

meet the needs of rumen bacteria, as measured by steer performance. Thus, when silage of good quality is the roughage, selection of the protein supplement should be based on cost per unit of protein. Urea-molasses mixtures as the entire supplement are not equal to soy-bean meal.

Fattening Trials with Western Feeder Lambs

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A lamb feeding enterprise during the fall and winter can fit into many farm programs in Oklahoma. Lambs make excellent utilization of wheat pasture. Lambs also can be finished in dry-lot to a satisfactory slaughter grade on a lower-concentrate higher-roughage ration than most meat producing animals. The proximity of an adequate supply of feeder lambs, reasonably mild winters, ready market for the finished lambs and the usual supply of home grown feeds make lamb feeding an enterprise worthy of consideration.

The study reported here was initiated at Ft. Reno Station with the following objectives:

- (1) To study the feeding value of sorghum silage in a lamb-fattening ration.
- (2) To test alfalfa in various forms as a supplement to sorghum silage.
- (3) To study the effect of stilbestrol implant in lambs on a high roughage and also on a high grain ration.
- (4) To determine the value of uncombined milo and winter grass for lambs.
- (5) To study a deferred feeding system with lambs, thus marketing at a later date.

Procedure

Two hundred and ninety-two Southwestern feeder lambs were used. These lambs were purchased in the range area of New Mexico. They were shipped via rail from Artesia, New Mexico, and were received at the Ft. Reno Station, October 15. The lambs grazed Bermuda grass pasture around the Station Headquarters until November 8. During this period the lambs were handled as follows:

October 26, 27—all lambs were sheared.

" 27—vaccinated against enterotoxemia.

November 1—weighed individually, to check shrinkage and for preliminary allotment.

November 7—weighed individually and allotted according to weight, and the lots assigned to treatment at random.

The lambs were started on their experimental rations November 8. The treatments used were as follows:

Standard feeding program (24 lambs per lot, each treatment replicated).

Lot 1 & 6—45% milo, 5% molasses; 50% alfalfa hay; ground, mixed, and self-fed.

Lot 2 & 7—same as 1 & 6, plus silage.

Deferred feeding program. Roughage for the first 75-80 days then self-fed ration 1 & 6 for 50 days. (24 lambs per lot, each treatment replicated).

Lot 3 & 8—1.15 pound dehy. alfalfa meal; silage, full feed.

Lot 4 & 9—1.4 pound alfalfa hay, silage, full feed.

Lot 5 & 10—Alfalfa hay, free choice; silage, full feed.

Utilization of uncombined milo and winter grass. (52 lambs per lot).

Lot 11—Milo stubble and winter grass first 70 days then self-fed ration, 1 & 6.

One-half of the lambs of each lot were implanted with 6 mg. of diethylstilbestrol, commonly called Stilbestrol¹. The only mineral offered the lambs of Lots 1,2,6, and 7 was salt. A mineral mix of 70% salt and 30% steamed bone meal was offered free choice to the lambs of the other lots.

Individual weights following an overnight period without access to feed and water were taken at the beginning of the trial, at about 30 days, again at 78 days and at the end of the trial. The lambs of Lots 1,2,6, and 7 were sold on the Oklahoma City Market, February 10. The lambs of the other lots were sold March 18. Marketing data included shrinkage, selling price, carcass grade, and yield. Average weight gains, consumption records, marketing data, and financial results are shown in Table 1 and 2. The effect of stilbestrol implants on rate of gain, carcass grade, and yield are shown in Table 3. Chemical analysis of the feeds are presented on Table 4.

Observations

Standard Feeding Phase

The results are shown in Table 1. The lambs of both treatments made very satisfactory gains and the gains were essentially the same for both groups. The feed required, cost per cwt. gain, carcass grade,

¹ The stilbestrol implants were supplied by Norden Laboratories, Lincoln, Nebraska.

Standard Feeding Program

Table 1.—Weight gains, rations fed, and financial results obtained with fattening lambs self-fed in dry-lot.
(95 days, November 8, 1956—February 10, 1957)

