

Sheep

Concentrate-Roughage Ratios in Pelleted Rations for Fattening Lambs. Three Mgs. Stilbestrol Implants¹ and/or Cobalt Bullets² for Lambs Fed Pelleted Rations. Project 236.

C. S. Menzies, D. Richardson, and R. F. Cox

Data presented in Circulars 358 and 371 indicate that lambs make faster and more efficient gains on pelleted rations than on similar non-pelleted rations. Those data also indicate that efficient pelleted rations for lambs should contain larger proportions of roughage than nonpelleted rations do. This year's test is designed to further study the concentrate-roughage ratios in pelleted rations for fattening lambs.

Experimental Procedure

One hundred fifty white-faced New Mexico wether lambs were used. Lambs were shorn and drenched with phenothiazine before starting on test. Two weeks after the lambs arrived from the range an outbreak of coccidiosis occurred. Approximately half of the lambs were treated with sulfa-drugs. November 30, about five weeks after lambs arrived from range, they were weighed, divided into six lots of 22 lambs each, and self-fed the following pelleted rations:

- Lot 1. 10% sorghum grain and 90% alfalfa hay.
- Lot 2. 20% sorghum grain and 80% alfalfa hay.
- Lot 3. 30% sorghum grain and 70% alfalfa hay.
- Lot 4. 40% sorghum grain and 60% alfalfa hay.
- Lot 5. 50% sorghum grain and 50% alfalfa hay.
- Lot 6. 60% sorghum grain and 40% alfalfa hay.

Ten lambs in each lot were implanted with 3 mgs. stilbestrol. Twelve lambs were not implanted. Five lambs that were implanted and six that were not implanted were given a 5-gm. cobalt bullet. The cobalt bullet was released in the esophagus with a balling gun. The cobalt bullet supposedly remained in the rumen throughout the test period.

Average-quality field-cured alfalfa hay was used. Sorghum grain was purchased in bulk. Hay was ground through a $\frac{3}{4}$ -inch screen and the grain was coarsely ground. Both $\frac{3}{16}$ - and $\frac{3}{8}$ -inch pellets were fed to all lots. Rations were pelleted at the University mill.

Feed prices and processing charges used in determining feed cost per cwt. gain were: ground sorghum grain, \$1.65 per cwt.; baled alfalfa hay, \$16 per ton; grinding hay, \$5 per ton; mixing, pelleting, and sacks cost \$6 per ton. With these prices and charges, pellets cost as follows: 10% grain and 90% alfalfa, \$28.20 per ton; 20% grain and 80% alfalfa, \$29.40 per ton; 30% grain and 70% alfalfa, \$30.60 per ton; 40% grain and 60% alfalfa, \$31.80 per ton; 50% grain and 50% alfalfa, \$33 per ton; and 60% grain and 40% alfalfa, \$34.20 per ton.

Results and Discussion

Results of the study are shown in Table 37. Results of the stilbestrol implant and cobalt study are summarized in Table 38.

There was little difference in rate of gain of lambs fed pellets containing from 10 to 40% grain. However, all of them gained faster than those fed pellets containing 50 or 60% grain. Lambs fed the less concentrated pellets ate more feed per day.

More efficient gains were made by lambs fed the more concentrated pellets in lots 5 and 6 and the least efficient gains by lambs in lot 1 fed the 10% grain-90% hay pellet.

For some reason there was considerable variation in shrink to market. Lambs fed high roughage pellets (lots 1, 2, and 3) shrank considerably

1. Three mgs. stilbestrol implants supplied by Chas. Pfizer & Co., Inc., Terre Haute, Ind.

2. Cobalt bullets supplied by Nicholas International Limited, Toronto, Ontario, Canada.

more than those in lots 4, 5, and 6. Lambs in lot 3 produced highest yielding carcasses. There was about one third USDA carcass grade variation between lots.

Lambs fed high-roughage pellets produced cheaper gains. Variations in the price of grains or hay will tend to increase or decrease the difference in cost per pound of gain between the different concentrate-roughage ratios.

Three mgs. stilbestrol implants increased gains in all lots, an average of about 0.10 pound per lamb per day. Stilbestrol implants did not lower carcass grades in this test. Lambs not implanted yielded about 1% more. Cobalt bullets did not affect gain, yield, or carcass grade.

Table 37
Concentrate-roughage ratios in pelleted rations for self-feeding fattening lambs.
 November 30, 1959, to February 9, 1960—71 days.

