

HETTINGER BRANCH STATION

AGRICULTURAL EXPERIMENT STATION

NORTH DAKOTA UNIVERSITY OF AGRICULTURE

WESTERN DAKOTA  
SHEEP DAY

ADAMS COUNTY

FEBRUARY 7, 1961

HETTINGER, N. DAK.

LERROY JOHNSON,  
SUPERINTENDENT







SECOND ANNUAL WESTERN DAKOTA SHEEP DAY

Hettinger Experiment Station  
Hettinger, North Dakota  
February 7, 1961

Program

- 1:00 Production testing in sheep  
M. A. Kirkeide  
Extension Livestock Specialist  
Fargo, North Dakota
- 1:15 Report of Experimental work at the Hettinger Station  
C. LeRoy Johnson, Supt.
- 1:45 Why I include sheep in my farm program  
Henry Hagen  
Reeder, North Dakota
- 2:00 "Barley for Feeder Lambs" and "Sheep Diseases"  
Merle R. Light  
Associate Professor of Animal Husbandry  
North Dakota State University
- 2:30 Agriculture and Farming  
Arlon G. Hazen  
Dean of Agriculture and Director of  
Agricultural Experiment Station  
North Dakota State University
- 3:00 Question and Answer period
- 3:15 Awarding of door prizes
- 3:30 Coffee





## COBALT FOR LAMBS

Cobalt is one of the mineral elements classified as a trace mineral, meaning that it is required in very small amounts to meet the nutritional requirements of the animal. The symptoms of cobalt deficiency in lambs are lack of appetite, anemia, lack of thrift and generalized weakness. In fact, when severely deficient, lambs will appear to "starve while standing in front of a full feed bunk". The symptoms of this disease show marked similarities to those of internal parasitism. On occasion, cobalt deficiencies have been confused with parasitism. The amount of cobalt required per lamb is very small and can be met adequately by feeding salt containing 0.1 ounce of cobalt (0.2 ounce of cobalt chloride) per 100 pounds of salt. Hays and pasture grasses containing 0.07 parts per million of cobalt on a dry matter basis have been shown to prevent occurrence of cobalt deficiency in sheep. North Dakota is not definitely known to have cobalt deficient areas. It is thought, however, that cobalt deficiency may occur sporadically. There has been some question as to whether or not the feeding of trace mineralized salt satisfied the needs for cobalt in sheep. Therefore, an experiment was designed to test the value of using cobalt "bullets" for lambs. Cobalt bullets are bullets that are orally administered. They lodge in the stomach and are said to dissolve slowly over a considerable period of time. Theoretically, this guarantees enough cobalt to meet nutritional requirements for an extended period.

Procedure: Thirty ewe and thirty ram lambs were paired and allotted into four groups. One group of each sex was given cobalt "bullets". The lambs were pastured together on typical western North Dakota range pastures of native and crested wheat grasses. Due to drouth conditions, the pastures were extremely poor the first year of trial but would be considered very good for the second year of trial. Lambs were drenched once for internal parasites at the start of the trial. A commercial trace mineralized salt was mixed with dicalcium phosphate and phenothiazine and was provided free choice. Lambs were weighed every 30 days. The results of the first 120 day trial are summarized in table 1. Results of the second 120 day trial are summarized in table 2.



Cobalt is one of the mineral elements classified as a trace element; normally, its requirement is very small amount compared to the nutritional requirements of the animal.

The symptoms of cobalt deficiency in lambs are lack of appetite, anemia, lack of weight gain, generalized weakness. In fact, when severely deficient, lambs will appear to "starve while standing in front of a full feed bunk". The symptoms of this disease show marked similarities to those of iron deficiency. On occasion, cobalt deficiency has been confused with iron deficiency. The amount of cobalt required per pound of very small lamb can be estimated as approximately 0.1 ounce of cobalt (0.2 ounce of cobalt chloride) per 100 pounds of live weight. Hays and pasture grasses as containing 0.01 percent cobalt. Cobalt deficiency in lambs has been shown to prevent occurrence of cobalt deficiency. In fact, cobalt deficiency in lambs may occur sporadically. There has been some question as to whether or not the feeding of large mineralized salt licks is sufficient for cobalt. There is a report that an experiment was designed to test the value of using cobalt licks for lambs. Cobalt licks are available that are orally administered. The licks in the stomach and are said to dissolve slowly over a considerable period of time. There is evidence that guarantees enough cobalt to meet nutritional requirements for an extended period.

