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Corn Silage for Lambs

J.W. Wilson

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DEPARTMENT OF ANIMAL HUSBANDRY

CORN SILAGE FOR LAMBS

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CORN SILAGE FOR LAMBS.

James W. Wilson

This bulletin includes the results of two experiments in feeding corn silage to lambs. It also includes results of other experiments in feeding lambs at this Station and reported in previous bulletins now out of print.

The sheep is the plant scavenger of the farm, and will eat nearly all plants during some stage of their growth. Many plants that have become troublesome weeds on farms would be completely destroyed if the sheep were given a chance to eat them before seeding. Because of this peculiarity sheep raising is a profitable business. Then again, it has been found that a ton of sheep manure is worth $3.75. In other words, this amount of money is necessary to buy the plant food contained in one ton of sheep manure.

The number of sheep in the United States in 1910 was 52,448,000 by the Census of 1910. In 1915 the estimate was only 49,956,000 sheep, a falling off of nearly 3,000,000 head, and yet the population of the United States has been gradually increasing. The cause of this big decrease is undoubtedly the opening for settlement of the range country in the middle west, where many of the sheep were formerly produced.

From June 30, 1912, to June 30, 1914, there was a decrease of 36,522 pounds in the exportation of mutton from the United States.

By the official estimate of the United States Department of Agriculture, there were 604,000 sheep in South Dakota on January 1, 1916, compared to 636,000 one year ago. These same estimates show that during this time this is the only kind of livestock that has decreased in numbers within the state.

It is true the sheep demands a little attention at certain seasons of the year and good fences are required to inclose them, but even with this expense it is a profitable animal to keep to use in mixed farming which

is the only safe system to follow in the Corn Belt.

Lambs turned on the stubble, after the small grain is harvested and stacked, providing rape has been sowed with the grain, will make a big gain and the manure will be scattered evenly over the field.

In 1908 and 1909 experiments were conducted at this Station to determine the value of different grain rations for lambs while on rape pasture, and the results were reported in Bulletin No. 119 (edition exhausted). Rape has a comparatively narrow nutritive ratio, since it contains a large per cent of digestible protein to the per cent of digestible carbohydrates, in this respect resembling clover and alfalfa. Animals require certain quantities of these elements in their daily ration for the best gains, and whether the elements are bought in the market in the form of by-products of mills and factories, such as linseed meal, cottonseed meal, or any other highly proteinaceous substance, or whether it is grown on the farm, the result in feeding is the same. The average gain per head daily for the two experiments when the lambs received rape pasture alone was .34 of a pound, or a larger gain than is usually made when lambs are receiving a full feed of grain and hay.

The best gains ever secured at this Station in feeding lambs are also reported in Bulletin No. 119. It was in an experiment to determine the comparative value of alfalfa and prairie hay, with the same kind of a grain ration, for the production of a pound of gain. The grain ration consisted of a mixture of 100 pounds of oats, 100 pounds of shelled corn and 25 pounds of oilmeal. Each lot was started on one pound per head of the mixture daily, and increased until they were receiving two and two-tenths pounds per head of grain daily, and what hay they would eat. The average gain per head daily for the lot that received the alfalfa hay was .51 of a pound, while with the lot that received the prairie hay the average gain per head daily was .38 of a pound. These lambs were as near the same in weight and age as was possible to get them.

Experience teaches that lambs will do a good job in picking a field of corn; in fact, pick it much cleaner than is done by the average picker. Then, too, they will eat the husks and leaves of the corn, and nearly all the weeds that have gone to seed. They will clean up the borders of the field that would otherwise remain foul year after year.

The sheep is peculiar in his habits. He prefers the grain in its natural condition and it should be so fed, unless in case of a grain like millet seed when it should be ground coarsely.

Thousands of lambs were fed in South Dakota during the past year, and if there were greater stability in the lamb market I know of no other line of feeding where larger profits will accrue than from fattening the lamb.

THE EXPERIMENT

This experiment extended over two seasons, the fall of 1914 and the fall of 1915. The object was to ascertain to what extent corn silage could be added to the lamb's ration for the best results in fattening.

