HETTINGER BRANCH STATION

AGRICULTURAL EXPERIMENT STATION

NORTH DAKOTA STATE UNIVERSITY

FEBRUARY 15, 1966

HETTINGER, N. DAK.

LEROY JOHNSON,

SUPERINTENDENT

SEVENTH ANNUAL SHEEP DAY
Hettinger Experiment Station
Hettinger, North Dakota
February 15, 1966

9:30	Coffee
10:00	Contest and Demonstration - Selection of Ewes For Age and Fleece
10:45	Experimental Work at North Dakota Stations Merle R. Light Professor of Animal Science North Dakota State University C. LeRoy Johnson Superintendent, Hettinger Station
12:00	Noon Lunch
1:00	SHEEP PARASITE CONTROL Dr. Myron F. Andrews, Chairman Veterinary Science Department North Dakota State University
1:45	HOW BIG SHOULD A EWE FLOCK BE? Melvin Kirkeide Extension Animal Husbandman North Dakota State University
2:15	WHY WE STAY IN THE SHEEP BUSINESS Leland Roen Bowman, North Dakota
2:45	PROGRESS IN PROMOTING OUR PRODUCTS William F. McKerrow Sheep Producer and President of the American Sheep Producers Council Pewaukee, Wisconsin
3:30	Coffee Hour

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

TABLE II. Feed Analysis (Percentage)

Feedstuff	Crude Protein	TDN
Alfalfa hay, mid bloom	15.2	51
Alfalfa hay, late bloom	14.0	48
Bromegrass hay	10.6	47
Oat hay	6.4	45
Oat Straw	4.0	45
Prairie hay	6.0	44
Sudangrass hay	11.3	48
Wheat straw	3.2	43
Corn silage	2.2	20
Barley	11.7	78
Corn	8.9	80
Linseed meal	35.3	74
Oats	11.8	65
Soybean Meal	43.8	74
Wheat Bran	16.0	58
Wheat	14.7	81

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 when fed as a single feed.

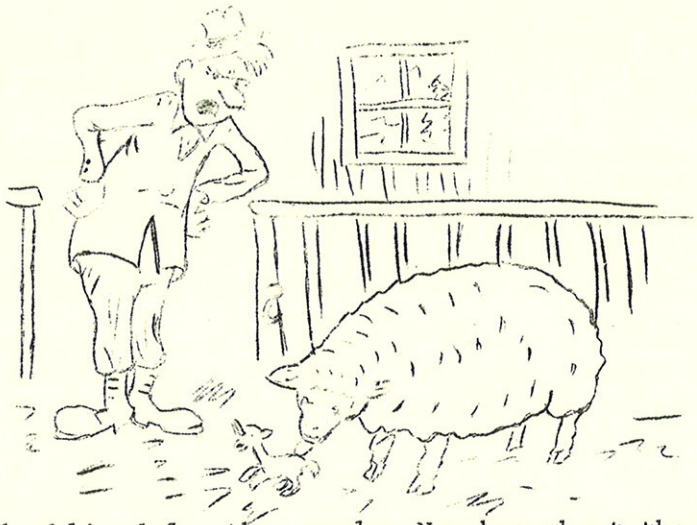
TABLE III. Feed stuffs (in pounds per head per day) required to furnish necessary levels of protein and TDN for ewes.

Roughage	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	4.66	2.8	6.0
Concentrates						
Barley	2.12	2.18	2.80	3.08	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 of gestation.
6. Add 1# grain during 1st 8-10 weeks of lactation (more for ewes nursing twins).
7. Allow extra energy (TDN) if ewes are shorn or in very severe weather.
8. Allow trace mineral salt and minerals the year around. Suggested mix: 2 parts trace mineral salt to 1 part Dicalcium phosphate, or feed both free choice in separate troughs.
9. Use only "top quality" roughages if possible.

HORACE



"Much obliged for the sample. Now how about the rest of the order!"

CHEAP RAMS ARE EXPENSIVE
U.S. Department of Agriculture

How much influence does the ram contribute to the progress of your flock? The statement one often hears is that the ram is half the flock. This is apparently based on the fact that the ram sires all the lambs in a one-sire flock.

