

Investigations of Milk-fat Lamb Production Practices for Western Kansas, Colby.

Results of 1965-66 Creep-feeding Tests, 1966 Ewe Flushing Tests and Progress of Accelerated Lambing Flock, 1967 Report¹.

C. S. Menzies, Animal Husbandry Department, Kansas State University
Evans Banbury, Superintendent, Colby Branch Station
Clifford W. Spaeth, Livestock Project Leader, Colby Branch Station

Experimental Sheep

A flock of approximately 450 commercial finewool ewes is maintained at the Colby Branch Experiment Station. Ewes are purchased in early spring in Southwest Texas as yearlings and replaced after producing six lamb crops. The current flock consists of ewes that produced first, second, and fourth lamb crops. Purebred Hampshire rams are used. All lambs are sold for slaughter.

General Procedure

Approximately 350 ewes are handled in an early lambing program with the breeding season beginning June 1 and ending September 1. Lambs from this flock are sold as milk-fat spring lambs during spring and early summer. Last spring (1966) a flock of 100 ewes was assigned to an accelerated lambing program. Lambs produced by this flock will be sold when they reach market weight.

Lamb Feeding Tests, 1965-66

Procedure: To study the value of various creep-feeding rations for producing slaughter lambs for a spring market, ewes and lambs were divided into 8 test groups. They were allotted on type of lamb birth (multiple or single) and age. Lambs were docked, male lambs castrated and ewes adjusted to feed during a 7 to 10 day adjustment period before going on test.

Then all ewes were fed a uniform daily nursing ration (except those in lot 2, which received only rye pasture) consisting of 1 pound whole sorghum grain, 1.25 pounds of alfalfa hay and all the sorghum silage they would consume. Lambs, except those in lot 2, had access to self-fed creep rations (shown in table 1) as soon as assigned to test groups. Lambs in lot 2 were weaned at 8 to 10 weeks of age. Lambs in other lots not marketed before April 3 were weaned then. After lambs were weaned, ewes were fed a daily maintenance ration of 1 pound alfalfa hay and 6 pounds sorghum silage each.

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Lambs were marketed at Denver, Colo., and Omaha, Nebr., when they weighed at least 95 pounds.

Results and Discussion: Performance and cost of gains are reported in table 2; table 3 gives complications that occurred; table 4, weaning weights and ages for early weaned lambs; table 5 contains carcass data; and table 6, feed costs and processing charges.

Replacing 5% sorghum grain with molasses in a ground and mixed creep ration neither increased feed consumption nor improved rate or efficiency of gain. It increased feed cost per cwt. gain. However, replacing 5% of the grain with soybean oil meal improved both rate and efficiency of gain. The improved efficiency was enough to offset the additional cost of the soybean oil meal. However, replacing 10% of the grain with soybean meal failed to further improve rate of gain and only slightly improved feed efficiency, but increased cost of gains. Replacing sorghum grain with wheat did not affect rate of gain, improved feed efficiency, but produced more expensive gains.

Lambs given free access to ground sorghum grain and alfalfa hay in separate troughs made slower, but just as efficient and slightly cheaper gains than lambs fed ground mixed rations of alfalfa hay and sorghum grain. However, as in past years, several lambs on that ration developed urinary calculi. Adding ammonium chloride to the ration effectively prevented urinary calculi. It should be stressed, however, that no calculi cases developed in other lots fed ground-mixed rations containing 55% alfalfa hay. Not a single case of calculi has been noticed in the past 6 years at this station with lambs fed a ration containing at least 55% alfalfa.

Rye pasture (no creep and early weaned) produced the slowest but cheapest gains as no charge was made for the pasture. The fall planted, preirrigated rye pasture produced an average of 782 lamb grazing days per acre (lambs from approximately 2 1/2 months to market age). Multiplying average daily gain of .47 lb. by 782 equals 367.5 lb. of lamb produced per acre, at \$25 per cwt. That is \$91.87 per acre of rye pasture.