Lot number	1	2	3	4	5	6
	RATION ¹					
Item	10% sorghum grain, 90% alfalfa hay	20% sorghum grain, 80% alfalfa hay	30% sorghum grain, 70% alfalfa hay	40% sorghum grain, 60% alfalfa hay	50% sorghum grain, 50% alfalfa hay	60% sorghum grain, 40% alfalfa hay
Number lambs per lot	22	22	22	22	22	22
Initial wt. per lamb, lbs.	68	68.2	67.9	68.8	67.1	69.6
Final wt. per lamb, lbs.	107.9	109.2	107.7	110.1	104.5	105.5
Total gain per lamb, lbs.	39.9	41.0	39.8	41.3	37.5	35.8
Av. daily gain per lamb, lbs.:						
(22 lambs) .....	.562	.577	.561	.582	.528	.504
No stilbestrol (12 lambs) .....	.538	.543	.532	.569	.434	.458
3-mg. stilbestrol implant (10 lambs) .....	.60	.618	.596	.597	.639	.559
No cobalt (11 lambs) .....	.583	.622	.535	.589	.519	.519
5-gm. cobalt bullet (11 lambs) .....	.542	.533	.586	.575	.536	.490
Pounds feed per lamb daily	4.90	4.85	4.51	4.54	4.01	3.86
Pounds feed per cwt. gain	871.4	839.7	804.1	780.7	761.0	764.2
Feed cost per cwt. gain ²	\$12.29	\$12.34	\$12.30	\$12.41	\$12.56	\$13.07
Av. percentage shrink ³	10.5	9.7	9.9	5.3	3.7	4.7
Av. USDA carcass grade ⁴	8.7	8.7	9.1	9.5	8.7	9.6
Av. percentage yield ⁵	52.0	51.5	53.4	51.9	51.2	51.7

1. Eleven of the 22 lambs in each lot were given a 5-gm. cobalt bullet. Five of these lambs and five not given cobalt in each lot received 3 mgs. stilbestrol implants.
2. Does not include cost of stilbestrol or cobalt.
3. Based on final weights, Manhattan, February 9, and lot market weights, St. Joseph, Mo., February 11.
4. Unrevised USDA carcass grade based on prime, 14; choice, 11; good, 8; utility, 5; and cull, 2.
5. Based on lot market weights, St. Joseph, Mo., February 11, and lot hot-dressed carcass weights, Swift & Company plant, St. Joseph, Mo., February 11.

Table 38
Three milligram stilbestrol implants and five gram cobalt bullets for fattening lambs fed pelleted rations.¹

Treatment	No. stilbestrol	3-mg. stilbestrol implant	No. cobalt	5-gm. cobalt bullet
Number lambs	72	60	66	66
Days on test	71	71	71	71
Initial wt. per lamb, lbs.	68.6	67.8	68.7	67.9
Final wt. per lamb, lbs.	105.0	110.5	108.6	106.5
Total gain per lamb, lbs.	36.4	42.7	39.9	38.6
Av. daily gain per lamb, lbs. ....	.513	.601	.562	.544
Percentage yield ²	48.6	47.7	48.3	48.0
Av. USDA carcass grade ³	9.04	9.05	9.09	9.0

1. Eleven of the 22 lambs in each of the six lots listed in Table 37 were given a 3-gm. cobalt bullet; five of these and five not given cobalt in each lot received 3-mg. stilbestrol implants.
2. Based on final lamb weights at Manhattan, February 9, and hot-dressed carcass weights at St. Joseph, Mo., February 11.
3. Unrevised USDA carcass grade based on prime, 14; choice, 11; good, 8; utility, 5; and cull, 2.
4. Five-gm. bullet contains 90% cobalt oxide.

Heritabilities, Genetic, and Phenotypic Correlations between Carcass and Live Animal Traits in Sheep, Project 347.

Carl Menzies, Myron Hillman, John D. Whent, D. L. Mackintosh, and R. A. Merkel

This study was initiated in the spring of 1959 to determine relationships between various carcass measurements and live animal traits, to estimate heritability of these traits, and to determine how findings may be applied to the selection and breeding of the meat-type lamb.

Experimental Procedure

One hundred Rambouillet-type yearling ewes were obtained in May, 1959, from near Del Rio, Texas. Ten purebred yearling Hampshire rams were obtained from various Kansas breeders. The rams were weighed and scored for various characteristics by a group of department members prior to the start of the breeding season.

June 1, 1959, ewes were weighed and randomly divided into 10 lots of 10 ewes each. Each ram was randomly assigned to a lot of ewes. From June 1 to September 1 the rams were turned with the ewes at night. Ewes were separated from rams and turned on pasture each day. Breeding dates were recorded.

Lambs were weighed at birth and every two to three weeks thereafter. They were self-fed a pelleted creep ration consisting of 55% alfalfa hay, 40% sorghum grain, and 5% molasses. Ten to 15 mgs. of Aureomycin were added per pound of pellets. Feed records are being obtained by sire groups. Lambs will suckle ewes until slaughtered.

When lambs weigh between 95 and 100 pounds each, they are sheared and scored for various characteristics, and various body measurements are taken. Lambs are slaughtered at the meat laboratory after measurements are taken. Various measurements and scores are being obtained on the carcasses.

Results and Discussion

Table 39 gives a few of the preliminary results. One ram proved to be sterile. Forty-four Hampshire-sired lambs are still living and 35 had been slaughtered through the meat laboratory April 11, 1960.

There was considerable variation between runs in regard to general type score and live weight. Birth weights and daily gains have not been corrected for sex or type of birth (single or multiple). A more complete report will be made in the 1961 Feeders' Day Report.