But let's look at the selection pressure that is put on good purebred rams compared to the average grade ewe. Approximately one-third of the ewe lambs must be kept for replacements in order to maintain a constant number of ewes. If a 100-ewe flock produces 125 lambs, one-half of which would be ewes, about one-third of these or 21 ewes lambs, would be kept for flock replacement. This means that if you are selecting for a characteristic such as gain ability, you cannot make as much progress by selecting 33 percent of the top animals as you can if you selected the top 3 percent.

On the other hand, only three or four rams are needed to mate a 100 ewe flock. If you were selecting your own replacement rams in the same sized flock, you would need to keep only about two each year out of 63 male lambs. This would equal 3 percent of the group, and so you would be practicing much more selection pressure on rams than on ewes. As a result, the ram would be contributing more than 50 percent of your progress.

Dr. Clair E. Terrill, U.S. Department of Agriculture, makes these statements: "We need to emphasize the selection of rams because hereditary gains are largely made from these selections. The statement that the sire is half the flock is wrong. In terms of the gains that can be made through selection, the sire is much more than half the flock. In fact, our work shows that 89-90 per cent of the gains made in improving a trait like fleece weight came from the selection of rams and only 10-20 percent came from the selection of the ewes."

Performance records in 1961 between sire groups at the S.D.S.U. station indicated an average daily gain variation of .13 pounds. Within sire groups, an increase of .14 pounds average daily gain was shown.

A cheap ram can be an expensive ram if the .14 pounds average daily gain is taken off instead of putting on the lambs he sires. Lambs having 8 to 12 pounds less weight at market will mean a loss of approximately $2.00 at present day prices, or if these lambs are kept on the farm until they are 8 to 12 pounds heavier, it will require a 20 or 30 day longer feeding period. Another 60 to 100 pounds of feed will be needed and at present day prices that would amount to $1.20 to $2.00 additional feed cost.

A ram is generally used for at least two years. He should sire a total of 100 lambs during this period. At present prices, this means he will be siring over $2000 worth of offspring. If a ram can put 800 to 1000 more pounds on the lambs he sires, it is easy to figure his value on increased weight alone.

A ram that has an outstanding weight-for-age record, good conformation and scale, fertile and free from disease, will contribute more than half of all improvement in your flock. With his lamb crop returning over $2000, it would appear that he is one of the biggest bargains in the livestock business.

-CROSS BREEDING SHEEP-

by Merle R. Light

The cross breeding of sheep has been practiced widely in the sheep industry for many years. Sheepmen have utilized the advantages of crossbreeding to a greater extent than cattlemen have, this has no doubt been due to the fact that crossbred lambs have historically been more widely accepted in the feeding industry than crossbred beef have been.

Crossbreeding is generally an attempt to utilize the good points of several breeds in a breeding program. Most of our more popular breeds of sheep were improved by introducing crosses of sheep known to excell in some characteristics which were lacking in the sheep being worked with. Examples of crossbred sheep which have attained wide popularity are the Columbia, Targhee, Montadale and in fact in early history, Hampshires and Suffolks were improved by crossing with Southdowns.

NDSU has been conducting a sheep breeding experiment in which crossbreeding, among other things, is being studied. The information on the following tables shows some of the information which we have gathered. This is preliminary information.

Tables 1 and 2 show the productive performance of all ewe groups for the 1965 lambing season.

Table 1 Ewe productivity by station origin

Station & Origin	Ohio Columbia	N. Dak. Columbia	N. Dak. Suffolk	Illinois Suffolk
No. ewes bred	45	44	48	47
No. ewes lambing	40	31	40	45
% ewes lambing	88.9	70.5	83.3	95.7
Fertility level % lambs dropped/ewe bred	131.1	104.5	122.9	140.4
% lambs dropped/ewe lambing	147.5	148.4	147.5	146.7