Because of the large number of silos now being erected in South Dakota, and because of the excellent results obtained in experiments at this Station in feeding cattle corn silage for a cheap preliminary gain, I concluded information would be needed as to whether lambs could be handled in a similar manner.

There were 140 lambs used in this experiment. Those for the 1914 test were home grown or native lambs, while those for the 1915 test were western range lambs. Each year they were fed in seven different lots of ten head each. Each year lot I was fed corn silage as the sole roughage. Each lot received the same grain ration, consisting of corn and oats mixed half and half by weight. Lots II to VI inclusive were fed silage and prairie hay, with their grain rations, in varying quantities; while lot VII received hay as a roughage with their grain rations.

The results are based on the average for both years, and show plainly the value of corn silage when added to

the lamb's ration.

Lot I, grain and corn silage.

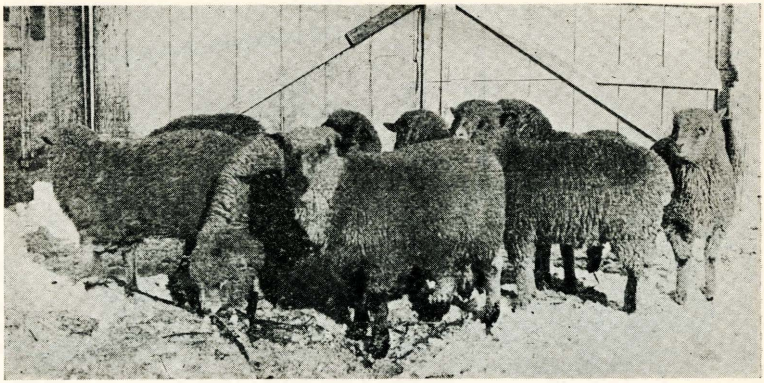
These lambs were fed corn silage as the sole roughage ration with their grain. They were given all they would eat. The average ration for the two years was 1.38 pounds of corn silage and 1.15 pounds of grain per head daily.

1914 Experiment

	Pounds	
Average weight at beginning	74	
Average weight at close	85	
Average gain per head daily, 87 days	.13	
Valuing grain at one cent a pound and corn silage at three dollars a ton, cost of producing 100 pounds of gain		$11.44

1915 Experiment

Average weight at beginning	80	
Average weight at close	85	
Average gain per head daily, 60 days	.08	
Valuing grain at one cent a pound and corn silage at three dollars a ton, cost of producing 100 pounds of gain		$12.00



Lot II, grain, less corn silage than for lot I and a small quantity of hay

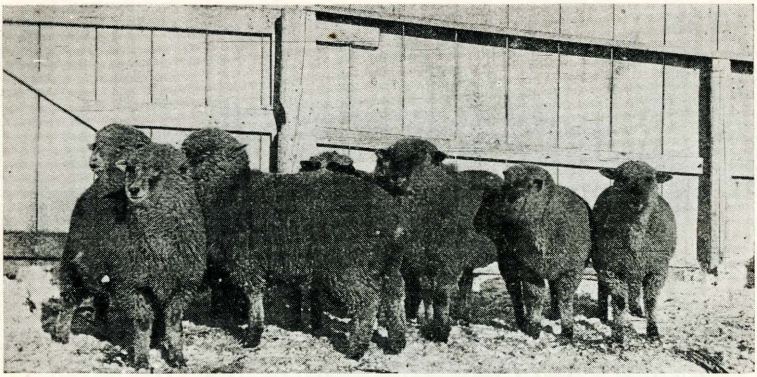
These lambs received the same grain ration and one-half as much corn silage as lambs in lot I, and in addition a small quantity of hay. The average daily ration for the two years was 1.52 pounds of grain, .72 of a pound of corn silage and .76 of a pound of hay, per head.

1914 Experiment

	Pounds	
Average weight at beginning	72	
Average weight at close	92	
Average gain per head daily, 87 days	.23	
Valuing grain at one cent a pound, corn silage at three dollars a ton, and prairie hay at six dollars a ton, cost of producing 100 pounds of gain		$8.45

1915 Experiment

Average weight at beginning	82	
Average weight at close	93	
Average gain per head daily, 60 days	.18	
Valuing grain at one cent a pound, corn silage at three dollars a ton, and prairie hay at six dollars a ton, cost of producing 100 pounds of gain		$9.69



Lot III, grain, less corn silage and more hay than for lot II.