Treatment	1. 45% milo 5% molasses 50% alfalfa hay ground and mixed	2. 45% milo 5% molasses 50% alfalfa hay ground and mixed; silage, free-choice		
Lot number	1	6	2	7
Number of lambs/lot	24	24 ¹	24	24
Initial weight	63.2	64	63.3	63.7
Final weight	102.3	103	102.6	104
Av. Daily gain	.41	.41	.41	.42
Av. Daily ration				
Mixture	3.4	3.3	3.1	3.3
Silage	—	—	1.2	1
Feed per cwt. gain (lbs.)				
Mixture	8.2	8.2	7.4	7.7
Silage	—	—	2.9	2.5
Feed cost/cwt. gain	18.70	18.70	18.30	18.80
Financial Results (\$)				
Av. selling price/cwt.	18.50	18.50	18.50	18.50
Total value/lamb (minus actual shrink + wool credit) ²	21.60	21.73	21.65	21.91
Initial Cost ³	12.95	13.12	12.98	13.06
Miscellaneous cost ⁴	.55	.55	.55	.55
Feed cost/lamb	7.31	7.29	7.19	7.58
Profit or Loss/lamb ⁵	.79	.77	.93	.72
Dressing percentage	53	53.1	52.8	53
Carcass Grade				
Choice	17	14	13	15
Good	6	9	11	9
Utility	1	—	—	—

¹ One lamb in Lot 6 died from enterotoxemia.

² Wool credit (5.12 lbs. at 62¢ (includes U. S. Government incentive)—50¢ shearing charge).

³ Initial cost: 17.50 F.O.B. Artesia, New Mexico; 20.50 on experiment, which includes 10% shrink.

⁴ Includes cost of vaccinating, drenching, and marketing.

⁵ Does not include transportation charges.

Deferred Feeding Program

Table 2.—Weight gains, rations fed, and financial results obtained with fattening lambs in dry-lot. (128 days, November 8, 1956 to March 16, 1957)

Treatment	Deferred Phase — 78 days							
	3.		4.		5.		6.	
	Silage, full feed 1.1 # dehy. alf. meal		Silage, full feed 1.4 # alf. hay		Silage, full feed alf. hay, free choice		Uncombined milo winter grass 70 days	
Lot Number	3	8	4	9	5	10	11	
Number of lambs per lot	24	24	24	24	24	24	52 ¹	
Initial weight	63.8	64.2	64.0	65.2	64.3	64.3	51.5	
Final weight	79.2	79.9	83.2	81.8	86.7	87.0	73.9	
Av. Daily gain	.20	.20	.25	.21	.29	.29	.32	
Av. Daily ration (lbs.)								
silage	3.7	3.8	3.7	3.7	3.6	3.3		
dehy. alf. meal	1.12	1.11	--	--	--	--		
alfalfa hay	--	--	1.38	1.38	2.5	2.55		
milo field & winter grass	--	--	--	--	--	--	free choice	
Feed/cwt. gain								
silage	1879	1882	1492	1779	1262	1113		
dehy. alf. meal	569	560						
alfalfa hay			558	647	873	874		
Feed cost/cwt. gain	23.62	23.41	15.83	18.60	19.40	18.68		
Feed cost/lamb	3.64	3.67	3.05	3.09	4.33	4.26	2.00 ²	
			Full-Feeding Phase—50 days				Self-fed on pasture (50 days)	
Initial weight	79.2	79.9	83.2	81.8	86.7	87.0	73.9	
Final weight	105.3	107.7	109.4	105.7	107.3	107.9	99.9	
Av. Daily gain	.52	.56	.52	.49	.41	.40	.52	
Av. Daily ration (lbs.)								
mixture	4.25	4.31	4.28	4.32	4.17	4.08	2.58	
Feed/cwt. gain	814	776	817	885	1012	1021	506	
Feed cost/cwt. gain	18.56	17.69	18.63	20.18	23.07	23.28	11.50	
Feed cost/lamb	4.84	4.92	4.88	4.92	4.75	4.66	3.00	

Table 2.—Con't.

	<i>Financial Results-Both phases</i>						
	21.25	21.25	21.25	21.25	21.25	21.25	21.25
Av. Selling price	21.25	21.25	21.25	21.25	21.25	21.25	21.25
Total value/lamb (minus actual shrinkage + wool credit) ¹	24.60	25.08	25.45	24.69	25.03	25.13	22.85
Initial cost ²	12.93	13.16	13.11	13.37	13.19	13.17	11.19
Miscellaneous cost ³	.55	.55	.55	.55	.55	.55	.55
Feed cost/lamb	8.48	8.59	7.93	7.99	9.05	8.92	5.00
Profit/lamb	2.64	2.78	3.86	2.78	2.24	2.49	6.11
Dressing percentage	50.6	50.7	50.4	51.8	50.9	50.7	49.5
U. S. Carcass Grade							
Choice	13	17	14	19	18	21	15
Good	10	7	10	3	6	3	34
Utility	1	--	--	2	--	--	--

¹ Three lambs died, lot 11. Charged to experiment.

