

HETTINGER BRANCH STATION

AGRICULTURAL EXPERIMENT STATION

NORTH DAKOTA STATE UNIVERSITY

4TH ANNUAL
WESTERN DAKOTA
SHEEP DAY

ADAMS COUNTY

FEBRUARY 19, 1963

HETTINGER, N. DAK.

LEROY JOHNSON,

SUPERINTENDENT

FOURTH ANNUAL SHEEP DAY
Hettinger Experiment Station
Hettinger, North Dakota
February 19, 1963

- 10:00 Coffee
- 10:30 Tour of Hettinger Station
- 11:15 Flock Management:
Melvin A. Kirkeide
Extension Livestock Specialist
North Dakota State University
- 12:00 Noon Lunch
- 1:00 Lamb Feeding:
Merle R. Light, Associate Professor
Animal Husbandry Department
North Dakota State University
- 1:45 Experimental Work at Hettinger:
LeRoy Johnson
Superintendent
- 2:15 An Objective Look at Our Sheep Business
Roy A. Gilman, Secretary
American Hampshire Sheep Association
Stuart, Iowa
- 3:15 Question and Answer Period
- 3:30 Awarding of Door Prizes and Coffee

REMINDERS FOR SHEEP PRODUCERS

I. Preparing the Ewe Flock

1. Select good sires. Good purebred rams will pay many dividends. Keep in mind the systems of marketing when selecting breed of sires. Are the lambs going to be marketed as fat lambs, feeders, ewe flock replacements etc. Shear the ram before turning with ewes, especially when breeding early in the fall when weather is still warm. A ram in short fleece is much more active.
2. "Flush" ewes from two weeks before and during the breeding season. This can be done by turning ewes on lush new pasture, turning ewes into combined grain fields to glean or by feeding grain at least one pound per head per day.
3. Use marking harnesses or smear the ram's brisket with colored oil paste to detect slow or non-breeding rams. Begin the season with a light color and change colors every sixteen days. Remove the ram after three heat cycles to avoid drawn-out lambing periods.

II. Feeding the Ewe Flock

1. From breeding until four to six weeks before lambing, clean up pastures and fields first. Then after snow comes, feed hay or silage. Four to six pounds per day of hay or equivalent. 3 lbs. silage equal 1 lb. hay. Feed a minimum of 2 lbs. of hay in a silage-hay ration. Legume hay is preferable.
2. Feed salt and mineral free choice the entire year. A good salt-mineral mix is three parts by weight of trace mineralized salt to one part of dicalcium phosphate or bone meal.
3. From four to six weeks before lambing, feed roughage as above plus $\frac{1}{2}$ to 1 pound of grain per head per day, depending on the condition of the ewes. About $\frac{1}{2}$ pound of protein supplement should be added if roughage is of poor quality.
4. Provide plenty of water at all times.
5. In general, keep ewes in a "gaining condition from breeding season until lambing.

III. Preparations for Lambing

1. Provide plenty of exercise for ewes. This is most easily done by feeding some distance from the shelter.
2. Do not crowd the ewes or handle roughly.
3. Tag ewes and trim feet shortly before lambing.

4. Set up lambing pens (jugs) in sheltered area of barn. The number of pens needed should be 10 to 15% of the number of ewes in the flock.
5. Provide heat lamps, especially when lambing early.
6. Put in a supply of tools and medicine that will be needed. Some helpful items are as follows:
 - a. Sheep shears for odd trim jobs and treating inverted eyelids.(turned in).
 - b. Curved needle and thread for sewing eyelids.
 - c. Forceps or balling gun.
 - d. Hoff trimmers.
 - e. Iodine for disinfecting navels.
 - f. Drenching gun or syringe.
 - g. Lamb nipples.
 - h. Hypodermic syringe.
 - i. Soap and mineral oil.
 - j. Disinfectant such as lysol or sheep dip.
 - k. Sulfa pills for treating pneumonia in young lambs.
 - l. Penicillin.
 - m. Udder infusion ointment for treating mastitis.
 - n. Bolettes for inserting in uterus of ewes assisted in lambing.
 - o. Paint branding irons and branding paint.

