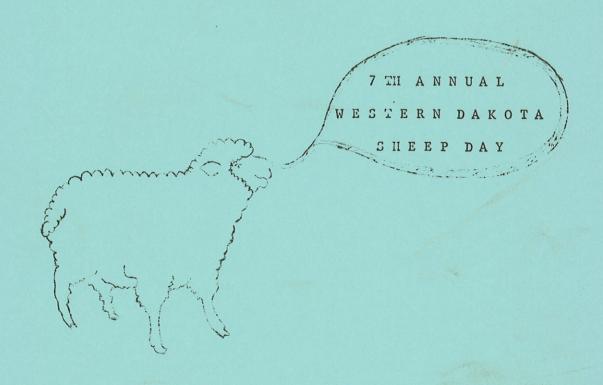
HETTINGER BRANCH STATION AGRICULTURAL EXPERIMENT STATION NORTH DAKOTA STATE UNIVERSITY



FEBRUARY 15, 1966 LEROY JOHNSON, HETTINGER, N. DAK.

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 Morth 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 Horth Dakota State University
1:45	HOW BIG SHOULD A EWE FLOCK BE? Helvin Kirkeide Extension Animal Husbandman Horth Dakota State University
2:15	WHY WE STAY IN THE SHEEP DUSINESS Leland Roen Bowman, North Dakota
2:45	PROGRESS IN PROMOTING OUR PRODUCTS William F. McKerrow Cheep Producer and President of the American Sheep Producers Council Pewaukee, Wisconsin
3: 30	Coffee Hour

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Experimental Lord to Hored Telota Scaulons gothamovintf our factor which all brother dilitam P. Hedervest
Lisep Producer and President of the
Linestean Sheep Producers Council
Peraulter, Misconsin

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 'DN (140 lb. ewe).

Time	Protein lbs.	Total Digestible Nutrients 1bs.
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)

	Crude	
Feedstuff	Protein	TDN
	1.5.0	r 1
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	11.3	65
Soybean Meal	43.8	74
Wheat Bran	16.0	58
Uheat	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.

The most frequirely and an execution of winter and lone for ewes are proported and total digestive interestic trained of the sales are are or every and country leaded out on the sales are the lational forcestion. These

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TABLE II. Feed whelyets (Percentage)

			- in illustration
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		0.01.	itsifa hay, take bloom
			receptass hay
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			ast Straw 1
			mairie bay
		C.1.1	wdangrass hay
08			
	7 * .		insect meal:
			leyboan thail

You might be interested is inculag have our equacational feeds meet the above requirements. Inc following sables have been propaged to show how many pounds of each feed sculf would be required to furnish the recommended levels of protein and LNI whim feed as a single feed.

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

					1st 8-1	0
Roughage	1st 15	weeks	last 6 v	veeks	Weeks Lac	tation
	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	3.03	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:

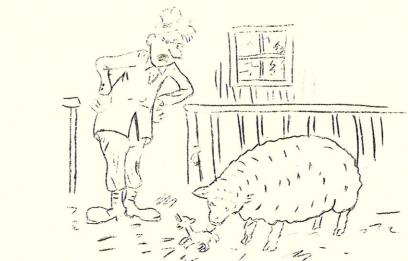
- 1. Good alfalfa hay meets all requirements when fed according to appetite.
- 2. Prairie hay and alfalfa 50-50.
- 3. 2# legume hay plus 4-6 lbs. silage.
- 4. Generally supplement prairie hay with protein.
- 5. Add 1/2 3/4 lbs. grain last 6 weeks of gestation.
- 6. Add 1# grain during 1st 8-10 weeks 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.

TADELT III. Feed stuffs (in peude nor had per day) required to furnish necessary levels of protein second s

					lst-6-10 Nacks Laccation		
	12,2 6,6 3,3	9.3 3.8 3.27	16.3 8.8 4.4		20,45 10,9 5,5	17.1 9.6 3.9	
(good) Prairie Hay (poor)				0.6	11,5		
	V.1				0.5		
					3.54 3.75 5.23 5.23	4,0 4,42 3,82 3,9	

These are general recommendations for our feedings

- 1. Good alfalfa hay meets all requirements when fed according to appetite.
 - . Prairie hay and alfalfa 50-50.
 - 2 24 Legume hay plus 4-6 lbs. silage.
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- 6. Add 15 grain during les 5-10 cooks of lactation (more for ewes nursing twins).
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 2 parts trace mineral salt to 1 part picalcium 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.

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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.

