

Table 13
Gains and lambing performance of yearling ewes fed six flushing rations, May 14 to June 18, 1963—34 days.

Lot no.	No. of ewes	Average total gain per ewe, lbs.	No. ewes lambing	No. total lambs	No. sets of twins	% lamb crop ¹
1	25	6.98	25	26	1	104.0
2	25	8.37	22	23	1	92.0
3	25	7.52	23	24	1	96.0
4	25	10.37	20	20	0	80.0
5	25	11.04	24	25	1	100.0
6	25	9.02	19	20	1	80.0
Total	150	8.74	133	138	5	92.0

1. Includes all ewes exposed to rams and all lambs born.

Table 14
Cumulative % yearling ewes lambing by periods after first lamb birth, October 21, 1963.

Lot no.	Days after October 21				
	10	20	30	40	50
1	4.0	12.0	56.0	64.0	96.0
2	12.0	24.0	60.0	72.0	88.0
3	8.0	8.0	32.0	68.0	88.0
4	.....	8.0	32.0	52.0	80.0
5	.....	20.0	68.0	76.0	96.0
6	4.0	8.0	40.0	40.0	76.0

Table 15
Flock lambing records 1959-1962.

Year	No. ewes	% ewes lambing	% lamb crop born	% lamb loss prior to 10 days of age	% lamb loss after 10 days of age	% lamb crop marketed
1959 ¹	151	96.7	109.3	4.8	4.2	99.3
1960 ¹	350	94.6	109.4	3.7	2.6	102.6
1961	340	95.3	118.4	3.0	2.5	112.1
1962	324	96.0	124.7	3.7	6.9	111.4
Total						
Average	1165	95.4	116.3	3.6	4.1	107.4

1. All ewes lambing in 1959 were yearlings and approximately 200 ewes lambing in 1960 were yearlings.

Lamb Feeding Tests (1963-64)

Procedure: To determine the value of various rations and the practice of early weaning, ewes and lambs were divided into eight lots on the basis of lamb age and type of lamb birth (single or twin). A 7- to 10-day adjustment period was allowed, following lamb birth, before ewes and lambs were placed into respective lots. Lambs were docked and castrated during the adjustment period. All lamb creep rations were self-fed.

Following are the 1963-64 treatments:

Lot no.	Daily ewe ration	Lamb creep ration and treatment
5	Standard ration ¹	Standard ration ²
2	Rye pasture + standard ration when weather demands	Rye pasture + standard ration
7	Standard ration	Ground sorghum grain + 5% salt, alfalfa hay

8	Standard ration	Ground sorghum grain + 1.5% ground limestone, alfalfa hay
4	Standard ration	Ground mixed ration of 45% sorghum grain and 55% alfalfa hay
6	Standard ration	Ground mixed ration of 35% sorghum grain, 10% soybean oil meal and 55% alfalfa hay
1	Standard ration until lambs are weaned, then maintenance ration ³	Lambs weaned 8-10 weeks of age, ground mixed ration of 45% sorghum grain and 55% alfalfa hay
3	Standard ration until lambs are weaned, then maintenance ration ³	Lambs weaned 8-10 weeks of age, pelleted ration of 45% sorghum grain and 55% alfalfa hay

Results of the above test in progress will be reported in the 1964 Annual Report.

1. Ewe standard ration: 1 lb. whole sorghum grain, 1 1/4 lbs. alfalfa hay and full feed of sorghum silage.

2. Lamb standard creep ration: whole sorghum grain and alfalfa hay in separate feeders.

3. Ewe maintenance ration: 1 lb. alfalfa hay and 6 lbs. sorghum silage.

Garden City Branch Kansas Agricultural Experiment Station, Garden City, Kansas. Lamb Feeding Experiments, 1963-1964.*

