

41. On-foot grades:			
Low good	1	1	
High medium	5	2	2
Average medium	4	7	6
Low medium			2
42. Carcass grades:			
High commercial	6	5	5
Average commercial	1	5	4
Low commercial	3		
High utility			1
43. Selling price per cwt.	\$27.65**	\$28.00	\$27.50

** Selling price was \$28.00 with two out at \$26.00, figures \$27.65.

The following general summary appeared in the report published in the American Hereford Journal, and is based on the overall results obtained with the three systems of feeding and management at the three stations co-operating in the study:

"1. There was a definite tendency for the steers sired by large-size bulls to gain more than those sired by medium-size bulls, and in turn for those sired by medium-size bulls to gain more than those sired by small-size bulls. These gain advantages tended to be more pronounced during the wintering and grazing phases than during the full-feeding phase.

"2. Overall differences among the three groups in economy of gain were too small to be significant. However, when the ration consisted largely of roughage or grass the steers sired by medium- and large-size bulls produced gains at significantly lower costs than those sired by small-size bulls.

"3. When full-feeding was deferred or omitted entirely, the large steers showed less finish at the conclusion of the test, which was reflected in lower slaughter and carcass grades. But when the steers were full-fed immediately after weaning, there were no significant differences in the slaughter and carcass grades of the three size groups.

"4. The results of these tests indicate that medium-size cattle tend to combine the gaining ability of large cattle and the finishing ability of small cattle without sacrifice of efficiency of gain."

Project 286: Improvement of Beef Cattle Through Breeding Methods, 1950-51

Walter H. Smith, Ed F. Smith and Heman L. Ibsen

A National Beef Cattle Breeding Research Program has been initiated and is organized in three areas which are referred to as the Western, Southern, and North Central Regions in the United States. The Kansas Agricultural Experiment Station is co-operating with 12 other states in the North Central Region. The purebred Shorthorn herd maintained at Manhattan is being used as the primary basis for the purebred cattle breeding investigations conducted by the Kansas station.

The objectives of the project are:

1. To develop testing procedures for the evaluation of breeding animals.
2. To collect data pertaining to the inheritance of physical characteristics of Shorthorn cattle.
3. To determine the practicability of inbreeding for the establishment of two high-producing lines of Shorthorn cattle.

The project is in its preliminary stages and the systems of breeding that have been adopted have been regulated primarily by the founda-

TABLE I—PARTIAL SUMMARY OF CALVES PRODUCED IN SPRING OF 1950, REPRESENTING THE INBRED LINE OF THE WERNACRE'S PREMIER FOUNDATION

Calf No.	Sex	Birth weight pounds	Weaning weight pounds	Daily gain birth to weaning pounds	Initial weight pounds	Feeding trial information*		Daily gain during trial pounds
						Weight April 1, 1951 pounds	Days on trial April, 1951	
81	Bull	76	500	2.20	530	990	149	3.09
61	Bull	90	510	2.20	535	910	149	2.52
23	Bull	66	480	2.09	490	870	149	2.55
13	Bull	74	455	1.91	475	835	149	2.42
11	Bull	75	455	1.96	495	880	156	2.47
49	Bull	52½	440	1.98	480	820	149	2.18
76	Steer	75	420	1.77	425	730	149	2.04
87	Steer	65	355	1.48	375	725	149	2.35
90	Steer	70	410	1.89	465	790	149	2.18
56	Steer	77	425	1.69	425	765	149	2.28
55	Steer	69	425	1.79	455	755	149	2.01
53	Steer	74½	465	2.00	480	750	149	1.81
54	Steer	74	440	1.85	445	680	89	2.64
189	Heifer	78½	440	1.81	475	740	156	1.70
72	Heifer	71	475	2.05	475	785	156	1.99
92	Heifer	67½	435	1.90	440	680	149	1.61
58	Heifer	57	320	1.32	360	570	149	1.41
4	Heifer	60½	335	1.39	340	585	149	1.64
2	Heifer	80	400	1.68	420	625	149	1.38
14	Heifer	70	380	1.58	425	540	67	1.72
39	Heifer	77	420	1.76	410	545	89	1.52

* Feeding trials will be of 196 days' duration for each calf.

tion cows in the herd. An inbreeding program was initiated to establish a line of a Wernacre Premier foundation by breeding the cow herd to College Premier 29th 2368167 during 1949. Approximately one-half of the females that calved during 1950 were half sisters to College Premier 29th. The 1950 calf crop was placed on feeding trials in the fall of 1950. These trials will be completed during the spring and summer of 1951.

Gregg Farms Hoarfrost 2492499, a son of Edellyn Valiant Mercury 2247154, was purchased in 1949 and used as one of the sires in the Shorthorn herd during 1950. A second inbred line of Mercury breeding will be established at a time when sufficient breeding stock has been produced in the project. The 1951 calf crop is sired by both College Premier 29th and Gregg Farms Hoarfrost.