Lambs fed the sorghum grain and alfalfa hay in separate troughs (lots 5 and 6) had higher dressing percentages than lambs fed other rations. The rye pasture produced considerably lower grading and lower yielding lambs than the other rations. Grade data also show that ewe lambs produced higher grading, and probably fatter, carcasses than wethers.

Table 1. Lamb creep rations and ewe nursing lot treatments - 1965-66

Lot no.	Lamb creep ration	Ewe nursing ration
1	55% ground alfalfa hay) 40% ground sorghum grain) mixture 5% molasses	Standard ration ¹
2	Rye pasture ³ weaned 8 to 10 weeks of age	Rye pasture until lambs weaned ² then maintenance ration
3	55% ground alfalfa hay) 40% ground sorghum grain) mixture 5% soybean meal	Standard ration
4	55% ground alfalfa hay) 35% ground sorghum grain) mixture 10% soybean meal	Standard ration
5	Free choice: Alfalfa hay Ground sorghum grain	Standard ration
6	Free choice: Alfalfa hay Ground sorghum grain containing 1 1/2% ammonium chloride until oldest lamb was 80 days - then reduced to 1% ammonium chloride	Standard ration
7	55% ground alfalfa hay) 45% ground sorghum grain) mixture	Standard ration
8	55% ground alfalfa hay) 45% ground wheat) mixture	Standard ration

1. Standard nursing ration - 1 lb. whole sorghum grain, 1.25 lb. alfalfa hay, and sorghum silage fed to limit of appetite (approximately 10 lb.) per ewe daily.

2. Maintenance ration - 1 lb. alfalfa hay, 6 lb. sorghum silage per ewe daily.

3. Starting June 1 a mixture of 55% ground alfalfa hay, 40% ground sorghum grain, and 5% soybean meal.

Table 2 Lamb performance and feed cost by indicated treatments, 1965-1966

Lot no.	1	2	3	4	5	6	7	8
	Ground mixture: 55% alf. hay 40% sorg. gr. 5% molasses	Rye pasture ¹ weaned 8 to 10 wks. of age	Ground mixture: 55% alf. hay 40% sorg. gr. 5% S.B.M.	Ground mixture: 55% alf. hay 35% sorg. gr. 10% S.B.M.	Free choice: alf. hay gr'd sorg. gr.	Free choice: alf. hay gr'd sorg. gr. con- taining NH ₄ Cl ²	Ground mixture: 55% alf. hay 45% sorg gr	Ground mixture: 55% alf. hay 45% wheat
No. lambs	65	64	60	59	54	61	60	58
Av. mkt. wt., lb. ³	103.8	102.2	103.8	104.9	98.3	101.1	103.8	102.4
Av. daily gain, lb.	0.56	0.47	0.60	0.61	0.49	0.50	0.56	0.55
single wethers	0.59	0.51	0.66	0.66	0.56	0.52	0.62	0.61
single ewes	0.59	0.47	0.60	0.62	0.50	0.52	0.56	0.55
twins	0.52	0.44	0.56	0.55	0.42	0.46	0.51	0.51
Av. market age, days	169	197	156	158	187	187	170	171
Av. daily feed/lamb, lb.								
mixture	2.15	0.25 ¹	2.10	2.09	-	-	2.14	2.00
sorghum grain	-	-	-	-	1.20	1.09 ⁴	-	-
alfalfa hay	-	-	-	-	0.70	0.85	-	-
Av. feed/cwt. gain, lb.								
mixture	399.9	53.6	360.6	347.4	-	-	385.4	366.4
sorghum grain	-	-	-	-	248.0	221.5	-	-
alfalfa hay	-	-	-	-	144.7	172.4	-	-
Total	399.9	53.6	360.6	347.4	392.7	393.9	385.4	366.4
Lamb feed cost/cwt. gain	\$ 7.84	1.10	7.43	7.64	7.38	7.72	7.44	7.88
Ewe feed cost/cwt. gain ⁵	8.41	3.45 ⁶	8.59	8.40	9.06	8.62	8.47	8.69
Total feed cost/cwt. gain ⁵	16.25	4.55 ⁶	16.02	16.04	16.44	16.34	15.91	16.57

