17. Average initial weight	690	704	690	687	725
18. Average final weight	877	895	883	898	853
19. Average gain	187	191	193	211	128
20. Average daily gain	1.82	1.85	1.87	2.05	1.66
21. Average daily ration, pounds:					
Corn	12.14	11.11	11.91	11.11	10.94
Soybean oil meal pellets	1.49	1.82	1.49	1.82	1.49
Alfalfa hay	1.96	—	1.77	—	2.00
Prairie hay	5.76	—	5.44	—	5.12
Salt	.02	—	.03	—	.03
Limestone	.10	.08	.09	.08	.10
22. Bushels corn fed per heifer during this phase	22.33	20.43	21.91	20.43	15.05
23. Feed per cwt. of gain, pounds:					
Corn	668.72	598.90	635.70	542.13	658.32
Soybean oil meal pellets	82.09	98.18	79.44	88.87	89.84
Alfalfa hay	108.02	—	94.21	—	120.31
Prairie hay	317.27	—	290.49	—	307.81
Salt	1.19	—	1.50	—	1.56
Limestone	5.40	4.29	4.76	3.88	6.02
24. Cost of feed per 100 pounds gain	$21.17	$17.06	$20.02	$15.45	$21.30
25. Total feed cost this phase	$39.59	$32.59	$38.64	$32.59	$27.26

Summary of Phases I, II, III

26. Average total gain (all phases)	459	478	465	478	436
27. Average daily gain (all phases)	1.35	1.41	1.37	1.41	1.29
28. Feed cost for 100 pounds gain (all phases)	$17.33	$15.20	$15.39	$14.37	$13.97
29. Total cost of feed, grass per heifer	$79.54	$72.65	$71.55	$68.69	$60.91
30. Initial cost per heifer at $23.50 cwt.	$98.23	$98.00	$98.23	$98.70	$98.00
31. Selling price per cwt. at market	$29.00	$29.00	$28.50	$29.00	$27.50
32. Selling price per heifer	$248.24	$247.37	$246.24	$250.85	$231.83

33. Margin per heifer above feed cost, initial cost	$70.47	$76.72	$76.46	$83.46	$72.92
34. Per cent shrink in shipping to market	2.4	4.7	2.2	3.7	1.2
35. Dressing per cent	60.3	61.9	59.6	61.3	57.3
36. Carcass grades, U. S.					
Average good	—	—	—	1	—
Low good	3	3	—	2	—
High commercial	5	3	5	5	3
Average commercial	2	5	6	2	5
Low commercial	—	—	—	—	2

Feed prices: Ground shelled corn, $1.25 per bu.; cottonseed meal and soybean pellets, $75.00 per ton; sorghum silage, $6.50 per ton; prairie hay, $13.00 per ton; alfalfa hay, $17.00 per ton; salt and ground limestone, $12.00 a ton.

Project 253-2: Wintering, Grazing and Fattening Heifers, 1949-50

The Use of Brome Grass in Fattening Yearling Heifers as Compared to Fattening in a Dry Lot—1950.

E. F. Smith, R. F. Cox, D. L. Good, D. L. Mackintosh

INTRODUCTION

The purpose of this study is to develop a system of fattening heifers for feeders who do not have native pasture or have no pasture. The plan of production is to buy good quality heifer calves in the fall, winter them well (which entails the feeding of about two pounds of grain per head daily in addition to roughage and protein). Following the winter period there are three alternatives being tested: full feed in dry lot; full feed on brome grass pasture; graze brome pasture early, then full feed in dry lot.

EXPERIMENTAL PROCEDURE

Thirty good quality Hereford heifer calves were divided into three lots and wintered on 20 pounds of silage, 4-5 pounds of prairie hay, and 2 pounds of corn per head daily, with different protein supplements being fed during the winter. The heifers were relotted on April 15 after the wintering period and received the following treatment after that date:

Lot 1—Full fed 104 days in dry lot (April 15-July 28)
Lot 2—Full fed 104 days on brome pasture (April 15-July 28)
Lot 3—Grazed 48 days on brome pasture (April 15-June 2); started on feed on brome pasture (June 2-July 1); full fed in dry lot (July 1-September 15), a total of 105 days on full feed.

OBSERVATIONS

1. Lot 3, which was grazed on brome 48 days and then full fed for

105 days, made the largest total gain, the largest full fed gain, returned more per heifer and graded the highest in the carcass.

2. Lot 2, full fed out on brome grass, gained slightly more than Lot 1 full fed in dry lot. In two previous tests, the reverse has been true.