The cows included in the project are pasture-bred to calve in the spring of each year. The calves are not creep-fed during the suckling period and are weaned at 196 days of age. After a 30-day adjustment period they are placed on individual feeding trials for a 196-day period. The performance data obtained from these feeding trials will provide part of the information used to select breeding animals in the project. Fast-gaining animals with good type will be retained for breeding purposes as the project progresses.

No conclusive information is available at this time; however, a partial summary of the 1950 calf crop is presented in Table I.

ROLLED VS. GROUND GRAIN FOR FATTENING YEARLING HEIFERS—1950

R. F. Cox, E. F. Smith

INTRODUCTION

A great deal of interest in rolled grain has been expressed. Some commercial feeders have purchased rollers in preference to grinders; a few feeders truck grain to town to have it rolled in preference to grinding grain at home. The usual recommendation for grain preparation for fattening commercial cattle has been to have it cracked or medium ground, not finely ground. Rolled grain has been considered by most people to be equal to medium ground or cracked grain and by some to be superior to medium ground or cracked grain. No conclusive experimental evidence was available as to the best method of grain preparation for fattening cattle. The objective of this study then is to find out which is the best method of grain preparation: rolling, coarse grinding or fine grinding.

EXPERIMENTAL PROCEDURE

Thirty-five good quality yearling Hereford heifers were divided into three equal lots and fed identical rations for 142 days except lot 1 received finely ground grain, lot 2 coarsely ground grain and lot 3 rolled grain.

After the heifers were on feed, they were self-fed grain. Prairie hay was fed in amounts that would be cleaned up. Soybean oil meal pellets were fed twice daily in a bunk separate from the grain.

Barley was fed as the only grain for the first 2/3 of the test and barley and corn were fed the remainder of the test.

The finely ground grain was prepared with a hammer mill and had a coarse mealy texture. The coarsely ground grain was prepared with a burr mill. The rolled grain was dry rolled which worked fine on the barley. The corn was properly rolled at the time it came out of the roller but through handling, it tended to break up into smaller particles.

OBSERVATIONS

All lots gained the same and only small differences occurred in grain

consumption and efficiency of gain. General opinion is that rolled and cracked grains are more palatable than finely ground grains. This test did not show this to be true.

TABLE I—Comparison of Rolled, Coarse and Finely Ground Grain for Fattening Yearling Heifers

(July 12, 1950 to December 1, 1950 (142 days)

Lot number	1	2	3
Method of grain preparation	Fine ground	Coarse ground	Rolled
Number heifers per lot	12	12	11
Average initial weight	543	543	544
Average final weight	834	834	834
Average gain	291	291	290
Average daily gain	2.05	2.05	2.04
Average daily ration, pounds:			
Barley	8.70	9.01	8.37
Corn	3.39	2.80	3.27
Soybean oil meal pellets	1.90	1.90	1.90
Prairie hay	4.99	5.63	5.73
Ground limestone08	.08	.08
Salt05	.05	.04
Feed required per 100 lbs. gain, pounds:			
Barley	424.68	439.69	409.97
Corn	165.61	136.77	157.12
Soybean oil meal pellets	92.87	92.70	93.13
Prairie hay	243.41	274.71	280.50
Ground limestone	3.72	3.72	4.08
Salt	2.23	2.41	1.80
Cost of feed per 100 lbs. gain	\$18.09	\$17.98	\$17.83

Feed Prices: Barley, \$1.05 a bu.; Corn, \$1.25 a bu.; soybean pellets, \$75.00 a ton; prairie hay, \$13.00 a ton; ground limestone or salt, \$12.00 per ton.

A COMPARISON OF ROLLED, COARSE GROUND AND FINE GROUND MILO GRAIN FOR FATTENING STEER CALVES, 1950-51

R. F. Cox and E. F. Smith

INTRODUCTION

This is a progress report on full feeding rolled, coarse ground, and fine ground milo grain to steer calves. The test will be completed in July, 1951 when the steers will have been on full feed about 225 days.

The objective of the test is to determine which is the most profitable method of preparing milo grain for full feeding, rolling, coarse grinding, or fine grinding.

EXPERIMENTAL PROCEDURE

Good quality Hereford steer calves are being used in this study. There are three lots, 10 head to a lot, all being fed the same except for the difference in grain preparation. They were started on test December 5, 1950. At the beginning of the test they were fed all of the sorghum silage they would eat, 2 pounds of alfalfa hay, and 1½ pounds of soybean pellets per head daily. The grain was started at one pound per head daily and raised one pound per head weekly. When the calves reached a daily grain consumption of 14 to 15 pounds per