405	.487	.542
6 .....	.375	.362	.518	.451	.467	.515
7 .....	.289	.291	.369	.402	.371	.397
8 .....	.324	.292	.365	.389	.349	.375
9 .....	.348	.343	.456	.425	.489	.445
10 .....	.....	.....	.324	.389	.371	.391
11 .....	.174	.238	.285	.284	.203	.236
All Lots .....	.312	.322	.402	.406	.390	.415

Gains were approximately one-third larger in the lambs receiving the hormone implants. The rate of gain was not increased by giving a second implant after 70 days of feeding. In Lot 10, where all of the lambs received the hormone, increased rate of gain was apparently due to greater feed consumption and the amount of feed per pound of gain was actually just as high or a little higher than in the lot of lambs receiving the same standard ration and where only half the lambs were given implants.

These findings differ from reports from other stations, indicating that the hormones produce larger gains because of better feed utilization. Most of the stations also have reported the lambs grow rather than fatten, producing poorer carcasses. The lambs vaccinated for overeating gained a little more than those unvaccinated. This same slight difference was shown last year but still may be due entirely to chance.

Seven lambs died during the tests—two from enterotoxemia and the remaining five apparently from urinary calculi. Both lambs dying of overeating disease had been vaccinated. Four of the five lambs dying from urinary calculi, and one of the two dying from overeating had received two implants of stilbestrol. (See supplementary report below.)

At the conclusion of the feeding period, 151 lambs were selected as high good, and choice slaughter lambs, and the number selected from the various lots were as follows: Lots 1-11; Lots 2-9; Lots 3-15; Lots 4-32; Lots 5-10; Lots 6-32; Lots 7-22; Lots 8-2; Lots 10-12; and Lots 11-2.

A smaller percentage of the lambs given stilbestrol were selected for slaughter as compared to those given no implants. Carcass quality and yields also were lower for the lambs receiving implants. Abnormal development of the reproductive organs was found in the wether lambs given the implants and these abnormalities were capable of producing prolapse of the rectum as well as symptoms of urinary calculi. A high incidence of these difficulties has been reported in several commercial feedlots where the lambs have been given stilbestrol implants.

Project 111 GC: Lamb Feeding Experiments

Supplemental Report Concerning the Use of Stilbestrol¹

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Since the preparation of the original report on the lamb feeding studies at the Garden City Station, additional information has been obtained concerning the effect of stilbestrol upon the reproductive organs of wether lambs which may result in serious malfunction of the excretory system and possible death of the treated animals.

The use of stilbestrol implants in fattening lambs or cattle has not been approved by the Food and Drug Administration, but reports of increased rates of gain in experimental tests have encouraged the use of the material by commercial feeders. The extent of this use is not completely known but apparently a fairly large number of lamb feeders in Kansas have given their lambs stilbestrol implants. There have been reports of rather heavy losses in several groups of lambs where the hormone-like material has been used but the cause

1. Assistance in preparation of the anatomical specimens was given by Dr. W. M. McLeod, head of the Anatomy Department of the School of Veterinary Medicine, Kansas State College, Manhattan, Kansas.