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Lambs and Pretest Treatment

Delivery of 602 fine-wool feeder lambs was accepted at Menard, Texas, October 16, 1963. They were sorted from 700 lambs and averaged 67.3 lbs. each with a 3% shrink. Purchase price was \$16.25 per cwt. Immediately 197 were injected (intramuscular) with 1/2 cc. of an emulsified solution supplying 250,000 I.U. of vitamin A, 37,500 I.U. vitamin D, and 25 I.U. of vitamin E. All lambs were shorn (average fleece, 3.7 lbs.) and then shipped to Garden City on a triple-deck truck. They arrived at the Experiment Station at 8 a.m. October 18, having lost approximately 4 lbs. per lamb in transit. Lambs were weighed on arrival, divided into pens of approximately 50 head each and fed about 40 lbs. of medium-quality ground alfalfa hay and 45 to 60 pounds of green chopped grain sorghum stubble per lot until October 22 when they were moved to buffalo pasture. November 4 they were placed in dry lot and fed alfalfa hay and chopped sorghum stubble ration until started on test.

Experimental Procedure

November 8, lambs were weighed, implanted with 3 mgs. stilbestrol lotted with equal numbers of vitamin-injected lambs (17 in each lot) and started on test rations.

Following are treatments for the 11 lots:

Lot no.	Treatment	How fed
1	Standard ration of whole sorghum grain, .75 lb. chopped alfalfa hay, .10 lb. 41% cottonseed meal and sorghum silage.	Hand
2	Standard ration plus an additional .10 lb. cottonseed meal.	Hand
5	Standard ration plus Terramycin.	Hand
7	Sorghum silage replaced by corn silage in standard ration.	Hand

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Lot no.	Treatment	How fed
3	Mixture of 65% sun-cured alfalfa pellets and 35% whole sorghum grain.	Self
8	Mixture of 65% dehydrated alfalfa pellets and 35% whole sorghum grain.	Self
4	Complete pelleted ration consisting of 65% sun-cured alfalfa hay and 35% sorghum grain.	Self
6	Complete pelleted ration, watered from unheated water trough.	Self
9	Ground mixed ration consisting of 65% sun-cured alfalfa hay and 35% sorghum grain.	Self
10	High concentrate ground mixed ration of sun-cured alfalfa hay, sorghum grain, and 41% cottonseed meal.	Self
11	Alfalfa pasture.	

Hand-fed lots were fed equal amounts of sorghum grain, alfalfa hay and cottonseed meal (Lot 5 received a higher level), and all the silage they would clean up. Salt was available in all lots, and all lots except six were watered by automatic electrically heated waterers.

The same source of alfalfa hay was used in all self-fed rations containing sun-cured alfalfa.

The 65% roughage and 35% sorghum grain ratio was fed from the start of the test in Lots 3, 4, 6, 8, and 9. Lambs fed the high-concentrate ration were started on 65% alfalfa and 35% sorghum grain. Each 15 days the percentage of alfalfa was lowered by 10% and the sorghum grain increased by 10% until at the end of 45 days lambs were eating 35% alfalfa and 65% sorghum grain. At 60 days the ration was changed to 20% alfalfa, 75% sorghum grain and 5% cottonseed meal and after 90 days, to 10% alfalfa, 80% sorghum grain and 10% cottonseed meal.

Death losses from enterotoxemia were high in Lots 1 and 5 the first 10 days on test. Heavy grain content of sorghum silage may have contributed to losses. Grain was fed at the start of the test, November 8, at the rate of 15 lbs. per lot (50 lambs) both morning and evening. The rate was increased to 20 lbs. each feeding by November 14. It was reduced to 15 lbs. November 18, and discontinued thereafter until November 25. It was originally planned for lambs in Lot 1 to water from a heated waterer and those in Lot 5 from an unheated waterer. However, because of high death losses, one half of the lambs in Lots 1 and 5 were vaccinated November 22 with 5 cc. clostridium perfringens type D bacterin, and Lot 5 was changed to a heated water source and also fed Terramycin at 80 mgs. per lamb per day for three days, then at 40 mgs. per lamb per day.

Final lamb weights were taken February 21 after 105 days on test.

