

3. That there was no advantage in rate of gain or efficiency of gain in Lot 2 doubtless was due largely to the fact that at the start of the trial the heifers in Lot 2 carried more condition than those in Lot 1. Feed costs per pound of gain are less with thinner cattle, and increase with higher finish of cattle.
4. Another fact which affects the results of this trial as compared with those of 1947 and 1948 is the relative prices of fat cattle and feeder cattle. The calves in this trial cost \$26.50 cwt., and sold for \$25 and \$26 per cwt. If the market for fat cattle had been more favorable when these lots were marketed, Lot 2 would have shown a still greater profit as compared to Lot 1.

Project Commercial No. 65: Performance of Steers Sired by Bulls of Different Sizes.

COMPARISON OF HEREFORD STEERS Sired BY SMALL, MEDIUM AND LARGE SIZE BULLS

Ed F. Smith, D. L. Mackintosh, and A. D. Weber

(Preliminary report—not for publication)

The Kansas, Oklahoma, and Ohio Agricultural Experiment Stations are cooperating in this study, which is supported by grants from the American Hereford Association. In October, 1948, each station received 96 steer calves from the following commercial herds: Bar 13 Ranch, P. K. Ranck, and O. M. Wallop, Sheridan, Wyoming; and M. C. Simpson, Volborg, Montana.

The project involves comparisons of steer calves sired by small, medium, and large size bulls at each of the three stations under three standard systems of feeding and management.

System I, immediate full feeding for 225 days.

System II, a deferred full feeding program in which the steer calves are wintered well, grazed without grain from May 1 to August 1, and then full fed in dry lot 100 days.

System III has for its objective the production of two-year-old grass fat steers without the feeding of grain. Phases under this system include: wintering as calves without grain; grazing as yearlings a full season without supplemental feed; wintering as yearlings without grain; grazing as two-year-olds without supplemental feed and selling as slaughter cattle directly off pasture.

Marketing and carcass data have been obtained on the steers handled under Systems I and II. Similar data will be obtained on all of the steers handled under System III. At the conclusion of the experiment, a joint report will be issued by the three cooperating stations.

The accompanying tables are included in this circular to indicate the experimental procedures that are being followed, and to conform to an established custom of the Kansas Agricultural Experiment Station whereby those in attendance at Livestock Feeders' Day are given an opportunity to see all of the experimental cattle and are furnished preliminary reports on unfinished tests.

A COMPARISON OF HEREFORD STEERS Sired BY SMALL, MEDIUM AND LARGE SIZE BULLS

System I—Immediate Full Feeding

November 29, 1948 to July 12, 1949—225 days

1. Lot number	1	2	3
2. Size of sires	Small	Medium	Large
3. Number of steers per lot	10	10	10
4. Initial weight per steer	430	444	452

5. Final weight per steer	838	903	915
6. Gain per steer	408	459	463
7. Daily gain per steer	1.81	2.04	2.06
8. Daily ration per steer, pounds:			
Ground shelled corn	8.93	9.70	9.66
Soybean meal	2.00	2.00	2.00
Silage	6.61	6.61	6.58
Prairie hay	1.70	1.51	1.69
Alfalfa hay	1.28	1.30	1.26
Ground limestone .....	.07	.07	.07
Salt .....	.01	.02	.01
9. Feed required per 100 lbs. gain, pounds:			
Ground shelled corn	492.5	475.5	469.4
Soybean meal	110.3	98.0	97.4
Silage	364.6	324.1	320.9
Prairie hay	93.9	84.7	82.1
Alfalfa hay	70.4	63.5	61.6
Ground limestone	3.75	3.27	3.54
10. Cost of feed per 100 lbs. gain..	\$ 18.59	\$ 17.47	\$ 17.24
11. Slaughter ("onfoot") grades			
Low prime	0	2	0
Top choice	3	2	2
Average choice	4	2	0
Low choice	1	3	6
Top good	1	0	2
Average good	1	1	0
Low good	0	0	0
12. Shrink in transit to market			
Pounds per steer	20.0	36.5	32.8
Percent	2.4	4.0	3.6
13. Dressing percent**	59.2	61.3	60.2
14. Carcass grades			
Average choice	—	1	—
Low choice	—	3	1
Top good	4	3	1
Average good	2	2	5
Low good	3	—	2
Top commercial	1	1	1
15. Selling price per cwt. at market	\$ 27.00	\$ 27.25	\$ 27.00
16. Comparative values per cwt. in the carcass	26.15	27.25	26.23

** Includes 2.5 % cooler shrink.

TABLE 2. A COMPARISON OF HEREFORD STEERS Sired BY SMALL, MEDIUM AND LARGE SIZE BULLS

System II—Deferred Full Feeding

PHASE I—WINTERING

November 29, 1948 to May 1, 1949—153 Days

1. Lot number	4	5	6
2. Size of sires	Small	Medium	Large
3. Number of steers per lot	10	10	10
4. Initial weight per steer	427	441	451