- Starting June 1, lambs were fed a mixture of 55% ground alfalfa hay, 40% ground sorghum grain, and 5% soybean meal in addition to rye pasture. feed consumed averaged over entire period.
- 1 1/2% ammonium chloride (NH₄Cl) until oldest lamb was 80 days, then reduced to 1% ammonium chloride.
- Weight prior to shipping.
- Includes ammonium chloride.
- Includes cost of feed for ewes nursing lambs and ewes having lambs weaned up to April 3, 1966, when all lambs were weaned.
- Value of rye pasture not included.

Table 3. Complications developing in each lot

Lot no.	Uri-nary Cal-culi	Founder & entero-toxemia	Lame-ness & stiff-ness	Scours	Rectal pro-lapse ¹	Other causes	Total treated	Death loss
1	-	-	-	-	-	-	-	-
2	-	1	4	-	-	-	5	1 ²
3	-	-	-	1	4	-	1	-
4	-	-	-	-	1	-	-	1 ³
5	4	1	8	-	1	2	15	2 ⁴
6	-	1	1	-	-	-	2	-
7	-	-	-	-	-	2	2	1 ⁵
8	-	-	2	1	-	-	3	1 ⁶

1. Only ewe lambs prolapsed. All prolapse lambs were slaughtered and, except for the lamb in lot 4, all prolapse lambs were included in the summary (Table 2).

2. Pneumonia.

3. Ewe refused to nurse lamb which became too weak before being removed from lot.

4. Enterotoxemia and urinary calculi.

5. Pneumonia.

6. Run over by tractor in cleaning lots.

Table 4. Weaning weights for lambs weaned at 8 to 10 weeks of age (lot 2)

	No. lambs	Avg. weaning age, days	Avg. weaning wt., lbs.
Single wethers	22	68.2	56.8
Single ewes	15	67.4	52.1
Twins	27	68.7	39.3
Overall	64	68.2	48.3

Table 5. Dressing percentage and U.S.D.A. carcass grades

Lot no.	No. lambs ¹	Shrink to market %	Av. Dressing % ²	Overall	% U.S.D.A. Prime Carcasses ³		
					Single wethers	Single ewes	twins
1	55	4.8	51.6	41.8	33.3	75.0	25.9
2	27	4.0	47.3	3.2	0.0	13.3	0.0
3	39	5.3	51.7	33.3	33.3	54.5	22.7
4	38	6.0	51.5	28.9	22.2	71.4	18.2
5	41	3.4	52.8	41.5	37.5	40.0	46.7
6	51	5.5	52.9	43.1	35.7	40.0	50.0
7	46	4.8	51.3	41.3	30.0	45.5	44.0
8	46	5.3	51.0	34.8	25.0	53.3	26.1

1. Carcass information was obtained on only number of lambs indicated in each lot.
2. Based on average lamb weights by lots at Denver and chilled carcass weight.
3. Carcasses not grading prime, graded choice.

Table 6. Feed costs and processing charges were based on these prices:

Feed charges	Dollars
Molasses	2.75/cwt
Sorghum grain	2.00/cwt
Wheat	1.50/bushel
Alfalfa hay	30.00/ton
Soybean oil meal	95.00/ton
Ammonium chloride	13.00/cwt
Grinding	.10/cwt
Mixing	.10/cwt

Table 7. Market information on lambs sold during 1965.

