15.	Cost of lamb loss*	0	0	0	0
16.	Total cost**	$31.61	$31.13	$32.37	$30.86
17.	Final cost per cwt.	$29.37	$28.33	$29.12	$30.15

* Includes initial value and cost of feed consumed by lambs lost up until death.
** Includes lines 12, 13, and 15.

TABLE 2.—Feedlot and Sorghum Stubble Pasture Fattening Tests. November 19, 1951, to February 21, 1952

		5	6	7	8
		—Grain and stover— free choice			
2.	Ration fed	Milo Axtell stover Protein Limestone Salt	Milo Axtell stover Protein Limestone Soda Salt	Milo stubble plus Alfalfa	Milo stubble plus Soybean pellets
3.	Number of lambs per lot	60	60	60	60
4.	Number of days on feed	94	94	94	94
5.	Initial wt. per lamb	77.86	77.36	77.77	78.61
6.	Final wt. per lamb	114.69	113.09	109.23	108.14
7.	Total gain per lamb	36.83	35.73	31.46	29.53
8.	Daily gain per lamb	.392	.380	.335	.320
9.	Feed per lamb daily				
	Milo grain	2.07	2.04	.11	.11
	Axtell stover	1.76	1.76	.29	.29
	Axtell silage				
	Alfalfa hay			.56	
	Soybean pellets	.20	.20	.02	.22
	Ground limestone	.019	.019	.019	.019
	Salt	.027	.019	.018	.018
	Soda		.020		
10.	Feed per cwt. gain				
	Milo grain	528.1	536.8	32.8	34.4
	Axtell stover	449.0	463.1	86.6	90.6
	Axtell silage				
	Alfalfa hay			167.2	
	Soybean pellets	51.0	52.6	6.0	68.7
	Ground limestone	4.8	5.0	5.7	5.9
	Salt	6.9	5.0	5.4	5.6
	Soda		5.3		
11.	Feed cost per cwt. gain..	$17.57	$18.19	$ 7.87	$ 7.91
12.	Feed cost per lamb	$ 6.47	$ 6.50	$ 2.47	$ 2.33
13.	Initial cost per lamb	$26.18	$26.01	$26.15	$26.43
14.	Number of lambs lost	0	0	1	1
15.	Cost of lamb loss*	0	0	$ .41	$ .68
16.	Total cost**	$32.65	$32.51	$29.03	$29.44
17.	Final cost per cwt.	$28.47	$28.75	$26.58	$27.22

* Includes initial value and cost of feed consumed by lambs lost.
** Includes lines 12, 13, and 15.

Observations

1. The two lots of lambs receiving their grain and stover free choice made larger gains than the lambs hand-fed a similar ration, but the gains were more expensive. These results are in accord with those obtained in previous years.

2. Larger and somewhat cheaper gains were made by the lambs receiving ground grain instead of whole grain. These results are in contrast to results obtained in similar studies in previous years at this and at other stations. The difference in the rate of gain of the two lots as indicated by the bi-weekly weights was small and the comparatively wide difference appeared only in the final weigh period.

3. The inclusion of silage in the ration increased the rate of gain but also increased the cost of gain by slightly more than $1.00 per hundredweight. The silage-fed lambs, however, gained at virtually the same rate as those receiving only stover as their roughage until the last 11 days of the feeding period; this test, as well as the comparison of ground and whole grain, needs to be repeated before reliable conclusions can be drawn.

4. The lambs receiving no salt in their ration made slower and more expensive gains than the lambs in any of the other lots.

5. The average daily gains of the variously treated lambs in all of the lots were as follows:

	Number of Lambs	Av. Daily Gain
Vaccinated	119	.355 lb.
Drenched	120	.321 lb.
Vaccinated and drenched	119	.331 lb.
No treatment	120	.345 lb.

The comparatively low rate of gain made by the drenched lambs was shown in nearly all of the lots and is consistent with a similar test a year ago.

The slightly larger gains made by the vaccinated lambs were not consistent in all lots and probably not significant. The death loss (two in all lots) was too low to allow any conclusions concerning the effectiveness of the vaccine or of the soda. The only lamb dying of overeating disease during the test, however, had been vaccinated.

6. The cheapest gains were made by the lambs running on the milo stubble. Slightly larger and cheaper gains were made by the lambs receiving alfalfa hay than those receiving soybean pellets. Gains were slow on the stubble during the first part of the grazing period, because of digestive disturbances; but once the lambs became accustomed to the grain, the gains were as high as those made by the self-fed lambs in the dry lot.

Comparative Lambing Dates of Untreated Ewes and Ewes Treated with Various Hormone Preparations.