Procedure: Thirty ewe and thirty ram lambs were paired and allotted into four groups. One group of each sex was given cobalt licks. The lambs were pastured together on typical western North Dakota range pasture of native and crested wheat grasses. Due to drought conditions, the pastures were extremely poor the first year of trial but would be considered very good for the second year of trial. Lambs were checked once for internal parasites at the start of the trial. A commercial mineralized salt was mixed with dicalcium phosphate and phosphoric acid was added to the ration. Lambs were weighed every 30 days. The results of the trial are summarized in Table I. Results of the second 120 day trial are summarized in Table II.

Table 1. The effect of cobalt bullets on lamb gains (1959).

Lot number . . . . .	1	2	3	4
No. lambs . . . . .	15	15	15	15
Sex . . . . .	Ewe	Ewe	Ram	Ram
Cobalt bullets . . . . .	Yes	No	Yes	No
Av. initial wt. lbs. . . . .	71.0	73.0	84.0	83.0
Av. final wt. lbs. . . . .	82.0	83.0	106.0	106.0
Av. gain per lamb lbs. . . . .	11.0	10.0	22.0	23.0
Cost of bullets per lot . . . . .	\$6.30	6.30	6.30	6.30

Table 2. The effects of cobalt bullets on lamb gains (1960).

Lot number . . . . .	1	2	3	4
No. Lambs . . . . .	15	15	15	15
Sex . . . . .	Ewe	Ewe	Ram	Ram
Cobalt bullets . . . . .	Yes	No	Yes	No
Av. initial wt. lbs. . . . .	86.7	86.5	94.5	94.5
Av. final wt. lbs. . . . .	106.2	107.9	125.2	122.6
Av. gain per lamb lbs. . . . .	19.5	21.4	30.7	28.1
Cost of bullets per lot . . . . .	\$6.30	6.30	6.30	6.30

Summary: The use of cobalt bullets did not significantly affect rate of gain of lambs with the conditions under which the experiment was conducted.







COBALT BULLETS FOR PREGNANT EWES  
(a progress report)

Review the discussion concerning cobalt for lambs.

After obtaining no significant results from the use of cobalt bullets for lambs, it was decided to test the value of their use on pregnant ewes.

Procedure: The purebred flock of Columbia ewes at the station was divided into two groups so as to have in each group, equal influence of sires, weight and age of ewes and equal distribution of ewes with different management backgrounds resulting from other trials being conducted on the same band of ewes. One group was given cobalt bullets on Nov. 28, 1959.

Results:

	<u>Cobalt</u>	<u>No cobalt</u>
No ewes.....	48	48
Ewe gain Oct. 29 to Jan. 30 .....	11.7	13.0
Av. fleece wt.....	10.45	10.65
Av. birth wt. lambs .....	11.75	11.75
Av. 30 day wt. lambs.....	29.34	27.76
Av. age (days) at weaning.....	132.6	136.46
Av. weaning wt. lambs .....	88.98	86.12
Av. lamb wt per day of age .....	.67	.63
Percent of lambs dropped .....	116.66	129.16
Percent of lambs weaned .....	106.25	104.16
Percent of ewes dropping twins .....	33.33	39.58
Percent of ewes weaning a set of twins.....	27.08	25.00
Percent of twins weaned as sets of those dropped..	75.00	52.63
Av. birth wt. of twins .....	10.8	10.28
Av. birth wt. of singles .....	12.8	12.52
Av. 30 day wt. of twins.....	26.8	24.44
Av. 30 day wt. of singles .....	31.88	30.96
Av. weaning wt. of twins .....	85.84	80.28
Av. weaning wt. of singles.....	92.24	91.96
Av. age (days) at weaning-twins.....	136.15	133.72
Av. age (days) at weaning-singles.....	128.92	135.20
Av. lamb wt. per day of age-twins ,,,,,,,,,,,,,,	.63	.60
Av. lamb wt. per day of age-singles.....	.72	.68
Av. wt. of lamb produced per ewe at 120 days.....	85.68*	78.87*

All weights are given in pounds or fractions thereof.

\*Av. wt of lambs produced per ewe at 120 days obtained by multiplying av. wt. per day x 120 days x percent of lambs weaned.