Number of lambs	501
Market dates and number sold:	
April 4, 1966	88
April 18, 1966	121
May 9, 1966	129
May 23, 1966	62
May 27, 1966	101
Avg. feedlot wt. at market date, lbs.	103.0
Avg. sale wt., lbs.	98.0
Avg. shrink to market (feedlot wt. to market wt.), %	4.83
Avg. selling price/cwt., \$	26.16
Trucking cost/cwt., \$	0.65
Other marketing costs/cwt., \$	0.86
Total marketing costs/cwt., \$	1.51
Avg. return/lamb after marketing costs, \$	24.16
Net lamb sales after market expense, \$	12,105.11

Ewe Flushing Tests, Spring 1966

Procedure: Three hundred sixty-four ewes were divided into five lots for the flushing treatments on the basis of previous ewe lambing record (multiple or single birth) and age. All 5 lots were fed the same daily rations per ewe from May 1 through May 15 (15 days). .5 lb. sorghum grain, 1 lb. alfalfa hay and 6 lb. sorghum silage. May 16 through June 18 (30 days) 2 lb. sorghum grain and 2 lb. alfalfa hay. The lot treatments were:

Lot no.	Treatment
1	Synchronized by feeding 60 mg. Medroxyprogesterone acetate (repromix) per ewe per day for 15 days prior to flushing. (May 1 - May 15). Bred 2nd estrus.
2	Synchronized by feeding 60 mg. Medroxyprogesterone acetate (repromix) per ewe per day for 15 days (May 16 - May 31) bred 1st estrus.
3	Synchronized by feeding .2 mg. Melengestrol Acetate (MGA) per ewe per day for 15 days (May 16 - May 31) Bred 1st estrus.
4	Control - ewes not synchronized.
5	Ewes exposed to 4 vasectomized teaser rams for 15 days (May 15 - May 31) prior to breeding.

Repromix and MGA are orally active synthetic progesterone-like hormone compounds manufactured by Upjohn Company, Kalamazoo, Michigan. The compounds were mixed with ground sorghum grain in a proportion so .5 lb. fed once daily would supply hormone to each ewe.

The breeding season for the five flushing lots began June 1, 1966. Ewes' weights were recorded prior to (May 16) and immediately following (June 18) flushing treatments for all lots except lot 1. Initial weights in lot 1 were taken April 30 and final weights June 18. Fifteen purebred Hampshire rams were used during the breeding season. The rams were divided into groups of 3, and the various groups were rotated among the five flushing lots twice each week. Following the flushing tests, all ewes were turned together and all rams turned with the entire flock. Marking harnesses were used to determine approximate dates ewes were serviced. The rams were removed September 1.

Results and Discussion: Results of gains and lambing performance of ewes are reported in table 8. Cumulative percentage of ewes lambing after first lamb birth is shown in table 9 and the breeding dates and lambing dates by periods are reported in table 10.

Ewes on all treatments were fed the same flushing ration and subsequent gains made during the 30 day flushing period were about the same for all lots. Unfortunately, beginning weights for ewes in lot 1 were not obtained on the same date as for the other lots. Consequently, results in table 8 show lot 1 ewes gaining more weight than those in other lots. The older ewes (2nd and 4th lamb crop) tended to gain slightly more than yearling ewes.

There was no consistent treatment effect on percentage ewes lambing or on number of multiple births. However, yearling ewes (as always in past tests) produced fewer multiple births than older ewes.

Ewes exposed to teaser rams for 15 days prior to breeding, bred and lambed considerably earlier than ewes in the other lots, which confirms earlier data reported at this station. There was little difference among the other 4 lots in earliness of lambing as indicated by cumulative data in table 9. However, ewes in lot 1 synchronized before flushing and about 15 days before breeding, were behind other lots in percentage ewes lambed during the first 20 days.