	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
Birth wt.singles	21	11.6	17	11.0	20	12.6	25	11.8
Birth wt. twins	38	9.4	29	9.4	39	10.8	41	9.6
30 day wt.singles	17	32.0	17	26.6	17	32.6	22	32.0
30 day wt.twins	32	22.0	20	25.0	34	26.5	31	25.0
90 day wt.singles	16	64.0	17	57.2	17	69.3	22	71.0
90 day wt.twins	25	51.0	19	57.9	30	61.4	31	61.6
% survival 30 day singles		80.9		100		85		88
% survival 30 day twins		84.2		68.9		87.2		75.6
% survival 90 day singles		76.2		100		85		88
% survival 90 day twins		65.8		65.6		76.9		75.6

Table 2 Cross breeding groups

Station & Origin	Ohio-Col. ♂ N.D.-Suff. ♀		N.D.-Col. ♂ Ill.-Suff. ♀		Ill.-Suff. ♂ N.D.-Col. ♀		N.D.-Suff. ♂ Ohio-Col. ♀		Crossbred Ewes	
No. ewes bred	23		21		15		17		6	
No. ewes lambing	19		14		13		17		6	
% ewes lambing	82.6		66.7		86.7		100		100	
% lamb dropped/ewe bred	145.5		109.5		120.0		158.8		183.3	
% lambs dropped/ewe lambing	173.7		164.3		138.5		158.8		183.3	
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
Birth wt. singles	6	10.0	6	12.7	8	12.9	8	12.5	1	10.8
Birth wt. twins	27	10.0	17	9.1	10	10.9	19	10.5	10	9.2
30 day wt. singles	5	29.0	5	33.2	8	28.8	7	31.7	1	29.0
30 day wt. twins	20	26.0	13	24.9	10	21.4	16	26.3	7	26.9
90 day wt. singles	4	60.0	6	73.0	8	64.8	7	67.6	1	77.0
90 day wt. twins	19	58.0	13	55.9	10	52.0	16	58.8	7	62.7
% survival 30 day singles	83.3		100		100		87.5		100	
% survival 30 day twins	74.1		76.5		100		84.2		70	
% survival 90 day singles	66.6		100		100		87.5		100	
% survival 90 day twins	70.4		76.5		100		84.2		70	

Table 3 Carcass data for lambs slaughtered

Type of Mating	N. D. Col.	Ohio Col.	N.D. Suff.	Ill. Suff.	Ohio Col. ♂ X N.D.Suff. ♀	N.D.Col. ♂ X Ill. Suff.♀	N.D. Suff.♂ X Ohio Col. ♀	Ill. Suff.♂ X N.D. Col.♀	Ohio Suff.XCol.♀ X Col. ♂	N.D. Col.X Suff ♀ X Suff ♂	Ohio Suff. XCol.♀ X Suff. ♂
No. of lambs	2	8	3	10	9	6	9	11	3	2	3
Age in days at slaughter	169	168.5	163.7	150.8	144.9	149.2	152.1	146.3	179.3	143.0	168
Weight slaughtered (filled)	105.5	101.3	104.3	102.1	107.0	104.3	100.7	103.0	97.67	113.5	107.7
Loin eye area-sq.in.	1.98	1.87	2.19	2.02	2.13	2.24	1.99	2.07	1.99	2.05	2.12
Grades[1] USDA	10.0	10.0	11.33	11.4	10.44	11.0	10.0	10.5	10.3	10.5	10.3
Weight Hind saddle lbs.	49.73	50.11	49.27	48.46	49.81	49.23	49.46	49.96	49.29	48.72	48.67
Weight rack lb.	49.3	49.39	50.73	51.54	50.19	50.77	50.54	50.04	50.71	51.28	51.32
Ave. Fat thickness inches	.200	.253	.173	.487	.196	.230	.194	.192	.213	.22	.276

[1] Prime plus = 15, prime average = 14, etc.

TIME OF LAMBING
(A Progress Report - Third Year)

One of the major decisions a sheep producer must make is to set his lambing date. Many considerations relative to availability of winter feed and summer pasture, seasonal availability of labor and available housing and markets must be made.

This trial was designed to compare the results obtained in terms of monetary return and the costs involved when lambing ewes at various times of the year. Results are to be used as guides to producers when establishing their own management systems.

