

weight more, (3) returned a greater profit, (4) had a higher dressing percent, and (5) made higher carcass grades.

4. Lot 7 was continued on grass after July 20 and was fed protein on grass until August 16 and then full-fed for 72 days in dry lot until October 27. Lot 6 was the check lot and was full-fed in dry lot 99 days from July 20 to October 27.

Lot 7 returned less per head than Lot 6. It failed to produce as much total gain, sold for \$1.30 less per hundredweight, and had a lower dressing percent.

5. Self-feeding grain in dry lot resulted in the following advantages as compared to self-feeding grain on brome grass: (see Lots 3 and 4)

(1) one-half pound more gain per head daily, (2) larger grain consumption, (3) 62¢ per hundredweight increase in selling price, (4) greater return per head, and (5) higher grading carcasses.

6. As measured by total gain, selling price per hundredweight, margin per heifer, and carcass grade, the systems of management represented by Lot 1 and Lot 2 appear to be above average in this test.

## Project 253-2: Wintering, Grazing, and Fattening Heifers

Wintering Heifer Calves That Are To Be Fattened for the Summer or Early Fall Market, 1951-52.

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 either will be full-fed or go to grass and be full-fed after the grazing period. The objective of the test is to compare different methods of wintering heifer calves that are going to be full-fed after the wintering period or after a summer grazing period.

### Experimental Procedure

Forty-five good quality Hereford heifer calves were purchased in south-central Kansas for use in this test. They were fed silage, prairie hay, 1 pound of protein, and 2 pounds of milo grain per head daily until the test started December 11, 1951. The 5 lightest heifers were cut off and the 40 remaining were divided into four lots of 10 heifers each. The system of management planned for each lot follows:

Lot 1—wintered on dry bluestem pasture, 2 pounds cottonseed oil meal pellets per head daily, mineral (bonemeal and salt), and free access to salt; grazed on bluestem pasture until July 15; full-fed in dry lot to the choice grade.

Lot 2—wintered on brome pasture supplemented when necessary with protein, free access to mineral (bonemeal and salt), and salt; grazed on brome pasture until July 15; full-fed in dry lot to the choice grade.

Lot 3—wintered on sorghum silage, prairie hay, 1 pound of cottonseed cake, and 2 pounds of milo grain per head daily, free access to mineral (bonemeal and salt) and salt; grazed on bluestem pasture May 1 to July 15; full-fed in dry lot to grade choice.

Lot 4—wintered on sorghum silage, prairie hay, 1 pound of cottonseed cake, and 4 pounds of milo grain per head daily, free access to mineral (bonemeal and salt) and salt; full-fed in dry lot to grade choice.

### Observations

1. The heifers carried some condition at the start of the test, which those being wintered on dry grass soon lost. The weather was favorable

for wintering out on dry grass except during the month of December and a storm the first week in March.

2. The heifers in Lot 1 wintered on dry bluestem pasture were strong and healthy at the close of winter. They were wintered in a 190-acre bluestem pasture with 10 steer calves. The pasture was stocked during the previous summer at a normal rate, but plenty of dry dead grass remained.

3. The heifers in Lot 2, wintered on brome pasture, were in strong condition and thin. They received no supplemental feed from the start of the test until February 1. From February on they were fed 2 pounds of cottonseed oil meal pellets daily; alfalfa hay was fed for a short period to break them into coming up for the cake. The brome was fertilized the previous winter with about 100 pounds of ammonium nitrate per acre. It was not grazed after July 1, and had a fair amount of dead top growth when the heifers were started on test December 11. The brome was stocked at the rate of 1½ to 2 acres per head.

4. The silage fed to Lot 3 and Lot 4 was of poor quality. The first part of the winter it was Tennessee Orange which was immature, excessively acid with very little grain. The second part of the winter, mixed Atlas sorgho and volunteer Black Amber were fed. This was dry with hardly any grain. The addition of 4 pounds of milo grain to the ration increased the gain considerably and placed Lot 4 in position that it could be sold for less per cwt. than any of the other lots and still pay for feed and initial cost of heifers.

## Wintering Heifer Calves That Are To Be Fattened for the Summer or Early Fall Market, 1951-52.

### Phase I—Wintering

(December 11, 1951, to April 1, 1952—122 days)

1. Lot number .....	1	2	3	4
2. Place of wintering .....	Bluestem pasture	Brome pasture	Dry lot	Dry lot
3. Number heifers in lot ....	10	10	10	10
4. Av. initial wt., lbs. ....	480	479	482	485
5. Av. final wt., lbs. ....	498	460	585	645
6. Av. gain, lbs. ....	18	-19	103	160
7. Av. daily gain, lbs. ....	.16	-.17	.92	1.43
8. Av. daily ration, lbs.:				
Ground milo grain .....			2.00	4.00
Cottonseed pellets or cake .....	1.97	.75 <sup>1</sup>	1.00	1.00
Sorghum silage .....			19.15	19.82
Prairie hay .....	.83 <sup>2</sup>	.98 <sup>2</sup>	1.70	1.68
Alfalfa hay <sup>3</sup> .....		.96		
Salt .....	.04	ad lib	.11	.08
Minerals <sup>4</sup> .....	.03	ad lib	.12	.09
Bluestem pasture .....	ad lib			
Brome pasture .....		ad lib		
9. Feed cost per heifer <sup>5</sup> .....	\$11.35	\$13.97	\$20.98	\$27.37
10. Initial cost of heifers, @ \$40 cwt. ....	\$192.00	\$191.60	\$192.80	\$194.00
11. Heifer cost plus feed cost	\$203.35	\$205.57	\$213.78	\$221.37