The effects of treatments on breeding and lambing dates is best explained in table 10. Ewes in the three synchronized groups (lots 1, 2 and 3), were synchronized fairly well as they bred and lambed by periods. Those in lot 1 (synchronized before flushing and 15 days before breeding) were not so grouped in breeding as the other two lots of ewes. For some reason, only about one third to one half of the ewes in each of those three synchronized lots bred the first 10 days of the breeding season. Most of the ewes not bred (marked) during the first ten days of the breeding season were bred one cycle later. Whether these ewes exhibited estrus during the first 10 days is unknown. Each lot of from 71 to 75 ewes had 3 rams turned in at nights. Rams were rotated among lots every 3 days. However, conception rates apparently were high as most of those breeding by periods also lambed after the first breeding except those fed M.G.A. in lot 3 where several repeat breedings were recorded. Lot 2, ewes synchronized with repromix before breeding, had 23 of 28 breed the first 10 days of the season and lamb in the first 9 days of lambing season. Also 41 of 75 ewes in lot 5 bred during the first 10 days.

From the flushing treatments these observations can be made:

1. Exposure of ewes to teaser rams accelerated lambing, but did not increase multiple births.
2. Synchronization treatments somewhat grouped lambing by periods, but did not accelerate lambing or improve lambing performance.
3. No advantage was observed for delaying breeding until the second estrus following synchronization.
4. M.G.A., at the level used, seemed to result in somewhat lower conception rates.

Table 8. Gains and lambing performance of ewes for each flushing treatment, spring 1966

Lot no.	No. of ewes	Total gain	No. of ewes lambing	No. of lambs born	% lamb crop	Number sets twins
<u>First lamb crop ewes</u>						
1 (Repromix prior to flushing)	40	22.1	36	37	92.5	1
2 (Repromix)	40	9.6	38	41	102.5	4
3 (MGA)	40	12.3	36	38	95.0	2
4 (Control)	40	11.6	37	41	102.5	4
5 (Teaser rams)	40	11.3	39	43	107.5	4
<u>Second and fourth lamb crop ewes</u>						
1 (Repromix prior to flushing)	30	18.5	29	34	113.3	5
2 (Repromix)	31	12.4	29	38	122.6	9
3 (MGA)	34	14.6	33	41	120.6	8
4 (Control)	34	14.0	33	41	120.6	8
5 (Teaser rams)	35	17.0	32	40	114.3	8
<u>All ewes</u>						
1 (Repromix prior to flushing)	70	20.6	65	71	101.4	6
2 (Repromix)	71	10.8	67	79	111.3	13
3 (MGA)	74	13.5	69	79	106.8	10
4 (Control)	74	12.7	70	82	110.8	12
5 (Teaser rams)	75	13.9	71	83	110.7	12

1. Total gain for lot 1 was from May 1 thru June 18 (48 days) and total gain for lots 2, 3, 4 and 5 from May 16 thru June 18 (34 days).

Table 9. Effect of flushing treatment on cumulative percentage of ewes lambing. Spring, 1966.

Lot no.	<u>Days after first lamb birth</u>					Total lambing
	10	20	30	40	90	
	<u>First lamb crop ewes</u>					
1 (Repromix prior to flushing)	30.0	37.5	77.5	85.0	90.0	90.0
2 (Repromix)	35.0	40.0	75.0	80.0	92.5	95.0
3 (MGA)	27.5	47.5	70.0	75.0	90.0	90.0
4 (Control)	32.5	52.5	80.0	85.0	92.5	92.5
5 (Teaser rams)	45.0	72.5	87.5	90.0	95.0	97.5
	<u>Second and fourth lamb crop ewes</u>					
1 (Repromix prior to flushing)	13.3	26.7	90.0	93.3	96.7	96.7
2 (Repromix)	29.0	41.9	87.1	87.1	93.5	93.5
3 (MGA)	23.5	38.2	82.4	88.2	94.1	97.1
4 (Control)	29.4	44.1	94.1	94.1	97.1	97.1
5 (Teaser rams)	40.0	62.9	82.9	88.6	91.4	91.4
	<u>Ewes of all ages</u>					
1 (Repromix prior to flushing)	22.9	32.9	82.9	88.6	92.9	92.9
2 (Repromix)	32.4	40.8	80.3	83.1	92.9	94.3
3 (MGA)	25.7	43.2	75.7	81.1	91.9	93.2
4 (Control)	31.1	48.6	86.5	89.2	94.6	94.6
5 (Teaser rams)	42.7	68.0	85.3	89.3	93.3	94.7

