

# Sheep

## Lamb Feeding Experiments 1962-1963.

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### Lambs

Six hundred and forty mixed wether and ewe fine-wool, feeder lambs were received at the Zuni Indian Reservation near Gallup, N.M., October 18, 1962. They averaged 61.9 pounds at the receiving point and 58.6 pounds off railroad cars at Garden City, three days later.

### General Procedure

During the 25-day pre-test period, lambs were fed mixed rye and vetch hay and average quality alfalfa hay. Lambs were weighed, lotted and started on test, November 15, when they averaged 66.1 pounds. All lambs were implanted with 3 mgs. Stilbestrol December 3, but not treated for internal parasites nor vaccinated for enterotoxemia.

Corn silage, sorghum silage, and alfalfa hay were compared as roughages in Lots 1, 5, and 2, respectively. Lambs were fed all the roughage they would eat, but whole sorghum grain, supplemental alfalfa hay, and cottonseed meal were limited.

Cottonseed meal plus ground limestone was compared with alfalfa hay as a supplement for a sorghum grain and sorghum silage ration in Lots 3 and 4.

Automatic, electrically heated waterers were installed in the lamb feedlot in 1962. To determine the effect on lamb performance, Lot 6 was watered with an unheated water trough, with lambs in Lot 5 fed a similar ration watered from a heated waterer, as controls.

Lambs in Lots 7, 8, and 9 were self-fed mixed rations of whole sorghum grain and  $\frac{1}{2}$ -inch dehydrated alfalfa pellets. Lot 7 lambs were started on a mixture containing 25% sorghum grain, which was increased to 45% sorghum grain by the end of 90 days. Lots 8 and 9 were fed a mixture containing 80% sorghum grain from the start. Rye straw was supplied free choice to Lots 7 and 8, and sorghum silage was fed free choice to Lot 9.

Hybrid T 700 variety sorghum grain grown on one field contained 7.46% crude protein, while on another field the same variety of grain contained only 4.62% crude protein. The value of these two grains fed in a sorghum silage ration supplemented with .72 pound of alfalfa hay was studied in Lots 10 and 11.

Lambs in Lot 12 were grazed on alfalfa pasture.

Feed prices used in computing cost of gains follow:

Alfalfa hay .....	\$25.00 per ton
Dehydrated alfalfa pellets .....	46.00 per ton
Corn silage .....	7.00 per ton
Sorghum silage .....	6.50 per ton
Rye straw .....	10.00 per ton
Sorghum grain .....	36.00 per ton
41% cottonseed meal .....	74.50 per ton
Salt .....	1.50 per cwt.
Ground limestone .....	1.00 per cwt.
Alfalfa pasture .....	.01 per head per day

### Observations

Lambs fed corn silage in Lot 1 ate the same amount of silage as those fed sorghum silage in Lot 5. Gains were practically the same for both lots. In contrast to previous years' results, slightly slower and considerably more expensive gains were made by Lot 2 lambs fed alfalfa hay as the roughage.

Faster, more efficient, and cheaper gains were made by lambs in Lot 4, fed .72 pound of alfalfa hay per day, than those in Lot 3 fed .20 pound of cottonseed meal plus ground limestone. However, an additional .10 pound of cottonseed meal per lamb per day increased lamb performance and lowered feed cost per cwt. gain in Lot 5 compared with Lot 4.

Lambs having access to heated water consumed more silage and gained only slightly faster, but made cheaper gains than those watered from an unheated trough.

Lambs in Lot 7 ate an average ration of 35% whole sorghum grain and 65% dehydrated alfalfa pellets. They made fast, efficient gains, but alfalfa pellets made feed costs high. No trouble was experienced

Table 32

Comparative value of corn silage, sorghum silage and alfalfa hay as roughages and of cottonseed meal and alfalfa hay as protein sources for fattening lambs.

November 15, 1962, to February 13, 1963—90 days.