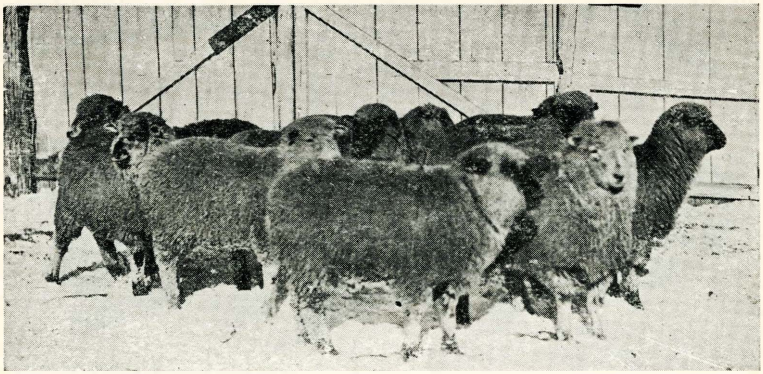
These lambs received the same quantity of grain, .12 of a pound corn silage less and .10 of a pound more of hay than lot II. The average daily ration for the two years was 1.52 pounds of grain, .60 of a pound of corn silage and .86 of a pound of hay per head.

1914 Experiment

	Pounds	
Average weight at beginning	72	
Average weight at close	96	
Average gain per head daily, 87 days	.28	
Valuing grain at one cent a pound, corn silage at three dollars a ton, and prairie hay at six dollars a ton, cost of producing 100 pounds of gain		$7.12

1915 Experiment

Average weight at beginning	77	
Average weight at close	91	
Average gain per head daily, 60 days	.23	
Valuing grain at one cent a pound, corn silage at three dollars a ton, and prairie hay at six dollars a ton, cost of producing 100 pounds of gain		$7.83



Lot IV, grain, less corn silage and more hay than for lot III.

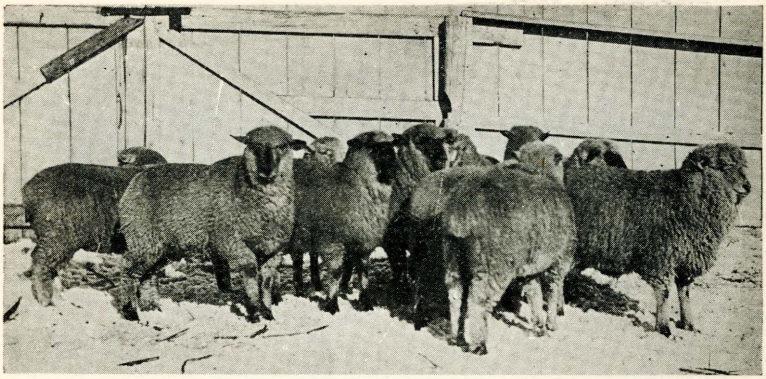
The twenty head of lambs in these lots received the same quantity of grain, an average of .11 of a pound of corn silage less and .11 of a pound more of hay than lambs of lot III.. The average daily ration for the two years was 1.49 pounds of grain, .49 of a pound of corn silage and .97 of a pound of hay, per head.

1914 Experiment

	Pounds	
Average weight at beginning	72	
Average weight at close	96	
Average gain per head daily, 87 days	.28	
Valuing grain at one cent a pound, corn silage at three dollars a ton and prairie hay at six dollars a ton, cost of producing 100 pounds of gain		$7.09

1915 Experiment

Average weight at beginning	74	
Average weight at close	86	
Average gain per head daily, 60 days	.21	
Valuing grain at one cent a pound, corn silage at three dollars a ton and prairie hay at six dollars a ton, cost of producing 100 pounds of gain		$8.39



Lot V, grain, less corn silage and more hay than for lot IV.