COBALT BULLETS FOR PREGNANT EWES  
(a progress report)

Review the discussion concerning cobalt for lambs.  
 After obtaining no significant results from the use of cobalt bullets for lambs,  
 it was decided to test the value of their use on pregnant ewes.  
Procedure: The purchased flock of Columbia ewes at the station was divided into  
 two groups so as to have in each group, equal influence of sires, weight and age  
 of ewes and equal distribution of ewes with different management backgrounds re-  
 sulting from other trials being conducted on the same band of ewes. One group  
 was given cobalt bullets on Nov. 28, 1933.

Results:

<u>No cobalt</u>	<u>Cobalt</u>	
48	48	No ewes.....
13.0	11.7	Net gain Oct. 29 to Jan. 30.....
10.62	10.42	Av. fleece wt.....
11.75	11.75	Av. birth wt. lambs.....
27.76	29.26	Av. 30 day wt. lambs.....
136.66	132.0	Av. age (days) at weaning.....
86.12	88.49	Av. weaning wt. lambs.....
.63	.67	Av. lamb wt per day of age.....
129.16	116.66	Percent of lambs dropped.....
104.76	106.22	Percent of lambs weaned.....
32.28	33.33	Percent of ewes dropping twins.....
25.00	27.08	Percent of ewes weaning a set of twins.....
22.63	25.00	Percent of twins weaned as sets of those dropped.....
10.28	10.8	Av. birth wt. of twins.....
12.52	12.8	Av. birth wt. of singles.....
24.44	24.8	Av. 30 day wt. of twins.....
30.96	31.88	Av. 30 day wt. of singles.....
80.28	82.84	Av. weaning wt. of twins.....
71.96	72.24	Av. weaning wt. of singles.....
133.73	130.19	Av. age (days) at weaning-twins.....
122.20	128.92	Av. age (days) at weaning-singles.....
.60	.63	Av. lamb wt. per day of age-twins.....
.68	.72	Av. lamb wt. per day of age-singles.....
78.87*	82.68*	Av. wt. of lamb produced per ewe at 120 days.....

All weights are given in pounds or fractions thereof.

\*Av. wt of lamb produced per ewe at 120 days obtained by multiplying av. wt.

per day x 120 days x percent of lambs weaned.



Summary: There was no difference in the average gain of the ewes between October 29 (the end of breeding season) and January 30 (just before lambing). The ewes receiving cobalt dropped a lower percentage of lambs than those that got cobalt by 12.5% but weaned a higher percentage by 2.09% which might indicate a somewhat stronger livability for those lambs from ewes that received cobalt. There was no difference in wool production. The ewes receiving cobalt produced 6.81 pounds of lamb more per ewe at 120 days than those in the check lot. This would be more than enough to pay for the cost of the cobalt bullets at 42¢ each. The information collected on this first year of trial shows that there is an apparent advantage in giving cobalt bullets to pregnant ewes. Trace mineralized salt plus dicalcium phosphate at a ratio of 3 to 1 was fed free choice throughout the winter in open troughs. Perhaps the snow that would fall from time to time making the salt hard might have reduced the proper salt intake thus bringing about a shortage of cobalt for those ewes not getting the bullet. It is important to remember that this is only one year's trial and must be repeated before it can be considered conclusive.







CREEP FEEDING EARLY LAMBS UNTIL PASTURES ARE AVAILABLE  
(a program report)

Purpose: To determine the value of creep feeding early lambs until pastures are available at which time they are turned to pasture with their mothers.

Procedure: Our purebred flock of Columbia ewes was used for this trial also. The ewes were divided at lambing time into two groups of similar background. Both groups had as nearly as possible, equal representation of influences such as weight, age and management background. One group was creep fed until pasture time and the other group was not.

Creep ration:

750 lbs. Barley  
750 lbs. Oats  
200 lbs. Wheat Bran  
200 lbs. Soybean oil meal  
100 lbs. molasses  
40 gms. Aureomycin

Cost of creep feed-- \$56.00 per ton.

Cost of creep feed per lamb---\$.59

Results:

	Lot 1 (Creep fed)	Lot 2 (no creep)
No. of ewes.....	48	48
Av. birth wt. lambs .....	11.33	11.48
Av. 30 day wt. lambs .....	29.09	28.23
Av. wt. at pasture .....	54.31	47.56
Av. age (days) at pasture .....	67.45	69.28
Av. wt. of lambs per day of age at pasture...	.82	.686
Av. wt. at weaning.....	89.9	85.34
Av. age (days) at weaning .....	134.45	133.7
Av. wt. of lambs per day of age at weaning...	.668	.638
Number of lambs at weaning.....	51	49
Number of sets of twins at weaning .....	13	11
Average weaning wt. adjusted to 120 days.....	80.16	76.56
Difference in wt. per lamb at 120 days .....		3.60

All weights are given in pounds or fractions thereof.







