

early part of the breeding season and it is also possible that the artificially induced estrus or heat was not accompanied by conditions necessary for successful conception.

In Table 24 it may be seen that the untreated ewes lambled a little earlier than the ones receiving the estrogenic material, "E.C.P." Three ewes failed to lamb in the treated group compared with one in the controlled group.

These tests further indicate the difficulty in securing earlier and more uniform lamb crops by use of hormones.

The Effect of Cottonseed Meal and Soybean Oilmeal Fed Separately and Together upon the Digestibility of a Ration Fed to Lambs, 1953.

D. Richardson

There is a variation in the digestibility of protein in the various concentrates fed to livestock. It has been shown that the digestibility of nutrients in a ration with a mixture of protein concentrates is closely related to the proportion of the various protein sources in the ration. However, opinions differ on the effect of single and mixed proteins upon the digestibility of protein and other nutrients in the ration of cattle and sheep. This preliminary study was to evaluate further the nutritive value of single and mixed protein concentrates in the lambs' ration.

Hampshire, Shropshire, and Rambouillet wether lambs that averaged about 100 pounds each were used. Sorghum stover, ground in a hammer mill, was used as the roughage. In addition to the stover, each lamb received a daily ration of 1 pound of yellow corn, 1/10 pound of dehydrated alfalfa pellets, 1/10 pound of ground limestone, and ¼ pound of cottonseed meal, or its equivalent in protein from soybean meal or a mixture of ½ each cottonseed meal and soybean meal.

The results of this preliminary study are shown in Table 25.

Table 25.—The Effect of Cottonseed Meal and Soybean Oilmeal Fed Separately and Together Upon the Digestibility of a Ration Fed to Lambs.

Lamb	Percent apparent digestibility of				Percent total dig. nutr.
	Crude protein	Ether ext.	Crude fiber	N-free ext.	
Cottonseed meal as protein supplement					
2	52.31	72.43	34.07	79.60	44.87
3	52.97	73.99	28.91	81.52	49.02
6	55.41	75.12	40.63	82.74	47.15
8	58.37	77.29	42.26	81.10	48.75
Average	54.76	74.69	36.77	81.23	47.32
Soybean oilmeal as protein supplement					
1	66.11	73.09	45.55	83.71	49.74
4	60.69	70.30	38.20	81.77	46.87
7	66.12	74.47	50.87	84.07	48.72
Average	63.81	72.11	43.24	82.94	48.34
Cottonseed meal plus soybean oilmeal as protein supplement					
2B	64.76	69.38	45.27	82.64	47.85
3B	57.23	73.33	31.79	80.72	47.14
6B	66.63	78.44	56.38	84.05	49.91
8B	58.95	76.19	45.44	76.63	45.10
Average	61.92	74.35	45.16	81.01	47.50

Observations

1. The digestibility of protein and total nutrients was lowest when cottonseed meal was used in the ration.

2. The digestibility of protein and total nutrients was highest when soybean oilmeal was used in the ration.

3. The digestibility of protein and total nutrients in the ration using a mixture of cottonseed meal and soybean oilmeal was greater than for cottonseed meal alone but less than for soybean oilmeal alone. This agrees with previous work with cattle and sheep at other experiment stations.

Adaptability of Breeds of Rams and Breed-Types of Range Ewes to Market Lamb Production in Kansas.

PROJECT 347

T. Donald Bell and Lewis Holland*

Western ewes of the three predominant types (Texas ewes or fine wools, Blackface crossbreds, and Northwestern Whiteface crossbreds) commonly found in Kansas were secured as ewe lambs in the fall of 1951 and bred to Hampshire, Suffolk, Shropshire, and Southdown rams two seasons. A different set of yearling rams has been used each year and the ewes are being rotated so that the same ewes are not bred to the same breed of ram each year. Lamb production and wool production records are being obtained from the different types of ewes, and lamb production figures are being obtained for the four sire groups.

Results

Lamb production figures for the 1952-53 lamb crop are presented in Table 26.

Table 26.—Lamb production by ewes of different types and from sires of different breeds in 1953.

Ewe types	No. ewes bred	No. lambs weaned	% lambs weaned	Av. weaning weight	Lbs. lamb weaned per ewe bred
Finewools	43	40	93	87	81
Northwest Whiteface	45	39	87	84	73
Northwest Blackface	52	49	94	81	76
Sire groups					
Hampshire	35	31	88	92	81
Suffolk	35	36	103	91	94
Southdown	35	28	80	82	65
Shropshire	35	33	94	70	66

* Much assistance in collecting and summarizing the data for this experiment was given by Arthur W. Gardner, a graduate student in animal husbandry.