² Basis on a pasture charge of 50¢ per lamb per month.

³ Wool credit (5.12 lbs. for lots 3, 8, 4, 9, 5 and 10; 4.14 lbs. for lot 11 at 62¢, includes U. S. Government incentive)—50¢ shearing charge.

⁴ Initial cost 17.50 F.O.B., Artesia, New Mexico; 20.50 on experiment, which includes 10% shrink and death loss (lot 11).

⁵ (Includes cost of vaccinating, drenching, and marketing.)

yield, and profit per lamb were also about the same. The lambs of Lots 2 and 7 consumed just over 1 pound of silage per day.

Alfalfa in Various Forms as a Supplement to Sorghum Silage

The results are shown in Table 2. The average daily gain during the deferred phase for the three supplements were as follows: 1.15 lb. dehy. alfalfa meal, .20, 1.4 lb. alfalfa hay, .23, and alfalfa hay, free choice, .29. The feed cost per cwt. gain was about \$4 cheaper for the lambs fed alfalfa hay as compared to dehydrated alfalfa meal.

During the full-feeding phase the lambs of treatment 3 (Lots 3 & 8) and treatment 4 (Lots 4 & 9) made excellent gains. Their gains were about .5 lb. as compared to .4 for treatment 5 (Lots 5 & 10) (alfalfa hay, self-fed). They were also more efficient in feed utilization. There was little difference in dressing percentage but the lambs of treatment 5 were fatter as indicated by carcass grade. The profit per lamb was the greatest for the lambs on treatment 4 (1.4 lb. of alfalfa hay).

This year the lambs fed on the deferred program were more profitable than those fed on a standard feeding program. This difference was due primarily to a difference in selling price. Those fed on the standard feeding program were sold February 10 for \$18.50 as compared to \$21.25 for those sold March 16th.

Utilization of Uncombined Milo and Winter Grass

Sixteen acres of milo which was not good enough to combine was used for this phase. This field also had a heavy cover of winter grasses, predominantly *Bromus Secalinus* and *Bromus Tetorus*, as indicated by Table 2, 52 lambs were used. This served as only source of feed for the first 70 days and then the lambs were self-fed on the pasture using the same mixture as fed the lambs of Lots 1 & 6. The average daily gain for the first 70 days was .32 lbs. and for the last 50 days, .55 lb. On the basis of total gain minus the actual shrinkage and death loss times market price, the milo field was worth \$24.85 per acre.

The Effects of Stilbestrol Implants

The results are shown in Table 4. Stilbestrol increased the gains in every treatment. The average increase for standard feeding program, the deferred feeding program, and for lambs grazing uncombined milo were 16%, 18%, and 4%, respectively. Little difference was noted in dressing percentage. The stilbestrol lambs graded slightly lower. One yearling carcass was produced by a non-implanted lamb. No harmful effects were noted. Stilbestrol has not been approved by the Federal Food and Drug Administration for use with lambs either as an implant or mixed with the feed.

Table 3.—The effects of stilbestrol implant on feed lot performance, yield, and carcass grade

Treatment	Standard Feeding Program				Deferred Feeding Program				Milo Field + winter grass			
	Mixture		Mixture silage		1.1 # Silage dehy. alf. meal		1.38 # Silage alf. hay			Silage alfalfa hay, free choice		
Lot numbers	1 & 6		2 & 7		3 & 8		4 & 9		5 & 10			
	without	with	without	with	without	with	without	with	without	with	without	with
No. of lambs	24	24	24	24	24	24	24	24	24	24	26	23
Total Gain	35.41	42.87	37.85	41.91	39.62	44.74	38.41	46.97	40.75	48.83	47.54	49.48
Percentage increase		21		11		13		22		20		4
Yield	53	53	53.5	52.3	50.2	51.2	50.4	51.2	51.4	50.3	49.9	49.1
U.S. Carcass Grade												
Choice	14	17	17	11	17	13	16	17	21	18	10	5
Good	9	6	7	13	6	11	6	7	3	6	16	18
Utility	1	--	--	--	--	--	2	--	--	--	--	--

Table 4.—Chemical analysis of feeds (percent as feed).

	H ₂ O	Ash	Protein	Fat	Fiber	N.F.E.	Ca	Phos.
Alfalfa hay	9.70	8.45	16.69	1.50	30.66	34.00	1.09	.24
Dehy. meal	5.71	11.54	18.44	2.53	23.45	38.33	1.28	.26
Milo	10.15	1.57	11.56	2.52	.99	73.20	.14	.27
Silage	68.39	1.92	1.86	.73	5.21	15.99	.08	.05