IV. Delivery and Care of Lamb and Ewe

1. Watch closely
2. Sort ewes if large band by rump breeding marks or udders.
3. Do not put ewe in lambing pen before lamb is born. Place her there right after lambing for one to two days or as long as necessary.
4. As soon as ewe has lambed, remove waxy plug from teats. Make sure lamb nurses soon after birth.
5. Disinfect navel as soon as possible.
6. Give ewe water (preferably warm) soon after birth of lambs.
7. Usually feed only hay and water to ewe while she is in lambing pen.
8. Turn ewes and lambs out of lambing pens in small groups.
9. Watch lambs for turned in eyelids.
10. Check udders of ewes for mastitis and to see if both teats are functioning.
11. Watch lambs for sticky feces under tail - remove if necessary.
12. Identify ewes and lambs for branding with identical numbers.

V. Docking and Castrating

1. Dock soon after birth
2. Castrate when lamb is one to two weeks old.

VI. Creep Feeding Lambs

1. Begin when earliest lambs are two weeks old.
2. Locate creep in comfortable areas of barn. Lure the lambs into creep by making it as comfortable as possible. Heat lamps in a hover are an excellent help. Use a roller type entrance.
3. Keep feed fresh.
4. Provide top quality hay in creep.
5. There are several good creep feed mixtures. They should be ground, rolled or pelleted for very young lambs. The mixture should be selected after considering the feeds that are available and the relative costs of the feeds. Suggested Creep Mixture:
 - 750 lbs. barley
 - 750 lbs. oats
 - 200 lbs. wheat
 - 200 lbs. soybean oil meal
 - 100 lbs. molasses (to reduce dustiness and increase palatability)
 - 40 grams per ton aureomycin
6. Provide water if possible.
7. Provide salt and mineral free choice.
8. As lambs get older creep feeds need not be ground.

VII. Tagging, facing and shearing

1. Tagging is the removal of wool around the udder and rectal areas of the ewes.
2. Facing is removal of excess wool on the face so the ewe will not become wool blind. This is done only when necessary. Some breeds are naturally open faced.
3. When shearing, always:
 - a. Shear when fleeces are dry.
 - b. Keep the wool free from straw and dirt
 - c. Tie with paper twine only.
 - d. Avoid "second cuts" when shearing.

VIII. Vaccinating

There are several disease problems that require vaccination. Some of these are: sore mouth, listeriosis, overeating disease, leptospirosis and vibriosis. Watch for symptoms of infectious diseases and consult veterinarian in setting up control program.

IX. Parasite Control

1. Internal-drench at least twice per year, when turning out to pasture and when starting on dry feed in the fall. It is preferable to drench once during the summer too. Provide 10% Phenothiazine in the salt free choice during summer pasture season.

2. External-spray, dust or dip at least once per year for control of ticks and lice.

RATIONS FOR EWES:

The most frequently missing essentials in winter rations for ewes are protein and total digestible nutrients. Table I gives the recommended allowances for ewes at various stages of pregnancy and during lactation. These are the National Research Council recommended levels.

TABLE I. Recommended Daily Allowances of Protein and TDN (140 lb. ewe).

Time	Protein lbs.	Total Digestible Nutrients lbs.
1st 15 weeks	.27	1.7
last 6 weeks	.36	2.4
1st 8-10 weeks lactation	.45	3.1

You might be interested in knowing how our common North Dakota feeds meet the above requirements. The following tables have been prepared to show how many pounds of each feed stuff would be required to furnish the recommended levels of protein and TDN.

TABLE II. Feed Stuffs - Required to Furnish Necessary Levels of Protein and TDN for ewes.