Lot no. ....	1	5	2	3	4
Treatment .....	Corn silage	Standard sorghum silage	Alfalfa hay	Sorghum silage, CSU	Sorghum silage, alfalfa hay
No. of lambs .....	47	49	50	47	49
Av. initial wt., lbs. ....	66.1	66.4	66.0	66.4	66.3
Av. final wt., lbs. ....	97.2	98.3	95.6	90.5	94.2
Av. total gain, lbs. ....	31.1	31.9	29.6	24.1	27.9
Av. daily gain, lbs. ....	.346	.355	.329	.268	.310
Daily feed per lamb, lbs.:					
Whole sorghum grain .....	1.35	1.35	1.35	1.35	1.35
Sorghum silage ..	.....	2.41	.....	2.87	2.27
Corn silage .....	2.41	.....	.....	.....	.....
Alfalfa hay .....	.72	.72	1.76	.....	.72
41% cottonseed meal .....	.10	.10	.....	.20	.....
Limestone .....	.....	.....	.....	.015	.....
Salt .....	.014	.014	.014	.023	.014
Av. lbs. feed per cwt. gain:					
Whole sorghum grain .....	396.2	380.3	410.3	503.7	435.5
Sorghum silage ..	.....	678.9	.....	1070.9	732.2
Corn silage .....	696.5	.....	.....	.....	.....
Alfalfa hay .....	208.1	202.8	535.0	.....	232.2
41% cottonseed meal .....	28.9	28.2	.....	74.6	.....
Limestone .....	.....	.....	.....	5.6	.....
Salt .....	4.0	3.9	4.2	8.6	4.5
Av. feed cost per cwt. gain <sup>1</sup> .....	\$13.20	\$12.70	\$14.14	\$15.51	\$13.19
Av. feed cost per lamb <sup>1</sup> .....	4.10	4.05	4.18	3.74	3.68
Cost per lamb on test <sup>1</sup> .....	11.96	12.02	11.95	12.02	12.00
Av. total cost per lamb <sup>1</sup> .....	16.06	16.07	16.13	15.76	15.68
Av. total cost per cwt. <sup>1</sup> .....	16.52	16.35	16.87	17.41	16.64

1. Does not include cost of lamb losses or Stilbestrol implants.

Table 33

1. Heated vs. unheated water for lambs.  
2. Self-fed mixtures of whole sorghum grain and dehydrated alfalfa pellets for fattening lambs.

November 15, 1962, to February 13, 1963—90 days.

Lot no.	5	6	7	8	9
			Self-fed mix. of 33% whole sorgh. grain, 65% dehy. alf. pellets + rye straw	Self-fed mix. of 80% whole sorgh. grain, 20% dehy. alf. pellets + rye straw	Self-fed mix. of 80% whole sorgh. grain, 20% dehy. alf. pellets + sorghum silage <sup>1</sup>
Treatment	Heated water	Unheated water			
No. of lambs	49	48	49	39	45
Av. initial wt., lbs.	66.5	66.1	66.0	66.1	66.7
Av. final wt., lbs.	98.3	95.5	107.7	86.2	89.2
Av. total gain, lbs.	31.9	29.4	41.7	20.1	22.5
Av. daily gain, lbs.	.355	.327	.464	.223	.250
Daily feed per lamb, lbs.:					
Whole sorghum grain	1.35	1.35	1.25	1.31	.....
Sorghum silage	2.41	2.13	.....	.....	.....
Alfalfa hay	.72	.72	.....	.....	.....
Dehy. alfalfa pellets	.....	.....	2.28	.33	.....
Rye straw	.....	.....	.21	.32	.....
41% cottonseed meal	.10	.10	.....	.....	.....
Salt	.014	.017	.029	.022	.....
Av. lbs. feed per cwt. gain:					
Whole sorghum grain	380.3	412.8	269.4	587.4	.....
Sorghum silage	678.9	651.4	.....	.....	.....
Alfalfa hay	202.8	220.2	.....	.....	.....
Dehy. alfalfa pellets	.....	.....	491.4	148.0	.....
Rye straw	.....	.....	45.2	143.5	.....
41% cottonseed meal	28.2	30.6	.....	.....	.....
Salt	3.9	5.2	6.2	9.9	.....
Av. feed cost per cwt. gain <sup>2</sup>	\$12.70	\$13.52	\$16.47	\$15.02	.....
Av. feed cost per lamb <sup>2</sup>	4.05	3.97	6.87	3.02	.....
Cost per lamb on test <sup>2</sup>	12.02	11.96	11.95	11.96	.....
Av. total cost per lamb <sup>2</sup>	16.07	15.98	18.82	14.98	.....
Av. total cost per cwt. <sup>2</sup>	16.35	16.68	17.47	17.38	.....