EXPERIMENTAL PROCEDURE:

Sixty three Columbia ewes were divided equally as to weight and age into three groups. Group I started lambing on February 1. The lambs were creep fed, weaned and placed on the early market as fat lambs. Group II started lambing on March 15. These lambs were not creep fed, but were allowed to graze early crested wheat grass, then alfalfa and then native pastures. At weaning time, they were priced as feeders and then fed out and sold as fat lambs. Group III started lambing May 1 on grass. These lambs were handled in the same manner as those in Group II. All groups were bred to the same Suffolk rams.

Results and Discussion:

TABLE I. Basic Information for Use Throughout This Year of Trial

Feed prices on basis of local market - Fall, 1964

Corn	$ 1.35 per bushel
Oats	.60 per bushel
Barley	.90 per bushel
Two yr. Old Alfalfa Hay	15.00 per ton
Good, New Alfalfa Hay	18.00 per ton

Pasture Charges

Charge per animal unit month (AUM) (Crested & Native)	$2.50
Charge per animal unit month (alfalfa)	4.00

Animal Unit Conversion Rates Used

five ewes with lambs = 1 animal unit or 150 sheep days = one AUM
seven dry ewes = 1 animal unit or 210 sheep days = one AUM

Costs Considered Constant Between All Lots

Sires, Veterinary, Ewe Replacement, Shearing, Salt, Vaccinations and Drenching

Selling Costs

Shrink - 6% to St. Paul
Shrink - 2% to local market

Commissions and trucking to St. Paul - $2.00 per head
Commissions only to local market - .50 per head

Wool Returns

11.0# average per ewe @ 60.5¢ per lb. or	$ 6.65
Estimated federal incentive payment (20%)	1.25
	$ 7.90

Creep Ration Used

Barley	800#	@ .0188	$ 15.04
Oats	800#	@ .0188	15.04
Linseed Meal	200#	@ 4.50	9.00
Wheat Bran	100#	@ 3.30	3.30
TM Salt	50#	@ 1.35	1.35
40 gm. Aureomycin			3.45
2,000,000 Units vit. A			.40
Grinding 1600# @ .12			1.92
Mixing 1950# @ .10			1.95

$. 51.45 or .0264 per pound

TABLE II. Summary of Data Collected in the Three Years.

		Feb.	March	May
Number of ewes involved	1965	21	21	21
	1964	19	16	18
	1963	19	21	19
Total		59	58	58
Lambs Dropped (percent)	1965	142.9	181.0	133.3
	1964	152.6	131.3	133.3
	1963	157.9	157.1	126.3
Average		151.1%	156.5%	131.0%
Lambs Marketed (percent)	1965	138.1	161.9	119.5
	1964	147.4	112.5	122.2
	1963	131.6	123.8	94.7
Average		139.0%	132.7%	112.1%
Annual Feed Cost Per Head (ewes only)	1965	13.77	14.37	12.30
	1964	11.26	10.89	9.69
	1963	9.10	9.36	8.58
Average		$11.38	$11.54	$10.19
Annual Feed Cost (all lambs)	1965	169.43	115.57	160.36
	1964	137.56	77.29	67.82
	1963	98.81	62.36	81.73
Average		$135.27	$85.07	$103.30
Return Per Ewe Bred* (lambs sold as feeders)	1965	-	22.55	10.58
	1964	-	13.41	17.43
	1963	-	17.20	11.89
Average		-	$17.72	$13.30
Return Per Ewe Bred* (lambs sold as fats)	1965	15.70	23.66	16.00
	1964	19.61	16.87	19.92
	1963	20.24	18.06	15.19
Average		$18.52	$19.53	$17.04

* Indicates gross returns less selling costs and feed costs.

TABLE 11. Summary of Data Collected in the Three Years.