5. Weight per steer on May 1, 1949	654	676	705
6. Gain per steer	227	235	254
7. Daily gain per steer	1.48	1.53	1.66
8. Daily ration per steer, pounds			
Atlas sorgo silage	19.62	19.72	19.85
Prairie hay	3.31	3.91	4.17
Ground shelled corn	3.83	3.83	3.83
Soybean oil meal	1.00	1.00	1.00
Ground limestone .....	.03	.02	.02
Salt .....	.06	.06	.05
9. Feed consumed per 100 pounds gain			
Atlas sorgo silage	1322.68	1284.04	1195.86
Prairie hay	223.70	254.97	251.22
Ground shelled corn	258.19	249.36	230.70
Soybean oil meal	67.40	65.10	60.23
Ground limestone	1.81	1.74	1.61
Salt	3.72	4.03	3.01

PHASE II—GRAZING

May 1, 1949 to August 1, 1949—92 days

10. Initial weight per steer	654	676	705
11. Weight per steer on Aug. 1, 1949	735	764	804
12. Gain per steer	81	88	99
13. Daily gain per steer .....	.88	.96	1.08

PHASE III—FULL FEEDING

August 1, 1949 to November 9, 1949—100 days

Lot number	4	5	6
14. Initial weight per steer	735	764	804
15. Final weight per steer	977	1006	1039
16. Gain per steer	242	242	235
17. Daily gain per steer	2.42	2.42	2.35
18. Average daily ration, pounds			
Prairie hay	6.32	6.63	7.28
Alfalfa hay	2.00	2.00	1.98
Ground shelled corn	14.20	15.03	14.24
Soybean oil meal	1.79	1.80	1.80
Salt .....	.02	.05	.04
19. Feed required for 100 lbs. gain			
Prairie hay	261.12	273.76	309.62
Alfalfa hay	82.64	82.64	84.25
Ground shelled corn	586.65	621.16	605.91
Soybean oil meal	73.76	74.38	76.60
Salt .....	.83	2.06	1.70

SUMMARY OF PHASES I, II, AND III

November 29, 1948 to November 9, 1949—345 days

Lot number	4	5	6
20. Number of steers per lot	10	10	10
21. Initial weight per steer	427	441	451
22. Final weight per steer	977	1006	1039

23. Gain per steer	550	565	588
24. Daily gain per steer	1.59	1.64	1.70
26. Feed required for 100 lbs. gain			
Atlas sorgo silage	545.91	534.07	516.58
Prairie hay	207.22	223.31	232.26
Alfalfa hay	36.36	35.40	33.67
Ground shelled corn	364.67	369.77	341.82
Soybean oil meal	60.27	58.94	56.63
Ground limestone .....	.75	.73	.70
Salt	2.08	2.73	2.15
27. Cost of feed for 100 lbs. gain..	\$ 14.06	\$ 14.20	\$ 13.46
28. Shrink in transit to market:			
Pounds per steer	37	36	33
Percentage	3.79	3.59	3.18
29. Dressing percent*	61.2	61.9	66.1
30. On-foot grades:			
Average good	1	2	
Low good	5	1	1
Top medium	2	7	6
Average medium	2		3
31. Carcass grades:			
Average good	2	3	
Low good	3	4	2
Top commercial	4	2	6
Average commercial	1		2
Low commercial		1	
32. Selling price per cwt. at market	\$ 26.75	\$ 27.50	\$ 24.75

*Figured on hot carcass weight.

The following feed prices were used: Ground shelled corn, \$1.25 per bushel; soybean oil meal, \$75 per ton; alfalfa hay, \$20 per ton; prairie hay, \$15 per ton; Atlas sorgo silage, \$6.50 per ton; ground limestone, \$12 per ton; salt, \$12 per ton.

TABLE 3. A COMPARISON OF HEREFORD STEERS SIRED BY SMALL, MEDIUM AND LARGE SIZE BULLS

System III—Wintering and Grazing, Two Seasons

PHASE I—WINTERING AS CALVES

November 29, 1948 to May 1, 1949—153 Days

1. Lot number	7	8	9
2. Size of sires	Small	Medium	Large
3. Number of steers per lot	10	10	10
4. Initial weight per steer	427	442	454
5. Final weight per steer	574	588	620
6. Gain per steer	147	146	166
7. Daily gain per steer .....	.96	.95	1.08
8. Daily ration per steer, pounds			
Soybean meal	1.00	1.00	1.00
Atlas sorgo silage	19.52	19.95	19.82
Prairie hay	5.39	4.88	5.30
9. Feed required per 100 pounds of gain, pounds:			
Soybean meal	104.08	104.79	92.17
Atlas sorgo silage	2032.31	2090.75	1826.81
Prairie hay	561.50	511.58	488.73