12. Necessary selling price per cwt. to pay for feed and initial cost .....	\$40.83	\$44.69	\$36.54	\$34.32
13. Appraised value per cwt. May 3, 1952 .....	\$	\$	\$	\$

- 1 Cottonseed cake was fed to Lot 2 at the rate of 2 pounds per head daily from February 15 to April 1.
- 2 Prairie hay was fed to Lots 1 and 2 only when snow covered the grass.
- 3 Alfalfa hay was fed Lot 2 from February 1 to 15 at the rate of about 6 pounds per head daily.
- 4 Mineral mixture consisted of 2 pounds steamed bonemeal to 1 pound of salt.
- 5 Feed prices may be found on page 58 of this bulletin.

### Project 253-4: Wintering and Grazing Yearling Steers

Methods of Wintering Yearling Steers on Dry Bluestem Pasture, 1950-51.

E. F. Smith and R. F. Cox

#### Introduction

This test is to determine if yearling steers can be wintered satisfactorily on dry bluestem pasture. Different protein supplements as well as methods of feeding them on dry bluestem pasture are being tested.

#### Experimental Procedure

Forty head of good quality Hereford yearling steers, four lots, 10 head to a lot, were used in this test.

All lots were wintered on dry bluestem pasture. Each lot had sufficient dry grass to winter on; the acreage varied from 6 acres per head for one lot to 19 acres per head for another lot. All pastures had been normally stocked the previous grazing season. Each lot received a supplement in addition to dry bluestem pasture as follows:

- Lot 1—approximately 7 pounds of alfalfa hay per head daily.
- Lot 2—four pounds of soybean pellets per head every other day (average 2 pounds a day).
- Lot 3—two pounds of soybean pellets per head daily.
- Lot 4—soybean oil meal and salt self-fed. (The salt was mixed with the soybean oil meal to limit its consumption and make it possible to self-feed the soybean oil meal.)

The proportions of soybean oil meal and salt varied from 100 pounds of soybean oil meal and 35 pounds of salt up to 45 pounds of salt per 100 pounds of meal. This amount of salt held meal consumption to approximately 2 pounds per head daily.

#### Observations

1. The steers wintered satisfactorily under all methods of feeding. The steers fed every other day made the largest winter gain. In two previous tests this was not true. The lot fed alfalfa hay made the smallest gain, which has been the case in two previous tests.
2. Steers self-fed a mixture of soybean oil meal and salt compared very favorably in gain with the steers hand-fed soybean oil meal pellets each day (see Lots 1 and 4).
3. At the close of the summer grazing phase, July 18, 1951, Lot 2, fed every second day, was still the largest gaining lot. Steers fed alfalfa hay ranked last in gain, and Lot 1, fed soybean oil meal pellets every

day, turned in about the same gain as Lot 4, self-fed the salt and soybean oil meal mixture.

4. The winter of 1950-51 was very mild and favorable for wintering cattle on dry grass in this area.

#### Wintering Yearling Steers on Bluestem Pasture Phase I—December 13, 1950, to April 18, 1951—126 days.

1. Lot number .....	1	2	3	4
2. Number steers in lot .....	10	10	10	10
3. Management .....	Fed soybean pellets daily	Fed soybean pellets every other day	Fed alfalfa hay daily	Self-fed soybean oil meal and salt mixed together
4. Average daily ration, lbs.:				
Soybean oil meal pellets .....	2.02	2.03		
Soybean oil meal .....				1.97
Alfalfa hay .....			7.32	
Prairie hay <sup>2</sup> .....	.76	.75	.49	.58
Salt .....	.19	.13	.05	.69
Mineral mixture <sup>1</sup> .....	.02	.03	.01	.05
Bluestem pasture .....	ad lib	ad lib	ad lib	ad lib
5. Average initial weight ....	683	684	684	685
6. Average final weight ....	745	759	730	739
7. Average gain .....	62	75	46	54
8. Average daily gain .....	.49	.60	.37	.43
9. Total feed cost per steer....	\$17.91	\$18.01	17.22	\$18.13

#### Phase II—Grazing—April 18, 1951, to July 18, 1951—91 days.

10. Number steers in lot .....	10	9 <sup>3</sup>	9 <sup>3</sup>	10
11. Average initial weight ....	745	757 <sup>4</sup>	724 <sup>4</sup>	739
12. Average final weight ....	906	934	884	916
13. Average gain .....	161	177	160	177
14. Average daily gain .....	1.77	1.95	1.76	1.95

#### Summary of Phases I and II

December 13, 1950, to July 18, 1951—217 days.

15. Average initial weight ....	683	684	684	685
16. Average final weight ....	906	934	884	916
17. Average gain .....	223	250	200	231
18. Average daily gain .....	1.03	1.15	.92	1.06
19. Total feed cost per steer	\$37.91	\$38.01	\$37.22	\$38.13
20. Feed cost per 100 lbs. gain .....	17.00	15.20	18.61	16.51
21. Initial cost per steer @ \$32.25 per cwt. ....	220.27	220.59	220.59	220.91
22. Initial cost per steer plus feed costs .....	258.18	258.60	257.81	259.04