A chap was can be an expression of the interest points average daily note is refer off instead of pureing on the lamby he since. Lambs having 6 to 12 to present people here we have a lamb at approximately \$2.00 of present day prises, or it these lambs are kept in the lamb math day are 8 to 12 pounds having, at will require a 30 or 30 day longer feeding period. Another 60 to 100 pounds of feed will be acceded and at present day griens that could amount to \$1.20 to \$2.00 a \$2.00 a \$3.00ml feed cost.

A rea is generally need for at least two years, the should size a total of 400 lambs during this period. At second trices, this means he will be siring over \$2000 soits of olispring. If a rea on put 500 to 1000 sere period on this lambs be sixes, it is easy to figure his value on increased weight gions.

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-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

65.8

twins

Station & Origin (Ohio lumbia		Dak. umbia		. Dak. ffolk	Illinois Suffolk		
No. ewes bred No. ewes lambing % ewes lam bing Fertility level %		45 40 88•9	3	4 1 0•5	1	48 40 83•3	47 45 95•7		
lambs dropped/ewe bred % lambs dropped/ew		31.1	10	4.5	1	22.9	140.4		
lambing	1	47.5	14	148.4		47.5	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	
	38	9.4	29	9.4	39	10.8	41	9.6	
	17 32	32.0	17	26.6	17 34	32.6 26.5	22	32.0 25.0	
	16	22.0 64.0	20 17	25.0 57.2	17	69.3	31	71.0	
90 day wt.twins	25	51.0	19	57.9	30	61.4	31	61.6	
% survival 30 day singles		80.9	10	0		85	8	38	
% survival 30 day twins		84.2	6	8.9		87.2	7	75.6	
% survival 90 day		04.2	J	0.7		0102	,	,,,	
singles		76.2	10	0		85	8	38	
% survival 90 day				SEE TO					

65.6

75.6

76.9

A HOUSE OF THE PROPERTY.

by Merle R. didth

The orner brooding of sheep has been practiced widely in the sheep industry for many years. Shooteen have utilized the advantages of erestweeding to a greater when than cattlemen have, this has no doubt been due to the feet that crossbred limbs have historieally been more widely accepted in the feeding industry than crossbred bred burst have been

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		75		2.1.	0.10	90 day wheather ton
						X auratival 90 day
	.6.91.			9		twins

Table 2 Cross by	reed:	ing group	S					1		
Station &	Ohi	o-Col.o		Col. 0		Suff.		DSuff.		Crossbred
Origin	N.D	-Suff. ?		Suff.♀		Col. ₽	Ol	nio-Col. 9)	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	1	09.5	1	20.0		158.8		183.3
% lambs dropped/ewe										- 0
lambing		173.7	1	64.3	1	38.5		158.8		183.3
	-									
	No.	.Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No	
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	
30 day wt. singles		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	
90 day wt. singles		60.0	6	73.0	8	64.8	7	67.6	T	77.0
90 day wt. twins	19	58.0	13	55.9	10	52.0	16	58.8	7	62.7
% survival 30 day						••		05 4		7.00
singles		83.3	1	.00	1	.00		87.5		100
% survival 30 day		-1 -				••		01 0		20
twins		74.1		76.5	1	.00		84.2		70
% survival 90 day			_			~~		05 5		7.00
singles		66.6	1	.00	1	.00		87.5		100
% survival 90 day				5/ 7	7	00		01. 0		70
twins		70.4	-	76.5	1	.00		84.2		70

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ad	2.81	NC.			
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			13 55.9		
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	2.48		76×5		
	87.5				
					% survival 90 day
			76.5	10.h	entwi

inches	thickness	Ave Fat	Weight	saddle lbs.	Weight Hind	USDA	Grades ¹	area-sq.in.	Loin eye	(filled)	Weight slaughtered	slaughter	days at	Age in	lambs	Mating	of		Table 3 (
.200		49.3		s. 49.73	•	10.0		n. 1.98		105.5	ughtered	169			2	Col.	N. D.	-	Carcass data for lambs slaughtered
.253		49.39		50.11		10.0		1.87		101.3		168.5			8	Col.	Ohio		ta for la
.173		50.73		49.27		11.33		2.19		104.3		163.7			w	Suff.	N.D.		ambs slau
.487		51.54		18.46		11.4		2.02		102.1		150.8			10	Suff.	111.		ghtered
.196		50.19		49.81		10.44		2.13		107.0		144.9			9	N.D.Suff. 4 III. Suff. 4 Ohio Col. + N.D. Col.+	×	Ohio Col. o'N. D. Col. o'N. D. Suff. o'	
.230		50.77	,	49.23		11.0		2.24		104.3		149.2			6	IШ. Sutr. *	×	N. D. Col. o	
.194		50.54	;	94.64		10.0		1.99		100.7		152.1			9	Ohio Col. +	×	N.D. Suff. o	
.192		40.07	;	49.96		10.5		2.07		103.0		146.3			H	N.D. Col.+	×	Ill. Suff. on Ohio	
.213		50.71		49.29		10.3		1.99		97.67		179.3			w	 Col. o	uff. XCol.*	Ohio	
.22		51.28		48.72	,	10.5		2.05		113.5		143.0			2	Suff c Suff.	bl.X Shff	N.D.	
.276		51.32		և8.67		10.3		2.12		107.7		168			w	Suff. o	buff. XCol. Col. X Shiff & Suff. XCol. 4	Ohio	
											7	***							