Roughage lbs.	1st 15 weeks		last 6 weeks		1st 8-10 Weeks lactation	
	Prot.	TDN	Prot.	TDN	Prot.	TDN
Corn Silage	12.2	9.3	16.3	13.26	20.45	17.1
Oat Straw	6.6	3.8	8.8	5.36	10.9	9.8
Prairie Hay (good)	3.3	3.27	4.4	4.7	5.5	5.9
Prairie Hay (poor)	6.9	4.6	9.2	6.6	11.5	8.4
Alfalfa Hay	1.7	3.3	2.27	4.56	2.8	6.0
<hr/>						
Concentrates lbs.						
Barley	2.12	2.18	2.80	3.00	3.54	4.0
Oats	2.5	2.72	3.0	3.42	3.75	4.42
Corn	3.14	2.01	4.18	2.99	5.23	3.82
Soybean Meal	.59	2.15	.79	3.04	.99	3.9

These are general recommendations for ewe feeding.

1. Good alfalfa hay meets all requirements when fed according to appetite.
2. Prairie hay and alfalfa 50-50.
3. 2# legume hay plus 4-6 lbs. silage.
4. Generally supplement prairie hay with protein.
5. Add 1/2 - 3/4 lbs. grain last 6 weeks.

COBALT BULLETS FOR PREGNANT EWES

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

Procedure: Our purebred flock of 100 Columbia ewes was divided into two groups so as to have in each group, equal influences 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 of 50 was given bullets in August of 1959 and 1960---In 1961, bullets were given Sept. 7 to 40 head. The two groups were handled ~~as~~ one for feeding and management. Trace mineralized salt plus Dicalcium phosphate in a ratio of 3:1 was fed free choice.

Average results of three years of trial:

Average weight of lamb produced per ewe bred at 120 days:

	With Cobalt Bullets	No Cobalt Bullets
1960 lamb crop.....	85.68	78.87
1961 lamb crop.....	80.90	84.67
1962 lamb crop.....	93.00	90.60
Total.....	259.58	254.14
Average.....	86.53	84.71
Average Difference.....		1.82

Summary: In each of these trials, average weight of lamb produced per ewe was computed by taking the average weight per day of age at weaning of all lambs in the lot x 120 days x percent of lambs weaned in each lot. Throughout the three years of this trial, many factors such as percent of lambs dropped, percent of lambs weaned and weights of lambs at various ages have been compared. Increases in these factors either singly or in combination are essential to produce increases in over all lamb production. There were no consistent differences between lots in any of these factors. There were no significant differences noted in ewe gains and losses or in fleece production. Differences in total pounds of lamb produced per ewe were not consistent from year to year.

The averages of the three years of this trial show that the ewes that received Cobalt Bullets produced 1.82 pounds of lamb more per ewe bred at weaning than those that received no extra Cobalt. At 42¢ per bullet, lambs would have to be worth \$23.08 per live cwt. to break even on the cost of the bullets.

It seems quite apparent that when trace mineralized salt is fed free choice and is available at all times, sheep producers will receive no benefit from the use of Cobalt Bullets as a source of Cobalt.

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SUPPLEMENTARY FALL FEEDING OF EWES DURING BREEDING SEASON

Many successful sheepmen feel that the feeding program followed during breeding season and two weeks following is a very critical period as far as increased lamb production is concerned. Many producers increase the energy intake of their ewes during this time. This practice is often called "flushing". It is also felt that there might be some chance of fertilized eggs becoming more firmly established in ewes that are on a higher level of nutrition. This might be especially true in cases of rather rigorous conditions.

Our flock of 100 purebred Columbia ewes was divided into two groups giving each group as nearly as possible equal influences of age, weight and sires as well as equal influences of other trials being conducted simultaneously. The first year, one group was fed $\frac{1}{2}$ pound of oats and $\frac{1}{2}$ pound of Soybean Oil Meal per head daily. The second year this group was fed $\frac{1}{2}$ pound of oats, $\frac{1}{2}$ pound of Soybean Oil Meal and 1 pound of good quality alfalfa hay per head daily. Grazing was on native pasture and stubble fields. Feeding was carried on for 60 day periods beginning the day the rams were turned with the ewes. Supplemental feed costs were \$1.11 per head the first year and \$1.78 per head the second year.