3. Feed costs per heifer were higher for feeding out on brome grass than in dry lot due to the cost of brome grass charged at 10c per head per day.

TABLE I—Full Feeding in Dry Lot vs. Brome Grass, 1950

Lot number	1	2	3
Number heifers per lot	10	10	10
Method of management	Wintered well then full fed in dry lot for 104 days	Wintered well then full fed on brome grass pasture for 104 days	Wintered well; grazed on brome grass April 15-June 2; full fed 105 days from June 2-Sept. 15, the first 30 days on brome grass and the rest in dry lot
Average initial weight	583	582	585
Average final weight	785	800	870
Average pasture gain (48 days)			46
Average full fed gain (104 days; Lot 3, 105 days)	202	218	239
Average total gain—pasture and full fed	202	218	285
Full feeding ration—average daily—pounds:			
Ground shelled corn	12.06	12.00	11.63
Soybean oil meal pellets	1.39	.53	1.11
Alfalfa hay	1.67	—	1.45
Prairie hay	3.29	—	2.16
Sorghum silage	1.78	—	—
Ground limestone	.08	—	.07
Salt	.05	Free access	.02
Brome grass	—	4/15-7/28	6/2-7/1
Corn consumed per heifer, bushels	22.4	22.3	21.8
Initial cost per heifer @ appraised value of $26.25 cwt.—4/15/50	$153.04	$152.78	$153.56
Feed cost per heifer	$38.02	$40.31	$ 42.36
Heifer cost plus feed cost	$191.06	$193.09	$195.92
Selling price per cwt. @ market	$29.00	$29.00	$28.40
Selling price per heifer	$227.65	$232.00	$247.08
Margin per heifer above feed cost and initial cost	$36.59	$38.91	$51.16
Carcass grades—U. S.			
Average good	—	—	1
Low good	2	2	4
High commercial	8	6	4
Average commercial	—	2	1

Feed prices: Corn, $1.25 a bu.; soybean pellets, $75 a ton; alfalfa hay, $17.00 a ton; prairie hay, $13.00 a ton; silage, $6.50 a ton; ground limestone or salt, $12.00 a ton; Brome grass, 10c per head per day.

Project 253-2: Wintering, Grazing and Fattening Heifers

Wintering Heifer Calves That Are To Be Fattened for the Summer or Early Fall Market, 1950-51

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

INTRODUCTION

This is a report of the wintering phase of this test. Following this phase the different lots will either be full-fed or go to grass and be full-fed after the grazing period. The objective of the test is to develop a method of fattening heifers similar to the deferred full-feeding system for steer calves.

The 1950-51 wintering test included:

(1) a comparison of grain and no grain in the wintering ration of heifer calves;

(2) a comparison of expeller type soybean oil meal pellets and hydraulic extracted cottonseed oil meal pellets.

EXPERIMENTAL PROCEDURE

Seventy good quality Hereford heifer calves were used in this test. They were divided into seven lots of 10 head each. The system of management planned for each lot follows:

Lot (1) wintered with 2 pounds grain, soybean oil meal pellets (expeller type), sorghum silage and prairie hay; grazed May 1 to July 15 on bluestem pasture; full-fed 100 days in dry lot.

Lot (2) wintered with 2 pounds grain, soybean oil meal pellets (expeller type), sorghum silage, prairie hay; grazed April 16 to July 1 on brome pasture; started on feed on brome pasture June 1; moved to dry lot July 1 for completion of 100-day full-feeding period.

Lot (3) wintered with 2 pounds grain, cottonseed oil meal pellets (hydraulic extracted), sorghum silage, prairie hay; full-fed grain on brome pasture for 100 days following winter period.

Lot (4) wintered with 2 pounds of grain, cottonseed oil meal pellets (hydraulic extracted), sorghum silage, prairie hay; full-fed 100 days in dry lot after wintering period.

Lot (5) wintered with 4 pounds of grain, soybean oil meal pellets, sorghum silage, prairie hay; full-fed 100 days in dry lot following the winter period.

Lot (6) wintered with sorghum silage, prairie hay, soybean oil meal pellets; bluestem pasture May 1 to July 15; full-fed in dry lot 100 days after July 15.

Lot (7) wintered with sorghum silage, prairie hay, soybean oil meal pellets; bluestem pasture May 1 to August 10; fed protein July 15 to August 10 on bluestem pasture; full-fed in dry lot after August 10 for about 75 days.

OBSERVATIONS

1. The addition of 2 pounds of milo grain to the ration increased the gain approximately a quarter of a pound per head daily. Compare Lots (1) and (2) with Lots (6) and (7).

2. The addition of 4 pounds of milo grain to the ration increased