l Prime plus = 15, prime average = 14, etc.

CLS SO.S TR.E CR.E TREE TREE TREE STORY (BALLIN)

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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-foed 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.

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Results and Discussion:

TABLE I.	Basic	Information	for	Use	Throughout	This	Year	of	Trial
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Çorn												•					. \$	1.35	per	bushe1
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Good.	, 1	Ver	W A	11:	fa:	Lfa	1 I	lay	7.				•			•		13.00	per	ton

Pasture Charges
Charge per animal unit month (AUI) (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

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 1b. or \$ 6.65 Estimated federal incentive payment (20%) \$ 7.90

Creep Ration Used	
Barley 800# @ .0138	\$ 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

Initial Column 7 a			
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TABLE II. Summary of Dat	a Collected			
Number of ewes involved	1965	$\frac{\text{Feb}}{21}$	llarch 21	<u>May</u> 21
Number of ewes involved	1964		16	18
•	1963		21	19
		endergraph .	-	*******
	Total	59	58	58
Lambs Dropped (percent)	1965	142.9	131.0	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		112.5	122.2
	1963	131.6	123.8	94.7
	Average	139.0%	132.7%	112.1%
Annual Feed Cost Per Head	1965	13.77	14.37	12.30
(ewes only)	1964		10.89	9.69
	1963	9.10	9.36	8.58
	Average	\$11.38	\$11.54	\$10.19
Annual Feed Cost	1965	169.43	115.57	160.36
(all lambs)	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*	1965	-	22.55	10.58
(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	23.66	16.00
(lambs sold as fats)	1964		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 II. Summary of Data
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^{*} 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 weamed 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 <u>feed costs alone</u> 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.

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At the close of the third year of tids trial, tim strongest point remains that rollstive profits are directly preportionate to the number of lambs weamed and marketes.

It was nocessary to wern lambs light from the following groups: May, 1963 60.50; Havel, 1964 - 69.70; May, 1965 - 62.15. It retains true that returns from fooding lambs to market weight as fet lambs are much greater when lambs are weamed at the lighter weights.

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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 *

				3-year	
Season	1960-61	1961-62	1962-63	average	
Early	0.71	0.57	0.65	0.65	dede
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

				3-year
Sire	1960-61	1961-62	1962-63	Average
White Face	0.64	0.52	0.571	0.57
Black Face1	0.68*	0.51	0.62**	0.61

* Significant at the 5 percent level of probability.

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

	•			3-year
Type of Birth	1960-61	1961-62	1962-63	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.

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

HOLTOGODE CHAS TO SELECT HAST-RESIDED

1915 Sheep Days, Term Drate University

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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

				3 year
Type of Creep	1960-61	1961-62	1962-63	average
Mea1	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 \$3.64. 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.

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

Table 6, AVENAGE DATAY CAIN IN FOULDS - BY TYPE OF CESSE

we Ofgnificant at the I 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 690 ewes originally placed in the breeding flock with the rame. The dry lot feed cost per ewe for all ewes ever the three-year period was 53.04. The cost per lamb marketed from all ever was \$3.39 in dry lot feed costs. When an additional \$2.00 was charged per one for pasture cost, the evernge leed cost per ever per lamb marketed was \$10.35. The total cost of the feed fed to the lambs was \$6.60 per lamb marketed, Elevatore, the total feed cost for producing a lamb to market weight was \$10.93.

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Project No: H-7-20

Title: Confinement Sheep Production

•bjectives:

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 Alfalfa Hay Oats Pasture Days Total Costs	6.02 lbs. 2.44 lbs. .45 lbs. \$18.81	6.29 lbs. 2.22 lbs. .43 lbs. \$18.45	2.38 lbs. .838 lbs. 191 \$11.84	2.38 lbs. .838 lbs. 191 \$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.

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Feed Costs used: Hilage @ \$8.00 a ten, Alfalfa Hoy @ \$15.00 a ten, Octs @ 82.00/owt, Facture @ 2.50 per enimal wait. 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

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