Results:

	With fall feed			No fall feed		
	1960	1961	Average	1960	1961	Average
Percent lambs dropped.....	122.45	138.0	130.22	129.78	130.0	129.89
Percent lambs weaned.....	102.04	114.0	109.02	106.38	116.0	111.19
Percent dries and dead.....	10.2	12.0	11.1	8.51	12.0	10.25
Ave. weight of lambs produced per ewe bred at 120 days*.....	77.59	81.26	79.42	84.13	84.35	84.24

*Average weight of lamb produced per ewe at 120 days obtained by multiplying average weight of lamb per day of age at weaning x 120 days x percent of lambs weaned.

Summary: Production differences between years can be accounted for by noting that in the fall of 1959, the native pastures and stubble fields used were very poor while in the fall of 1960, these were quite good.

There was an average difference of 4.82 pounds of lamb per ewe bred in favor of the ewes that were not given additional feed. Before making hasty conclusions, it should be noted that in both years, the ewes were weaned at least 6 weeks prior to breeding. They were in relatively good condition. If the ewes had been thin, at the time of breeding, it is quite conceivable that the results might be different. However, from information collected, these two consecutive years, it appears conclusive that for ewes in good flesh, we can expect no increase in lamb production from feeding additional concentrates.

FEEDLOT CONFINEMENT OF EWES DURING BREEDING SEASON

Purpose: This station has had considerable trouble over the years with a large percentage of dry ewes. There have been mixed reports from sheepmen in the area concerning this problem. We have noted the conditions under which we must handle our ewes during breeding season. They must travel over two miles to their pasture area each morning and come home each evening for water and sorting into their respective breeding pens. It is felt that perhaps this long walk could bring about a reabsorption of fertilized eggs or embryonic death. This trial was designed determine whether or not it would be economically feasible to confine the ewe flock during breeding season and feed them alfalfa hay and a small amount of grain.

Procedure: Our flock of 40 unregistered Columbia ewes were divided into two groups giving each group as nearly as possible, equal distribution of age and weight. One group made the daily trip to pasture and were fed no extra grain or roughage. The other group was placed in a large corral and fed 5 pounds per head per day of alfalfa hay plus $\frac{1}{2}$ pound per head per day of oats.

Two Hampshire rams were used. They were turned in with the ewes nights only and alternated between the two lots every other night. The two flocks were turned together early in November and handled as one flock until weaning.

Results:

Feed cost for ewes in dry lot were \$4.51 per ewe in 1961 and \$4.00 per ewe in 1962.

	Pasture			Dry Lot		
	<u>1961</u>	<u>1962.</u>	<u>Average</u>	<u>1961</u>	<u>1962 .</u>	<u>Averages</u>
Percent lambs dropped.....	130.0	160.0	145.0	145.0	185.0	165.0
Percent lambs weaned.....	120.0	150.0	135.0	130.0	155.0	142.5
Percent lambs marketed....	115.0	140.0	127.5	120.0	145.0	132.5
Percent dries and dead....	15.0	0.0	7.5	10.0	0.0	5.0
Average weight of lamb produced per ewe at 120 days*.....	122.98	147.96	135.47	123.5	134.48	128.99

*Average pounds of lamb produced per ewe at 120 days obtained by multiplying average weight of the lambs per day at weaning x 120 days x percent lambs weaned.

Summary: It must first be noted that there were no problems such as difficult lambing or pregnancy disease that could be attributed to the relatively small amount of exercise allowed to those ewes in dry lot from the beginning of breeding season through weaning. In both years of this trial, the ewes fed in dry lot during breeding and on, dropped more lambs, weaned more lambs and marketed more lambs than those that were pastured during the same period. However, those ewes that were not in dry lot produced an average of 6.48 pounds of lamb more per ewe bred than those fed in dry lot. A slight increase in wool production was noted in both trials from ewes that were fed in dry lot. It seems apparent from these two trials that there is no advantage in dry lotting ewes during breeding season if reasonably good pastures are available.