10. Cost of feed per 100 pounds gain	\$ 14.62	\$ 14.46	\$ 12.97
11. Total feed cost per steer	21.49	21.11	21.53

PHASE II—GRAZING AS YEARLINGS
May 1, 1949 to October 15, 1949—167 days

12. Initial weight per steer	574	588	620
13. Final weight per steer	762	790	834
14. Gain per steer	188	202	214
15. Daily gain per steer	1.13	1.21	1.28
16. Cost of grazing per steer (bluestem pasture)	\$ 12.00	\$ 12.00	\$ 12.00
17. Cost of 100 pounds of pasture gain	6.38	5.94	5.61

PHASE III—WINTERING AS YEARLINGS
October 15, 1949 to April 15, 1950—182 days

18. Initial weight per steer	762	790	834
19. Final weight per steer	924	984	1040
20. Gain per steer	162	194	206
21. Daily gain per steer .....	.89	1.07	1.13
22. Daily ration per steer, pounds			
Soybean meal	1.01	1.01	1.01
Sorghum silage	37.76	42.64	41.19
Prairie hay	4.06	4.02	4.67
23. Feed required for 100 pounds gain, pounds:			
Soybean meal	113.58	94.85	89.32
Sorghum silage	4242.10	3999.85	3639.22
Prairie hay	456.17	377.47	412.52
24. Cost of feed per 100 pounds gain	\$ 21.26	\$ 19.19	\$ 18.09
25. Total feed cost per steer	34.43	37.22	37.26

SUMMARY OF PHASES I, II, AND III
November 29, 1948 to April 15, 1950—502 days

26. Initial weight per steer	427	442	454
27. Final weight per steer	924	984	1040
28. Gain per steer	497	542	586
29. Daily gain per steer .....	.99	1.08	1.17
30. Feed required per 100 pounds gain			
Soybean meal	67.81	62.18	57.51
Silage	1983.84	1994.87	1796.81
Prairie hay	314.77	272.92	283.46
31. Feed cost per 100 pounds gain	\$ 13.66	\$ 12.98	\$ 12.08
32. Total feed cost per steer	67.92	70.33	70.79
33. Appraised value per cwt. on May 5, 1950			

Project 253-1: Wintering and Grazing Steer Calves

METHODS OF WINTERING STEER CALVES THAT ARE TO BE GRAZED A FULL SEASON AND SOLD OFF OF GRASS
1949-1950

Ed F. Smith, D. L. Good, R. F. Cox

INTRODUCTION

It is a well known fact that thin steers usually gain more on grass than fleshy steers. However, information is available about the total gain, winter and summer, of steers wintered at different levels and then grazed on bluestem pasture. The primary objective of this test is to determine how steer calves should be wintered that are to be grazed a full season on bluestem pasture and sold off of grass. This is a report on the wintering phase, prior to going to grass for the 1950 season.

EXPERIMENTAL PROCEDURE

Five lots of good quality Hereford steer calves, 10 head to a lot, were used in this study. All were fed in dry lots, except Lot 1 which was fed on dry bluestem pasture. The different lots received the following rations from November 25, 1949, to April 15, 1950.

Lot 1—Bluestem pasture and 2 pounds of soybean pellets per head daily.

Lot 2—Silage and 1 pound of soybean pellets per head daily.

Lot 3—Prairie hay and 1 pound of soybean pellets per head daily.

Lot 4—Prairie hay, 2 pounds of corn and 1 pound of soybean pellets per head daily.

Lot 5—Prairie hay, 4 pounds of corn and 1 pound of soybean pellets per head daily.

All lots will be grazed on bluestem pasture a full season in 1950.

OBSERVATIONS

1. Lot 1 wintered on bluestem pasture and fed 2 pounds of soybean pellets per head daily made a gain of .79 pound per head daily. The winter was exceptionally mild with very little rain or snow. The pasture in which these calves were wintered is a creek bottom bluestem pasture with considerable bluegrass in it.
2. The calves in Lot 2 fed silage and 1 pound of soybean pellets gained 1.13 pounds per head daily, about the same gain made by the calves in Lot 3 fed prairie hay and 1 pound of soybean pellets, which was 1.11 pounds per head daily.
3. Two pounds of corn fed in Lot 4 increased the gain .21 of a pound per head daily and 4 pounds of corn fed in Lot 5 increased gain .45 of a pound per head daily over the gain in Lot 3, fed prairie hay and 1 pound of soybean pellets, per head daily.
4. About one-half ton of prairie hay in addition to the soybean pellets was required to produce 100 pounds of gain in Lot 3, and about 1 1/4 tons of silage in addition to soybean pellets were required to produce 100 pounds of gain in Lot 2.

TABLE 1. METHODS OF WINTERING STEER CALVES THAT ARE TO BE GRAZED A FULL SEASON AND SOLD OFF OF GRASS
PHASE I—WINTERING

November 25, 1949, to April 15, 1950—141 days					
1. Lot number	1	2	3	4	5
2. Number of steers per lot..	10	9	9	10	10
3. Place of wintering	Bluestem Pasture	Dry Lot	Dry Lot	Dry Lot	Dry Lot