1. Lambs changed to sorghum grain, sorghum silage, and alfalfa hay ration after 15 days on test, because of serious digestive disturbances.

2. Does not include cost of lamb losses or Stilbestrol.

Table 34

High and low protein sorghum grain<sup>1</sup> of the same variety and alfalfa pasture for fattening lambs.

Lot no.	10	11	12
	High-protein sorghum grain	Low-protein sorghum grain	Alfalfa pasture
Treatment			
No. of lambs	49	49	50
Days on feed <sup>2</sup>	60	60	90
Av. initial wt., lbs.	66.4	66.9	66.8
Av. final wt., lbs.	84.3	80.4	100.9
Av. total gain, lbs.	17.8	13.5	34.1
Av. daily gain, lbs.	.297	.225	.379
Daily feed per lamb, lbs.:			
Whole sorghum grain	1.25	1.25	.....
Sorghum silage	2.30	1.94	.....
Alfalfa hay	.72	.72	.....
Alfalfa pasture	.....	.....	Free choice
Salt	.015	.016	Free choice
Av. lbs. feed per cwt. gain:			
Whole sorghum grain	416.7	555.6	.....
Sorghum silage	774.4	862.3	.....
Alfalfa hay	242.4	320.0	.....
Salt	5.0	7.1	.....
Av. feed cost per cwt. gain <sup>2</sup>	\$13.12	\$16.91	\$ 2.64
Av. feed cost per lamb <sup>2</sup>	2.34	2.28	.90
Cost per lamb on test <sup>2</sup>	12.02	12.11	12.09
Av. total cost per lamb <sup>2</sup>	14.37	14.39	12.99
Av. total cost per cwt. <sup>2</sup>	17.05	17.90	12.87

1. Sorghum grain was Hybrid T 709 variety grown on different fields.

2. Test was terminated after 60 days due to insufficient amount of desired sorghum grain.

3. Does not include cost of lamb losses or Stilbestrol implants.

in getting those lambs on feed. In contrast, lambs in Lots 8 and 9, self-fed the 80% sorghum grain and 20% dehydrated pellet mixture from the start, went off feed, scoured badly, and fatalities were high from enterotoxemia. It was felt, since these lambs had free access to either rye straw or sorghum silage, they might adjust to the concentrated ration without too much trouble. That was not the case; they should have been slowly adjusted as recommended. Digestive disturbances were more severe in Lot 9 fed the sorghum silage than in Lot 8 fed rye straw. Because of the trouble experienced in this lot, lambs were changed to a hand-fed sorghum silage, sorghum grain, and alfalfa hay ration. Lot 8 continued on its ration to the end of the test. This lot now has access to sorghum grain and alfalfa pellets in separate feeders to determine the proportion of each they will consume voluntarily. It can be seen from Table 35 that lambs in Lot 8 gained quite well after the first 30 days.

Lambs in Lot 10 fed the high-protein sorghum grain gained faster, more efficiently and cheaper than lambs in Lot 11 fed the low-protein sorghum grain. Considerably more silage was consumed by lambs fed the high-protein grain. Crude protein content of feeds was: high-protein grain, 7.64%; low-protein grain, 4.62%; sorghum silage, 1.33%; and alfalfa hay, 14.29%. Using these percentages and the average daily feed eaten, each lamb in Lot 10 was supplied .23 pound of protein daily and those in Lot 11 were supplied .19 pound. Both are less than the National Research Council recommendation of .34 pound of crude protein per 75-pound lamb per day. Had these two grains been compared in a ration high in protein, differences obtained here probably would not have

existed. The sorghum grain and sorghum silage were lower in protein than currently used tables of nutritive composition indicated for them.

Alfalfa pasture produced fast, very cheap gains at the charged price. Two periods of low gains obtained on alfalfa pasture probably are explained by the causes listed in Table 36.

#### ACKNOWLEDGMENTS:

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Stilbestrol implants were supplied by Charles Pfizer and Company, Inc., Terre Haute, Indiana.

#### Investigations of Milk-fat Lamb Production Practices for Western Kansas. Results for 1961-62 and Preliminary Results, 1962-63.

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#### Experimental Sheep

The Colby ewe flock consists of approximately 325 four- and five-year-old fine-wool ewes, that were purchased in southwest Texas as yearlings. Purebred Hampshire rams are used.