Feed prices and processing charges used in computing cost gains costs:	
Alfalfa hay	\$24.00 per ton
Alfalfa pellets	31.00 per ton
Dehydrated alfalfa pellets	43.00 per ton
Sorghum silage	6.50 per ton
Corn silage	7.00 per ton
41% cottonseed meal	74.00 per ton
65% alfalfa, 35% sorghum grain pellets	34.15 per ton
Sorghum grain	1.65 per cwt.
Salt	1.10 per cwt.
Terramycin crumbles (2 gms./lb.)	21.50 per cwt.

Chopping hay	2.00 per ton
Grinding hay	4.00 per ton
Grinding and pelleting	7.00 per ton
Grinding sorghum grain	2.00 per ton
Alfalfa pasture	.01 per lamb per day

Table 16
Hand fed rations and alfalfa pasture for fattening lambs, November 8, 1963, to February 21, 1964—105 days.

Lot no.	1	2	5	7	11
Treatment	Standard sorghum silage ¹	Standard sorghum silage + additional C.S.M.	Standard sorghum silage + Terramycin ³	Corn silage	Alfalfa pasture ⁴
No. lambs	42	46	43	45	47
Av. initial wt., lbs.	63.1	62.5	63.1	62.8	62.5
Av. final wt., lbs.	111.4	112.5	110.6	112.8	107.4
Av. total gain, lbs.	48.3	50.0	46.9	50.0	44.9
Av. daily gain, lbs.	.460	.476	.446	.477	.428
Vitamin injection ² ..	.439	.490	.432	.462	.426
No vitamin	.470	.469	.454	.484	.429
Daily feed per lamb, lbs.:					
Whole sorghum grain	.94	.94	.94	.94	.....
Sorghum silage	4.78	4.59	4.31	.....	.....
Corn silage .....	.....	.....	.....	5.25	.....
Alfalfa hay	.72	.72	.72	.72	.10
41% C.S.M.	.10	.20	.10	.10	.....
Salt	.027	.026	.018	.028	.017
Feed per cwt. gain, lbs.:					
Whole sorghum grain	204.3	197.5	210.8	197.1	.....
Sorghum silage	1039.1	964.3	966.4	.....	.....
Corn silage .....	.....	.....	.....	1121.6	.....
Alfalfa hay	156.5	151.3	161.4	150.9	23.4
41% C.S.M.	21.7	42.0	22.4	21.0	.....
Salt	5.9	5.5	4.0	5.9	4.0
Av. feed cost per cwt. gain ¹	\$9.64	\$9.97	\$10.41	\$9.97	\$2.66
Av. feed cost per lamb	\$4.66	\$4.98	\$4.88	\$4.98	\$1.19

1. Half the lambs in each lot vaccinated with 5 cc. clostridium perfringens type D bacterin November 22.

2. Alfalfa hay fed only when snow covered pasture.

3. Seventeen lambs in each lot received vitamin injection.

4. Does not include cost of vitamins or stilbestrol implants.

Table 17
Self-fed rations for fattening lambs, November 8, 1963, to February 21, 1964—105 days.

Lot no.	3	8	4	5	9	10
Treatment	Sun-cured alf. pellets + whole sorghum grain	Dehy. alf. pellets + whole sorghum grain	Pelleted ration	Pelleted ration, unheated water	Ground mixed ration	High-moisture mixed ration
No. lambs	39	38	42	45	42	36
Av. initial wt., lbs.	62.4	62.8	62.2	61.8	62.4	63.5
Av. final wt., lbs.	117.9	119.0	109.6	113.3	109.3	107.9
Av. total gain, lbs.	55.5	56.4	47.4	51.5	46.9	44.4
Av. daily gain, lbs.	.529	.537	.452	.490	.446	.423
Vitamin injection ¹	.547	.532	.421	.481	.447	.380
No vitamin	.521	.540	.466	.496	.446	.442
Daily feed per lamb, lbs.:						
Complete pellets			2.5	3.65		
Sorghum grain	1.17	1.28			1.23	1.84
Alfalfa pellets	2.17	2.38				
Dehy. alfalfa pellets					2.39	1.07
Alfalfa hay						.08
41% C.S.M.		.021	.021	.030	.031	.021
Salt						
Feed per cwt. gain, lbs.:						
Complete pellets			775.5	744.9		
Sorghum grain	221.2	238.4			275.8	435.0
Alfalfa pellets	410.2	443.2				
Dehy. alfalfa pellets					535.9	252.9
Alfalfa hay						18.9
41% C.S.M.	4.0	3.9	4.6	6.1	7.0	5.0
Salt						
Av. feed cost per cwt. gain ²	\$10.95	\$13.50	\$13.44	\$12.92	\$12.41	\$11.91
Av. feed cost per lamb ²	\$ 5.59	\$ 7.61	\$ 6.37	\$ 6.65	\$ 5.82	\$ 5.29