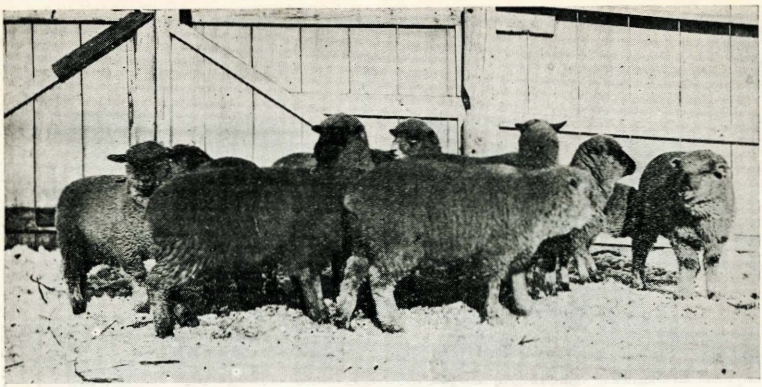
These lambs received practically the same quantity of grain, an average of .12 of a pound less of corn silage and .26 of a pound more of hay than lambs in lot IV. The average daily ration for the two years was 1.51 pounds of grain, .37 of a pound of corn silage and 1.23 of a pound of hay, per head.

1914 Experiment

	Pounds	
Average weight at beginning	72	
Average weight at close	93	
Average gain per head daily, 87 days	.25	
Valuing grain at one cent a pound, corn silage at three dollars a ton and prairie hay at six dollars a ton, cost of producing 100 pounds of gain		$7.96

1915 Experiment

Average weight at beginning	80	
Average weight at close	92	
Average gain per head daily, 60 days	.19	
Valuing grain at one cent a pound, corn silage at three dollars a ton and prairie hay at six dollars a ton, cost of producing 100 pounds of gain		$9.23



Lot VI, grain, less corn silage and more hay than for lot V.

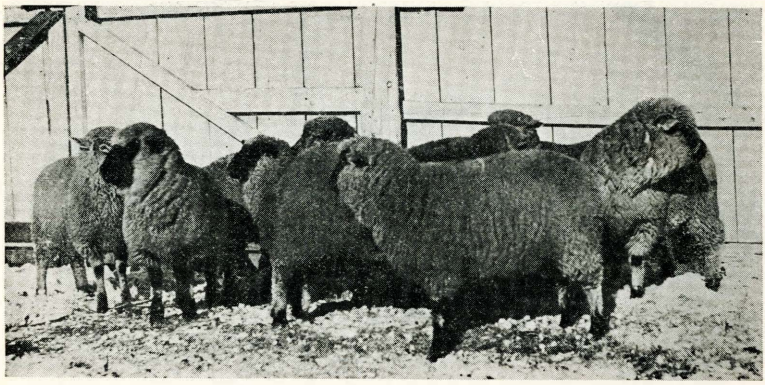
These lambs received the same quantity of grain, and an average of .15 of a pound of corn silage less and .10 of a pound more of hay than lambs in lot V. The average daily ration for the two experiments was 1.52 pounds of grain, .22 of a pound of corn silage and 1.33 pounds of hay, per head.

1914 Experiment

	Pounds	
Average weight at beginning	72	
Average weight at close	95	
Average gain per head daily, 87 days	.24	
Valuing grain at one cent a pound, corn silage at three dollars a ton and prairie hay at six dollars a ton, cost of producing 100 pounds of gain		$7.21

1915 Experiment

Average weight at beginning	81	
Average weight at close	92	
Average gain per head daily, 60 days	.17	
Valuing grain at one cent a pound, corn silage at three dollars a ton and prairie hay at six dollars a ton, cost of producing 100 pounds of gain		$10.40



Lot VII, grain and prairie hay

The twenty head of lambs in these lots were given the same quantity of grain as other lots and all the prairie hay they wanted. The average grain ration for the two experiments was 1.51 pounds of grain and 1.11 pounds of hay, per head daily.