Table 35

Average daily gain per lamb by 15-day periods and total average daily gain for all lots, pounds.

Lot no.	Period						Total
	1	2	3	4	5	6	
1	.34	.35	.29	.31	.45	.35	.346
2	.32	.24	.26	.30	.47	.39	.329
3	.38	.07	.35	.26	.29	.14	.268
4	.42	.09	.36	.29	.31	.39	.310
5	.47	.17	.46	.31	.37	.37	.355
6	.43	.12	.26	.37	.41	.37	.327
7	.25	.44	.58	.54	.49	.49	.464
8	.44	.20	.24	.36	.57	.38	.323
9	.29	.15	.37	.36	.49	.41	.250
10	.35	.13	.40	.31	.43	....	.297
11	.35	.07	.16	.30	.41	....	.225
12 <sup>1</sup>	.45	.53	.78	.12	.61	.71	.379

1. Dogs chased and tore up several lambs during Period 1, and lambs were changed to new alfalfa pasture at end of Period 1.

Table 36  
Death losses and cause by lots.

Lot no.	Enteritis	Urinary calculi
1	1	2
2	0	0
3	2	1
4	1	0
5	0	1
6	0	2
7	1	0
8	11	0
9	5	0
10	0	1
11	1	1
12	0	0

#### General Procedure

This flock is handled in an early-lambing program, with the breeding season starting the last of May and extending to September 1. All lambs are sold as milk-fat lambs during spring and early summer.

Three separate tests are conducted during the year. The first attempts to determine the effect that varying the energy intake of ewes during a preflushing period has on lambing performance of the ewes. The second test compares various rations for flushing ewes, and the third studies various management practices and rations for ewes and lambs.

#### Preflushing Test—Spring, 1961

Procedure: 340 two- and three-year-old ewes were divided into two groups on the basis of age and number of lambs produced the previous year (April 24, 1961), and fed either of two rations for 17 days. One group was fed a low-energy ration of 2 pounds of alfalfa hay per ewe per day and one group received 2 pounds of alfalfa hay, ½ pound sorghum grain and 3 pounds of sorghum silage per ewe per day. At the end of this period an equal number of ewes from each lot were placed in each of six lots and fed different flushing rations for 40 days. (See flushing test, 1961, page 64.) Ewes were exposed to rams eight days after being placed on flushing rations.

#### Results and Discussion

Table 37

Gain and lambing performance of preflushed ewes—spring, 1961.

Preflushing ration	No. of ewes	Av. pre-flushing gain per ewe, lbs. <sup>1</sup>	Av. flushing gain per ewe, lbs. <sup>2</sup>	Cumulative % ewes lambing						% lamb crop <sup>3</sup>
				Days after first lamb birth						
				10	20	30	40	100		
Low energy	171	-2.0	+13.1	2.9	18.1	80.7	91.2	95.8	120	
Normal	169	+4.0	+9.0	5.3	20.7	79.3	86.4	94.7	117	

1. 17-day period.

2. 10-day period.

3. Includes lambs dead at birth.

Ewes fed the low-energy ration lost weight during the preflushing period, and therefore made larger gains during the following flushing period. This group also had a slightly earlier average lambing date and a 3% larger lamb crop.

#### Preflushing Test—1962

Procedure: 327 three- and four-year-old ewes were allotted April 23, 1962, on the same basis and fed the same rations as in 1961. At the end of the 17-day preflushing period, ewes were again divided into six flushing lots (see flushing test, 1962, page 65) and were exposed to rams 17 days after going on flushing rations.

#### Results and Discussion

Table 38

Gain and lambing performance of preflushed ewes—spring, 1962.

Preflushing ration	No. of ewes	Av. pre-flushing gain per ewe, lbs. <sup>1</sup>	Av. flushing gain per ewe, lbs. <sup>2</sup>	Cumulative % ewes lambing					% lamb crop <sup>3</sup>
				Days after first lamb birth					
				10	20	30	40	100	
Low energy	161	-11.6	14.6	16.8	48.4	91.3	93.2	95.6	123.0
Normal	163	.2	5.0	16.6	44.8	87.7	92.0	96.3	126.4

1. 17-day period.

2. 41-day period.

3. Includes lambs dead at birth.