T. Donald Bell and Walter H. Smith

Introduction

Many of the producers of commercial lambs in Kansas prefer to have their ewes lamb in the fall months, in order to secure more favorable lamb prices during the spring months and to avoid having the lambs on hand during the hotter summer months when parasites are more troublesome. Unfortunately, not all of the ewes will breed for fall lambs, and various systems of management as well as different treatments have been used to encourage earlier and more uniform lamb crops. In recent years considerable publicity has been given to hormones of various types and their possible effectiveness in producing earlier lamb crops. Because of this publicity and its

Table 1.—Comparative Lambing Dates of Untreated Ewes and Ewes Treated with Various Hormone Preparations.

Experimental groups			Treatments—Hormones used: Gonadotropic			Natural-Estrogenic			Synthetic-Stilbesterol			No treatment		
Flock No.	No. of sheep	Type and age of sheep	No. in group	Average lambing date*	Number left to lamb**	No. in group	Average lambing date*	Number left to lamb**	No. in group	Average lambing date*	Number left to lamb**	No. in group	Average lambing date*	Number left to lamb**
1	62	Fine—yr.	21	Dec. 20	7	21	Dec. 20	3				20	Jan. 3	3
2	59	Fine—yr.	20	Nov. 26	0	20	Dec. 24	5				19	Dec. 1	0
3	120	Fine—mature	40	Nov. 24	4	20	Dec. 4	11	20	Dec. 5	6	40	Dec. 1	7
4	76	N.West—2 yr.	34	Dec. 20	2	17	Jan. 6	6				25	Dec. 13	1
5	203	N.West—3 yr.	53	Dec. 6	7	50	Dec. 26	20	50	Dec. 1	10	50	Dec. 3	5
6	331	Fine—6 yr.	50	Nov. 22	12	90	Dec. 9	50	90	Nov. 28	17	101	Nov. 25	7
7	78	Fine—3 yr.	31	Nov. 27	3	20	Dec. 13	7	6	Nov. 20	3	21	Nov. 23	0
8	24	Fine—mature	15	Dec. 14	2							9	Dec. 20	0
All	953		264	Dec. 3	37	238	Dec. 17	102	166	Nov. 30	36	285	Dec. 1	23

* Includes all ewes lambing up to February 1.

** Includes all ewes remaining to lamb after February 1.

influence upon Kansas sheepmen, an extensive study under controlled conditions was carried out in a number of co-operators' flocks here in Kansas.

Experimental Procedure

Approximately 1000 commercial ewes of different ages and types, and 400 purebred ewes of three different breeds, were included in the study. Three hormone preparations available on the market and similar to others being offered for sale were used. One of these was a gonadotropic hormone prepared from dried sheep pituitaries; another was a synthetic estrogenic (or heat producing) hormone known as Stilbesterol; and the third product used was a naturally-occurring estrogenic material obtained from pregnancy urine. Different groups of ewes in each flock were given these preparations during the early part of June, 1951, and their subsequent breeding and lambing dates compared with groups within each flock that were untreated. The accompanying table gives the results of the study on the commercial ewes.

Results

1. The two estrogenic hormones generally produced heat or estrual periods following injection, but the ewes commonly did not settle during this artificial heat period.
2. Only a small percentage of the ewes injected with the gonadotropic material came into heat following injection, but a large proportion of those that came into heat conceived following breeding during this period. The exact percentage responding to treatment could not be checked accurately because some of the ewes were breeding normally with or without injection during this period.
3. The hormones generally failed to produce earlier or more uniform lamb crops, and one of the hormones used apparently interfered with normal reproductive activities and produced a later and less uniform lamb crop than was obtained from the uninjected ewes.

Project Commercial 108: Salt Research with Feeder Lambs

(Chemical and Physiological Studies)

E. L. Hix, T. D. Bell, D. B. Parrish, and A. L. Good

The consumption of salt by herbivorous animals in general, and their apparent relish for salt, have been recognized for many years, but its importance may be questioned by many because of lack of knowledge of both the practical and fundamental aspects. It is commonly believed that the large amounts of potassium in feeds are antagonistic to the animal's body sodium, and this potassium causes an excretion or loss of sodium which may be adequately replaced only by practical salt (NaC1) supplementation of the feed or ration. However, this belief has not been established conclusively in all of its elaborations designed to explain why these herbivorous animals require supplemental salt.

The following summary is the result of studies with feeder lambs designed to (a) determine the influence of supplementary salt on feedlot performance; (b) study the effect of dietary sodium to potassium ratio on performance, feed digestibility, balance of minerals (Na,K,C1), and physiologic blood plasma constituents as they are functionally related to the water compartments of the animal's body, and (c) ascertain the existence and extent of sodium-potassium antagonism.

Experimental Procedure

In a single feeding trial, 50 feeder lambs were divided unequally into four lots. All lots received a basal ration of corn and alfalfa hay.