Summary: The lambs in lot 1 gained faster while on creep feed than those in lot 2 by .13 pounds per day. However, after being turned to pasture those lambs that had not been creep fed started to catch up. At weaning, there was only .04 lbs. per day of age difference. Lambs would have to sell for \$16.40 per cwt. at market to pay the extra cost of feeding creep feed with no allowance for extra labor and equipment. From the data collected on this one year's trial, it appears that creep feeding from birth to pasture would not be profitable. This test will be repeated before being considered conclusive information.



Summary: The lambs in lot 1 gained faster while on creep feed than those in lot 2  
by 13 pounds per day. However, after being turned to pasture those lambs that had  
not been creep fed started to catch up. At weaning, there was only .04 lbs. per day  
of age difference. Lambs would have to sell for \$10.40 per cwt. at market to pay the  
extra cost of feeding creep feed with no allowance for extra labor and equipment.  
From the data collected on this one year's trial, it appears that creep feeding from  
birth to pasture would not be profitable. This test will be repeated before being  
considered conclusive information.



FARM FLOCKS OF SHEEP ON WESTERN NORTH DAKOTA FARMS  
( a progress report)

Objectives: 1. To determine whether or not sheep production should be considered by farmers in the area who have limited amounts of pasture available. 2. To determine what management program should be recommended.

Procedure: Thirty Columbia ewes of mixed ages were used. Twelve of these were registered but of lower quality than the rest of our purebred flock. Eighteen were grade Columbias. They were bred to two suffolk ram lambs to start lambing about February 1st. A pole type shelter was constructed which served as housing all winter with no specially heated lambing quarters. Lambs were creep fed until May 1st when they were weaned and the ewes were turned to pasture. The lambs were kept on feed until marketed. From weaning to market, they were self fed whole barley and alfalfa hay. Complete records were kept of feed costs and returns. Lambs were marketed in two groups as they reached the desirable market weight and the choice grade. The first marketing was 16 head on June 13 and the second was 11 head on July 25.

Results:

Total feed cost for ewes and lambs.....	\$561.38
Ram(Plan to use \$80.00 ram av. of 3 years).....	26.66
30 ewes valued at \$20.00 each or \$600.00.....	
Estimated replacement cost at 20% .....	120.00
Housing (pole barn @\$350.00 depreciated in 20 years).....	17.50
Shearing @\$4.00 each .....	12.00
Veterinary expense including drenching and prorated.....	
cost of tools etc. (estimated \$1.00 per head).....	30.00
Cost of bedding.....	20.00
Total costs.....	\$787.54

Wool sold (29 fleeces) 283 lbs. @ 45¢ per lb.....	127.35
½ lb. tags per ewe or 14 lbs. @ 12¢ per lb.....	1.68
1 fleece dead wool 9 lbs. @ 12¢ per lb.....	1.08
Estimated wool subsidy 24¢ per lb.....	67.92

Lambs sold:

June 13-16 head av. 84.7 lbs. at St. Paul @ \$23.75 per cwt. \$321.81. Less charges for tkg, comm. etc. \$22.48 .....	299.33
July 25-11 head av. 89.1 lbs. at St. Paul @ 19.50 per cwt. \$191.10 less charges \$17.59 .....	173.51
Estimated salvage from ewes replaced .....	15.00
Total income .....	\$685.87





Summary: This test shows that this lot of 30 ewes showed a net loss of \$101.67. Costs for summer pasture, fence, water and labor were not added as it was felt that these were extremely variable from farm to farm. It will be noted that only a 90% lamb crop was marketed. This was partly due to the high percentage of dry ewes (16.6%) and also two lambs died from urinary calculi just prior to shipping. Feed supply in this area was extremely short reflecting higher prices and resulting in higher than normal feed costs for this trial. It will also be noted that lambs sold in June brought \$23.75 per cwt. while those sold in July brought \$19.50. Both groups topped the quoted market at St. Paul on the day sold. This trial will be repeated several more years to try to eliminate this variation in prices from year to year. Some corrections will be made in management next year in an effort to iron out some of the factors resulting in this year's loss. We will force feed salt in the ration to try and prevent urinary calculi. We will start lambing about three weeks earlier in an attempt to get more lambs ready for the early, higher market. We will continue to make corrections from year to year in a search for a management system that might show a profit from farm flocks in this area.