	Feb.	March	May
Number of Ewes Involved	21	21	21
1964	19	16	18
1963	18	21	19
Total	58	58	58
Lambs Dropped (percent) 1965	162.5	161.9	133.3
1964	138.9	131.3	133.3
1963	157.9	157.1	125.3
Average	153.1%	150.2%	130.0%
Lambs Marketed (percent) 1965	130.1	161.9	119.5
1964	147.9	112.5	122.2
1963	131.6	125.3	95.7
Average	136.0%	132.7%	112.1%
Annual Feed Cost Per Head 1965	13.17	14.37	12.30
(ewes only) 1964	11.26	10.89	9.69
1963	9.10	9.36	8.38
Average	$11.18	$11.54	$10.19
Annual Feed Cost 1965	169.63	115.57	160.36
(all lambs) 1964	137.56	77.29	67.82
1963	93.81	62.36	81.73
Average	$133.67	$85.07	$103.30
Return Per Ewe Bred* 1965	-	22.55	10.52
(lambs sold as 1964	-	13.41	17.43
feeders) 1963	-	17.20	11.89
Average	-	$17.72	$13.30
Return Per Ewe Bred* 1965	15.70	22.65	16.00
(lambs sold as lambs) 1964	13.61	16.87	19.02
1963	20.24	16.06	15.19
Average	$16.52	$19.53	$17.04

* Indicates gross returns less selling costs and feed costs.

Summary:

At the close of the third year of this trial, the strongest point remains that relative profits are directly proportionate to the number of lambs weaned and marketed.

It was necessary to wean lambs light from the following groups: May, 1963 - 66.5#; March, 1964 - 69.7#; May, 1965 - 62.1#. It remains true that returns from feeding lambs to market weight as fat lambs are much greater when lambs are weaned at the lighter weights.

Percentage of lambs dropped and weaned continues to be highest for the two earlier lots.

Total annual feed costs per ewe remains about constant between ewes in the three groups.

After three years, profits over feed costs alone indicate that in this area, when lambs are marketed either as feeders or as fats, lambing should begin by March 15 or before. Feed costs and returns are similar between these groups. However, the kinds of feeds differ. The February group required less grass and more harvested feeds. Also this group allows the major period of work to be completed before spring planting.

THREE-YEAR STUDY OF LAMB PRODUCTION
BY WESTERN EWES

1965 Sheep Days, Iowa State University

The age at which lambs can be readied for market is economically important. This is shown as the average daily gain from birth to market weight for both the early and late lambs in Table 3.

Table 3. AVERAGE DAILY GAIN IN POUNDS - BIRTH WEIGHT TO MARKET WIEGHT *

Season	1960-61	1961-62	1962-63	3-year average	
Early	0.71	0.57	0.65	0.65	**
Late	0.60	0.46	0.56	0.54	

* Market weight was approximately 100 pounds live weight.
** Statistically significant at the 1 percent level weight.

It was observed that in each of the three years, the early lambs had an advantage in average daily gain. The three-year average gain for early lambs was significantly greater than that for late lambs (.65 vs. .54 lbs.).

The rate of gain of lambs may also be affected by breed of sire. This comparison is shown in Table 4.

Table 4. AVERAGE DAILY GAIN IN POUNDS - BY BREED OF SIRE.[1]

Sire	1960-61	1961-62	1962-63	3-year Average
White Face[1]	0.64	0.52	0.57[1]	0.57
Black Face[1]	0.68*	0.51	0.62**	0.61

* Significant at the 5 percent level of probability.
** Significant at the 1 percent level of probability.
[1] White Face = Columbia; Black Face = Hampshire.

In two of the three years (first and third), the Black face sired lambs gained significantly faster than did the White faced sired lambs. The three-year average daily gain was .61 pound for the Black face sired lambs versus .57 pound for the White faced sired lambs.

A study was also made for the average daily gain of single versus multiple birth (Table 5).

Table 5. AVERAGE DAILY GAIN IN POUNDS - BY TYPE OF BIRTH

Type of Birth	1960-61	1961-62	1962-63	3-year average	
Single	0.63	0.53	0.63	0.61	
Multiple	0.63	0.50	0.59	0.58	**

** Significant at the 1 percent level of probability.

These data show that lambs born as singles outgained the multiple birth lambs in all three years with an average daily gain of .61 pound for all single births and .58 pound for lambs of multiple birth. This average is small, and does not overcome the desirability of multiple births.

Another factor studied was average daily gain of lambs when fed the ration in either pellet or meal form. Pelleted creep produced gains significantly greater than when lambs received the ration in meal form (.61 vs. .57 pound, Table 6).