Table 10. Ewes breeding and lambing by indicated periods - Spring, 1966

Lot 1 - Repromix prior to flushing - 70 ewes

Breeding period	Length of period, days	No. bred ¹	Lambing period	Length of period, days	Number lambing
6/1 - 6/10	10	23	10/24 - 10/30	7	5
6/11 - 6/18	8	6	10/31 - 11/10	11	17
6/19 - 6/25	7	28 + 4 R	11/11 - 11/28	18	39
6/26 - 7/5	10	10 + 1 R	11/29 - 1/23	56	4
7/6 - 7/19	14	4 R			
			Total lambing		65

Lot 2 - Repromix - 71 ewes

6/1 - 6/10	10	28	10/24 - 10/26	3	2
6/11 - 6/18	8	0	10/27 - 11/1	6	21
6/19 - 6/25	7	31 + 8 R	11/2 - 11/9	8	0
6/26 - 7/5	10	1	11/10 - 11/17	8	32
7/5 - 7/19	14	3 + 7 R	11/18 - 1/23	67	12
			Total lambing		67

Lot 3 - MGA - 74 ewes

6/1 - 1/10	10	26	10/17 - 10/26	10	4
6/11 - 6/18	8	6 + 2 R	10/27 - 10/30	4	14
6/19 - 6/25	7	33 + 10 R	10/31 - 11/10	10	3
6/26 - 7/5	10	2 + 1 R	11/11 - 11/18	7	33
7/5 - 7/19	14	1 + 7 R	11/18 - 1/23	67	15
			Total lambing		69

Lot 4 - Control - 74 ewes

6/1 - 6/10	10	25	10/24 - 10/26	3	0
6/11 - 6/18	8	14 + 1 R	10/27 - 11/5	10	25
6/19 - 6/25	7	27 + 3 R	11/6 - 11/15	10	15
6/26 - 7/5	10	2 + 3 R	11/16 - 11/25	10	25
7/6 - 7/19	14	1 + 4 R	11/26 - 1/23	59	5
			Total lambing		70

Lot 5 - Teaser rams - 75 ewes

6/1 - 6/10	10	41	10/25 - 11/3	10	32
6/11 - 6/18	8	13 + 3 R	11/4 - 11/13	10	19
6/19 - 6/25	7	8 + 2 R	11/14 - 11/23	10	16
6/26 - 7/5	10	5 + 3 R	11/24 - 1/23	61	4
7/6 - 7/19	14	0 + 4 R			
			Total lambing		71

1. Determined by breeding marks made by rams wearing marking harness. Repeats (R) means ewes that rebred.

Accelerated Lambing Program

Procedure: May 1, 1966, 100 ewes purchased in spring, 1965, were placed in a separate group. They will be maintained separately to test possibilities of producing three lamb crops in two years. The following schedule is planned using 50-day breeding seasons, 150-day gestation periods, and weaning lambs at 43 to 60 days of age.

May 1, 1966 thru June 20, 1966	50-day breeding period
Sept. 27, 1966 thru Nov. 17, 1966	Lambing season
Nov. 26, 1966 thru Dec. 30, 1966	Lamb weaning period
Dec. 30, 1966 thru Feb. 19, 1967	50-day breeding period
May 29, 1967 thru July 17, 1967	Lambing season
July 28, 1967 thru Aug. 29, 1967	Lamb weaning period
Aug. 29, 1967 thru Oct. 18, 1967	50-day breeding period
Jan. 26, 1968 thru March 17, 1968	Lambing season
March 27, 1968 thru May 1, 1968	Lamb weaning period
May 1, 1968 thru June 20, 1968	50-day breeding period

The accelerated group was placed on rye pasture May 1, 1966. Four Hampshire rams were turned with the ewes each night from May 1, thru June 20. Ewes received rye, sudan grass, or buffalo grass pasture until lambing.