1. Seventeen lambs in each lot received vitamin injection.

2. Does not include cost of vitamins or stilbestrol implants.

Observations

Eighty-four lambs on test died during the 105-day feeding period. Deaths in each lot can be obtained by subtracting the number remaining from 50. Although early death losses were highest in Lots 1 and 5, losses soon became serious in almost all other lots. Many lambs, particularly in self-fed Lots 3, 4, 6, 8, 9 and 10, slipped large amounts of wool. Some lambs became almost completely bare. This condition made them vulnerable to cold, windy weather December 11 until early January, and losses were quite high. Cause of death was diagnosed as enterotoxemia in all lambs posted, with the following exceptions: on alfalfa pasture (Lot 11) one lamb died from impaction complicated by tape-worms, lung and kidney damage, and two lambs were killed by dogs; one lamb in Lot 8 died from urinary calculi.

Only one vaccinated and one nonvaccinated lamb in Lot 1, and one nonvaccinated lamb in Lot 5 died after November 22, when half the lambs in those lots were vaccinated for enterotoxemia and Lot 5 was placed on Terramycin. It is, therefore, impossible to say that either treatment was beneficial. Terramycin did not improve gains but it did increase feed cost. Vaccinated lambs gained .46 lb. per lamb per day and nonvaccinated lambs, .45 lb. per lamb per day.

Surviving lambs made fast and efficient gains in all lots. Hand-fed lambs receiving silage rations gained approximately as fast as self-fed lambs and in general made cheaper gains.

Feeding an additional .10 lb. of cottonseed meal to lambs in Lot 2 on the standard sorghum silage ration did not materially improve gains but increased cost of gains slightly.

Lambs fed corn silage in Lot 7 ate considerably more silage than those in Lot 1. However, this did not result in much improvement in gain, and feed cost was higher.

This is the second year alfalfa pasture has produced fast, very cheap lamb gains. There were also fewer death losses attributed to the ration. Even though lambs grazed on alfalfa pasture made good gains, they were not so fat as drylot lambs at the end of the test, so they were placed on the complete pelleted ration fed Lots 4 and 6 after final weights were taken.

Among the self-fed lots, lambs in Lots 3 and 8 fed the mixed sun-cured or dehydrated alfalfa pellets and whole sorghum grain made the fastest, most efficient gains. In those two lots sun-cured alfalfa pellets produced cheaper gains than did dehydrated alfalfa pellets. More efficient, but costlier gains were made by lambs fed a pelleted ration (Lot 4) containing the same ratio of hay and grain as in the ground, mixed ration fed Lot 9. Usually pelleting a ration containing a high level of roughage (65% in this instance) improves gain; however, that was not so this year.

Lambs having access to heated water gained no faster nor any more efficiently than those drinking from an unheated trough.

The high-concentrate mixed ration fed Lot 10 produced somewhat slower gains than other self-fed rations but overall performance was quite satisfactory. Average ratio of ingredients in this ration over the entire feeding period was 61.5% sorghum grain, 35.8% alfalfa and 2.7% cottonseed meal.

Injecting lambs with the mixture of A, D, and E vitamins did not improve gains. Lambs receiving the injection gained .456 lb. per day and those not treated gained .473 lb. per day.

Acknowledgments

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Dehydrated alfalfa pellets were furnished by Archer-Daniels-Midland Company, Holcomb, Kans., and National Alfalfa Dehydrating and Milling Company, Garden City, Kans.

Sun-cured alfalfa pellets and meal fed to self-fed lots were supplied by Garden City Coop. Equity Exchange, Garden City, Kans.