FARM FLOCKS OF SHEEP ON WESTERN NORTH DAKOTA FARMS

Objectives: To determine whether or not sheep production might be considered by farmers in this area who have limited amounts of pasture available. Many farmers in this area have several factors which might well be considered for use in a sheep production program: 1. Most of them have a certain amount of land that is too steep, rocky, or sandy to be cultivated. The native grass that does grow on these areas is probably not lush enough in most years to produce top feeder lambs. However, it is felt that it will maintain dry ewes through the summer. 2. Many of these same farms have several acres of crop land that is farmed in strips. There is always a certain amount of grain that is left in the field after combining. Sheep will pick up most of this plus any weed growth present. These strips might well be used for "flushing" a ewe flock during breeding season. 3. Many of these same farmers have some extra time available during February and March before they must start their spring field work. 4. The lamb market is almost always at its peak in the spring or early summer.

Considering these factors, it is thought that many farmers might include a sheep flock in their program by lambing before field work starts, weaning when the grass is ready, and full feeding their lambs from birth to finish, thus taking advantage of the early higher market.

Procedure: The first year of trial, 30 unregistered Columbia ewes of mixed ages were used. The following two years, the flock was made up of 40 ewes. They represent quite closely the quality of ewes that are available for purchase in this area almost every year. They were bred to Hampshire ram lambs to start lambing on January 15 one year and February 1 the other two years. A pole type shelter was constructed which served as housing all winter with no specially heated lambing quarters. Heat lamps were used. Lambs were creep fed until weaned and continued on full feed to market. Complete records were kept of costs and returns. The only cost not included is the value of the native grass pasture and the labor

required during a normally slack season. This will vary a great deal from farm to farm. Lambs were marketed in two groups as they reached desirable market weights and choice grades. The first marketings were in June and the second in July.

Data: Feed prices varied greatly as to availability from year to year. Alfalfa hay varied from \$20.00 to \$30.00 per ton, oats from 45¢ to 65¢ per bushel, barley from 75¢ to 86¢ per bushel and corn from \$1.15 to \$1.20 per bushel. Based on the relative cost of TDN in the feeds, barley was used as the finishing feed for two years and corn one year.

The starting creep ration which was ground and mixed varied slightly from year to year but was essentially:

Corn or barley.....	800#
Oats.....	800#
Soybean Oil Meal.....	200#
Wheat Bran.....	200#
Salt (TM).....	40#
Aureomycin.....	40gm.
Vitamin A	2,000,000 I.U.(included the last year)

By May 1 each year, the lambs were weaned and were almost completely switched over from the mixed creep ration to whole grain and alfalfa hay.

Annual Fixed Costs were as follows:

Ram @ \$80.00 (plan to use average of 3 years).....	\$26.66
40 ewes @ \$20.00 (estimated annual replacement cost of 20%).....	160.00
Housing(pole barn) @ \$525.00 depreciated 20 years.....	26.25
Shearing @ 40¢	16.00
Veterinary expense including drenching and vaccination and prorated cost of tools etc.....	40.00
Bedding(estimated)	25.00

Averages for three year trial:

	Winter feed cost <u>per ewe</u>	Average Selling <u>Price</u>	Percentage of lambs <u>marketed</u>	Profit or loss <u>per ewe</u>
1959-60	\$15.05	\$21.62	90.0	-\$3.39
1960-61	10.52	18.75	120.0	+ 4.17
1961-62	12.40	22.25	142.5	+ 9.49
3 year ave.	12.66	20.87	117.5	+ 3.42

Summary: In the first year of trial, some lambs were lost from overeating disease and urinary calculi. These problems were remedied partially in subsequent years by vaccinating the ewes and including salt in the creep ration. It should be noted that large variations in feed costs, lamb prices and percentages of lambs marketed were encountered. It is felt that the average results of these three years are indicative of the results farmers in the area might expect when using this early lambing and straight to market system. Experienced sheep producers are aware that some fluctuations in feed prices, lamb prices and lambs marketed are to be expected. There seems to be "good years" and "bad years" in most operations.

When inspected closely, many costs applied to these trials could be lowered such as housing if certain farms should have some unused buildings available. Or, perhaps the cost of replacement ewes could be lowered by careful buying.

On the basis of these three trials, it is concluded that many farmers in the Western Dakotas could include this type of sheep production program profitably.