1914 Experiment

	Pounds	
Average weight at beginning	72	
Average weight at close	95	
Average gain per head daily, 87 days	.23	
Valuing grain at one cent a pound and prairie hay at six dollars a ton, cost of producing 100 pounds of gain		$7.45

1915 Experiment

Average weight at beginning	78	
Average weight at close	88	
Average gain per head daily, 60 days	.16	
Valuing grain at one cent a pound and prairie hay at six dollars a ton, cost of producing 100 pounds of gain		$10.47

TABLE OF WEIGHTS AND GAINS.

LOT I—CORN SILAGE AND GRAIN

1914 Experiment						1915 Experiment			
Weight at Beginning Oct. 16	Weight November 14	Weight December 12	Weight January 9	Gain		Weight at Beginning Nov. 23	Weight December 22	Weight January 22	Gain
64	74	77	82	18		83	74	75	-8
54	63	65	69	15		83	89	90	7
101	104	109	117	16		77	73	80	3
Sick						83	89	91	8
66	70	72	77	11		75	80	79	4
73	77	89	88	15		90	102	106	16
69	79	77	76	7		84	95	91	7
72	79	82	82	10		73	76	79	6
92	93	93	90	-2		75	77	81	6
76	84	95	91	15		79	78	83	4
667	723	759	772	105		802	833	855	53

LOT II—CORN SILAGE, GRAIN AND HAY

79	79	90	97	18	66	78	81	15
58	72	78	85	27	81	82	84	3
75	78	83	92	17	77	83	84	7
89	91	99	100	11	94	90	102	8
69	77	89	91	22	74	83	86	12
49	61	71	77	28	98	104	114	16
73	79	87	91	18	96	106	110	14
68	85	98	97	29	81	89	95	14
87	95	99	109	22	75	83	83	8
73	77	77	81	8	80	83	93	13
720	794	871	920	200	822	881	932	110

LOT III—CORN SILAGE, GRAIN AND HAY

62	74	88	83	21	84	95	100	16
79	87	98	111	32	75	86	95	20
80	77	85	89	9	74	85	91	17
54	72	78	87	33	86	89	96	10
84	94	98	106	22	72	80	88	16
70	90	88	98	28	81	88	92	11
76	87	99	107	31	70	77	78	8
56	73	82	90	34	75	83	87	12
74	84	79	88	14	72	81	86	14
85	87	88	101	16	88	97	101	13
720	825	883	960	240	777	861	914	137

LOT IV—CORN SILAGE, GRAIN AND HAY

51	54	58	61	10	79	86	90	11
54	64	70	79	25	78	82	85	7
79	87	93	96	17	74	80	85	11
88	100	107	116	28	69	74	85	16
65	76	82	89	24	76	86	86	10
78	95	100	109	31	76	80	81	5
85	103	109	124	39	77	89	91	14
78	82	83	89	11	72	83	92	20
87	101	108	116	29	72	84	87	15
55	71	79	84	29	63	73	78	15
720	833	889	963	243	736	817	860	124

TABLE OF WEIGHTS AND GAINS (Continued)

LOT V—CORN SILAGE, GRAIN AND HAY

1914 Experiment					1915 Experiment			
Weight at Beginning Oct. 16	Weight November 14	Weight December 12	Weight January 9	Gain	Weight at Beginning Nov. 23	Weight December 22	Weight January 22	Gain
94	103	109	120	26	80	89	85	5
66	79	85	94	28	75	81	84	9
77	85	92	101	24	85	91	100	15
55	60	67	76	21	76	82	86	10
67	77	81	87	20	74	89	95	21
50	60	66	65	15	77	92	96	19
98	112	122	130	32	92	101	103	11
81	82	89	93	12	78	86	92	14
64	75	82	85	21	87	87	87	.....
68	74	83	83	15	82	92	94	12
720	807	876	934	214	806	890	922	116

LOT VI—CORN SILAGE, GRAIN AND HAY

70	86	97	105	35	83	90	99	16
79	96	99	105	26	72	76	79	7
69	71	74	78	9	87	99	97	10
73	86	87	92	19	89	86	92	3
85	97	105	112	27	66	77	81	15
73	81	88	88	15	92	92	91	-1
73	98	106	117	44	78	89	93	15
75	84	100	105	30	92	92	100	8
58	73	75	77	19	76	88	94	18
63	65	69	67	4	80	85	92	12
718	837	900	946	228	815	974	918	103