In addition, from May 23 to June 1, ewes were fed 1.5 lb. of grain sorghum per ewe per day and from June 1 to June 20 1 lb. alfalfa hay per ewe per day. Ewes were fed .75 lb. of grain and .25 lb. of alfalfa pellets per ewe per day starting Sept. 16, and 2 lb. of alfalfa hay starting October 11 through the lambing season. The first lamb in the lot was born October 10; and the last, November 13, with a very disappointing 32% of the ewes lambing.

Lambs born from this lot were handled the same as those in the regular lambing flock.

Ewes that did not lamb were fed the usual maintenance ration, while ewes that lamb were kept in lamb creep lots with their lambs. Lambs on the ewes were weaned December 14, except that the last four lambs were weaned December 29. December 15, the accelerated group was divided into two groups. One group was synchronized by feeding 60 mg. per ewe per day of synthetic progestin hormone Medroxyprogesterone acetate (repromix) in ground grain sorghum for 15 days. The other group was not synchronized. Ewes in both groups were fed 2 lb. alfalfa hay per ewe per day and equal amounts of sorghum grain, which was gradually increased to 2 lb. per ewe per day during the 15 days. Both groups were placed together December 30 and were continued on the same ration until January 18. Rams were turned with the ewes at nights from December 30 to February 19. Ewes will receive a daily ration of 6 lb. silage and 2 lb. alfalfa hay until about 30 days prior to lambing when 1 lb. of sorghum grain will be added to their ration.

Lamb Creep Feeding Tests, 1966-1967

Procedure: Lambs born during the fall of 1966 were allotted to eight test groups. The general procedures were identical to those for the 1965-1966 feeding tests except that all lambs were weaned between 63 and 70 days of age and half the wether lambs and half the ewe lambs in each group were implanted with 3 mg. stilbestrol when weaned.

Lamb and ewe treatments for the various lots follow:

<u>Lot no.</u>	<u>Lamb creep ration</u>	<u>Ewe nursing ration</u>
1	Mixture: 45% ground sorghum grain 55% ground alfalfa hay	Mixture: (free choice) 45% ground sorghum grain 55% ground alfalfa hay
2	Rye pasture Mixture: 45% ground sorghum grain 55% ground alfalfa hay	Rye pasture ¹ Standard ration when rye pasture snow covered
3	Mixture: 45% ground sorghum grain 55% ground alfalfa hay	Standard ration ¹
4	Mixture: 45% ground corn 55% ground alfalfa hay	Standard ration ¹
5	Mixture: 5% soybean meal 40% ground sorghum grain 55% ground alfalfa hay	Standard ration ¹
6	Mixture: 10% soybean meal 35% ground sorghum grain 55% ground alfalfa hay	Standard ration ¹
7	Mixture: 45% ground sorghum grain 55% ground alfalfa hay 25 to 30 mg. Aureomycin/lamb/day ²	Standard ration ¹
8	Mixture: 50% ground sorghum grain 20% dehydrated alfalfa meal 10% soybean meal 10% wheat bran 3% molasses 5% stabilized animal fat 1% limestone 1% trace mineralized salt vitamin A & D supplement 25 to 30 mg. aureomycin/lamb/day ²	Standard ration ¹

¹Standard nursing ration: 1 lb. whole sorghum grain, 1.25 alfalfa hay, and sorghum silage fed to limit of appetite.

²Aureomycin was added in the form of Aurofac 10. Aurofac 10 contains

10 grams of Aureomycin per pound. Four pounds of Aurofac 10 were added per ton to rations 7 and 8 until the oldest 10 lambs were 80 days of age, then the level was decreased to 2 lbs. per ton where it will remain until the lambs are marketed. Those levels supply lambs 30 mgs. of Aureomycin per day when consuming 1.5 and 3 pounds of their respective rations.

Results and Discussion: These tests will be concluded in 1967 and reported in 1968.

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