Table 6. AVERAGE DAILY GAIN IN POUNDS - BY TYPE OF CREEP

Type of Creep	1960-61	1961-62	1962-63	3 year average
Meal	0.69	0.50	0.57	0.57
Pellet	0.72	0.53	0.64	0.61**

** Significant at the 1 percent level of probability.

A study was also made of the cost of producing a lamb to market age based on a three-year total of 506 lambs marketed from 490 ewes originally placed in the breeding flock with the rams. The dry lot feed cost per ewe for all ewes over the three-year period was $8.64. The cost per lamb marketed from all ewes was $8.39 in dry lot feed costs. When an additional $2.00 was charged per ewe for pasture cost, the average feed cost per ewe per lamb marketed was $10.33. The total cost of the feed fed to the lambs was $6.60 per lamb marketed. Therefore, the total feed cost for producing a lamb to market weight was $16.93.

This three-year study indicates that Western ewes bred ewes bred to Black face rams produced lambs that gained significantly faster than lambs from comparable ewes bred to White face rams. Furthermore, lambs born in late January and early February rather than in late March and early April resulted in the lambs reaching market at three weeks younger age.

In addition to the faster growth rate of early lambs, there is usually a more favorable market at the time the early lambs are ready to sell. This would indicate that in a normal year the early lambs will realize an economic advantage over late born lambs. All factors considered, it appears that the overall return from lambs born early in the season will be $3.00 to $5.00 per lamb greater than for lambs born one month to six weeks later in the season.

Project No: H-7-20

Title: Confinement Sheep Production

Objectives:

1. To determine the effects of sheep management systems on relative costs of production, effects on health, and effects on productivity.

Procedure:

The sheep in this project are divided into three management groups to study the various aspects of three systems of management on farm flock sheep production. Management systems to be compared are: (a) total confinement, (b) January to February lambing with ewes pastured during grazing season, and (c) April and May lambing with ewes and lambs grazed during the summer and fall months.

The date of initiation of this project was November 9, 1965, when the University flocks of Hampshires and Suffolks were assigned to this study. Due to the late date of the project initiation, all ewes were bred for early lambs and consequently the late lambing group was not included.

The plan of management was to feed the confined group a maximum of whatever silage was available. Corn silage and alfalfa silage was fed during the year. Hay was fed to this group during a time when the silage system failed. Ewes were fed oats six weeks prior to lambing and until lambs were weaned. All lambs were creep fed and were topped out and marketed when they weighed between 95 and 105 pounds.

Ewes not confined were wintered on alfalfa hay and were fed oats as indicated for the confined group. This group was pastured for 191 days.

Results:

Average rations fed to ewes and costs are presented in Table 1.

TABLE 1

	Confined Groups		Early Lambing Pasture Groups	
Ave. Feed/day	Hampshires	Suffolks	Hampshire	Suffolks
Silage	6.02 lbs.	6.29 lbs.	-------	-------
Alfalfa Hay	2.44 lbs.	2.22 lbs.	2.38 lbs.	2.38 lbs.
Oats	.45 lbs.	.43 lbs.	.838 lbs.	.838 lbs.
Pasture Days	--------	--------	191	191
Total Costs	$18.81	$18.45	$11.84	$11.84

Feed Costs used: Silage @ $8.00 a ton, Alfalfa Hay @ $15.00 a ton, Oats @ $2.00/cwt, Pasture @ 2.50 per animal unit.

In addition to these feed costs, each lamb consumed 240 pounds of creep feed costing .025 cents per pound for a total cost of $5.00 per lamb.

All ewes assigned to this experiment were drenched for internal parasites at the beginning of this project. The ewes which were pastured were drenched in June and again in November. Confined ewes and lambs have not been drenched since allotted and fecal examination has indicated that this group is relatively parasite free and drenching has not been necessary.

The general health of ewes confined to dry lot has been excellent and is not noticeably different for those pastured during the summer and fall months. The long term effects are unknown, however at this time.

Replacement ewe lambs for each group will be provided from each management group. Each group will be grown out under the same management regime under which ewes are maintained.

Work Planned for Next Year:

The project will continue as outlined, 1966 will mark the first year in which all groups will lamb as indicated. The confined and early lambing pasture groups are now lambing and the late lambing group was bred to lamb beginning in May. Comparative figures will be available for all groups in 1966.

Prepared by: Merle R. Light

NOTES