LOT VII—GRAIN AND HAY

69	86	83	97	28	73	80	81	8
80	96	101	113	33	71	80	83	12
44	52	63	70	26	86	98	104	18
55	67	66	74	19	88	98	107	19
71	72	69	83	12	84	83	88	4
85	102	109	113	28	69	76	81	12
66	76	81	80	14	73	79	81	8
77	90	88	86	9	83	95	101	18
77	94	98	104	27	82	80	79	-3
94	110	115	127	33	72	76	76	4
718	845	873	947	229	781	845	881	100

The table of weights and gains is presented to show how irregular the gains were for some of the lambs. The gains for the lambs in lots I for both years, while they are uniform for the two years, are not anywhere nearly as good as the gains for lambs in lots II, III and IV, where hay was fed with silage. In fact, one lamb in the 1914 test did not do anything on corn silage as the sole

roughage and was taken out of the experiment a few days after the beginning.

Both years the lambs in lot I did not take to their feed like those of other lots, and the gains per head show that something was materially wrong, as only one-half as much gain was made in the same length of time as with the lots not receiving any silage. Neither could they be induced to eat their grain ration.

The following statement of the feeds consumed daily should be studied in connection with the table of weights and gains:

STATEMENT SHOWING THE AVERAGE DAILY RATION, AND THE AVERAGE COST OF PRODUCING 100 POUNDS OF GAIN FOR EACH LOT BOTH YEARS

	Corn Silage	Grain	Hay	Average cost of producing 100 lbs. gain
Lot I	1.38	1.15	.00	11.72
Lot II	.72	1.52	.76	9.07
Lot III	.60	1.52	.86	7.47
Lot IV	.49	1.49	.97	7.74
Lot V	.37	1.51	1.23	8.59
Lot VI	.22	1.52	1.33	8.80
Lot VII	.00	1.51	1.11	8.96

Valuing feeds the same per pound for each lot, the average cost for the two years of producing 100 pounds of gain varied from $7.47 to $11.72, a difference of $4.25 per hundred.

In studying the table it will be seen that the most uniform gains were made by the lambs of lot III; that in lots I and II, receiving more silage and less hay, and in the remaining lots, receiving more hay and less silage, the gains made were not so uniform. The financial statement shows that the lambs of lot III also made the cheapest gain.

The grain ration for the different lots was the same, being one-half by weight of corn and oats. The results show that the lambs received as much grain daily as

other lots, but by feeding an average of .6 of a pound of silage and .87 of a pound of hay daily the lambs did better than when a full silage ration or a full hay ration was fed. In fact, the corn silage was a benefit in increasing the appetite of lambs of lots V and VI, as they consumed more hay and made cheaper gains than lambs of lots VII that did not receive any silage with their ration.

Bulletin No. 160 of this Station shows the value of a preliminary feeding period with cattle in obtaining comparatively cheap gains before they are put on a feed of grain. This should also be practiced by feeders of lambs but not with corn silage as the sole ration. The range lambs used for the 1915 experiment were turned on a meadow when received and in 44 days gained nearly 8 pounds per head. This is probably why gains for lambs of 1915 experiment were not so large as those for 1914 experiment; also the silage for the 1915 experiment was not so good as silage for the 1914 experiment because corn was frosted before it was put into the silo and ears had not reached the glazed stage.

SUMMARY

1. Corn silage is not suitable as the sole roughage ration for fattening lambs with grain.

2. By adding a small quantity of corn silage to the lamb's ration, more uniform and larger gains were made than with lambs not receiving any corn silage. See gains for lots III and IV for both years.

3. A mixture of oats and corn, half and half by weight, and prairie hay, is not a good ration for fattening lambs.

4. From Bulletin No. 119 (edition exhausted) lambs receiving rape pasture alone made an average gain, in two experiments, of .34 of a pound daily. By adding corn and oats to the ration of two other different lots for, two experiments, those that received oats made an average daily gain per head of .38 compared to .32 daily for the two lots receiving shelled corn while on rape pasture.