

Contents

| | PAGE |
|---|------|
| BEEF CATTLE | |
| Wintering and Grazing Steer Calves | 3 |
| Wintering and Grazing Yearling Steers | 6 |
| Wintering, Grazing, and Fattening Steer Calves | 9 |
| Wintering, Grazing, and Fattening Heifers | 12 |
| A Comparison of Alfalfa Silage and Alfalfa Hay for Wintering Heifer Calves | 15 |
| Fattening Heifers on Milo Grain and Sorghum Silage | 16 |
| Ratio of Roughage to Concentrate for Fattening Heifers | 18 |
| A Comparison of Prairie Hay and Corn Cobs; a Special Supplement vs. Milo Grain and Cottonseed Meal | 20 |
| Value of Ammoniated Molasses in Beef Cattle Wintering Rations | 22 |
| The Effect of Grazing Systems on Livestock and Vegetation | 24 |
| Improvement of Beef Cattle Through Breeding Methods | 29 |
| Dwarfism in Beef Cattle | 34 |
| SHEEP | |
| Feedlot Fattening Experiments with Lambs | 39 |
| The Relationship of Physical Balance and Energy Value in Sheep Rations | 43 |
| The Effect of Different Hormone Treatments upon the Breeding and Lambing Performance of Ewes | 44 |
| The Effect of Cottonseed Meal and Soybean Oilmeal Fed Separately and Together upon the Digestibility of a Ration Fed to Lambs | 46 |
| Adaptability of Breeds of Rams and Breed-Types of Range Ewes to Market Lamb Production in Kansas | 47 |
| Physical Balance in Lamb Fattening Rations, Pelleted and Unpelleted Rations for Creep-fed Lambs | 49 |
| SWINE | |
| Swine Feeding Investigations | 50 |
| Col. W. A. Harris | 57 |

Beef Cattle

Wintering and Grazing Steer Calves

Methods of Wintering Steer Calves That Are To Be Grazed a Full Season and Sold Off Grass, 1952-53.

PROJECT 253-1

E. F. Smith, F. H. Baker, R. F. Cox, D. L. Good, and L. A. Holland

This project is concerned with different methods of wintering, different supplements, and level of wintering for steer calves that are to be sold as stocker or feeder yearlings after the summer grazing season. After the different winter treatments, the calves are all grazed together from May 1 until the close of the test at midsummer or fall. The effect of the different winter treatments was measured by the combined winter and summer performance of the steers.

The following comparisons were made:

1. Wintering in drylot compared with wintering on dry bluestem pasture.
2. Level of protein feeding on dry bluestem pasture.
3. The value of a grain and protein combination fed on dry bluestem pasture.

Experimental Procedure

Four lots of 10 Hereford steer calves per lot were used in the study. The calves were part of 220 purchased from the Brite Ranch at Marfa, Texas. They cost 29 cents a pound delivered to Manhattan November 3, 1952. From the date received until they were placed on test December 18, 1952, they were fed prairie hay and 1 pound of soybean pellets per head daily.

All lots were wintered on dry bluestem pasture except Lot 1 wintered in a drylot. The calves on pasture were rotated every 15 days to equalize any differences due to pasture. The pastures in which the steers grazed were stocked at a normal rate during the 1952 summer season; sufficient grass remained for winter grazing. The winter stocking rate ranged from 4 to 13 acres per steer, varying with the different sizes of pasture.

Observations

1. The steers made good gains under all methods of winter feeding. The winter was mild except for three snowstorms; one the latter part of November covered the grass about three weeks. The summer was dry but plenty of grass was available.
2. It was more economical to winter on dry grass than in the drylot on prairie hay, on the basis of the gains and feed prices reported in this test.
3. Replacing 1 pound of protein with 1 pound of grain had little effect on yearly gain but lowered the cost of production.
4. When winter feeding of concentrates on dry grass was raised from 1 pound per head daily to 2 pounds, gains were increased appreciably. This increased gain paid for the additional 1 pound of corn fed per head daily in Lot 3 but not for the additional 1 pound of soybean pellets fed in Lot 4.
5. There is some indication from other tests that, had this study continued until October, the feeding of 1 pound of corn in Lot 3 would not have been profitable on a gain basis.

Table 1.—Wintering and Grazing Steer Calves.

| Phase 1—Wintering—December 18, 1952, to May 4, 1953—137 days. ¹ | | | | |
|--|---------|-------------------|-------------------|-------------------|
| Lot number | 1 | 2 | 3 | 4 |
| Number steers per lot | 10 | 10 | 10 | 10 |
| Place of wintering | Drylot | Bluestem pasture | Bluestem pasture | Bluestem pasture |
| Initial wt. of steer | 417 | 416 | 416 | 417 |
| Final wt. of steer | 550 | 516 | 535 | 545 |
| Gain per steer | 133 | 100 | 119 | 128 |
| Daily gain per steer | .97 | .73 | .87 | .93 |
| Daily ration per steer: ¹ | | | | |
| Soybean pellets | 1.00 | 1.01 | 1.02 | 2.02 |
| Prairie hay | 13.36 | 1.83 ² | 1.72 ² | 1.72 ² |
| Corn | | | 1.00 | |
| Mineral ³ | Yes | Yes | Yes | Yes |
| Salt | Yes | Yes | Yes | Yes |
| Dry bluestem pasture | No | Yes | Yes | Yes |
| Feed required for 100 lbs. gain: | | | | |
| Soybean pellets | 94.73 | 123.00 | 103.36 | 190.62 |
| Prairie hay | 1265.41 | 231.00 | 174.50 | 162.23 |
| Corn | | | 103.36 | |
| Dry bluestem pasture | | Free choice | | |
| Feed cost per cwt. gain ⁴ | \$20.31 | \$10.73 | \$11.98 | \$13.08 |
| Feed cost per steer | 27.01 | 10.73 | 14.26 | 16.74 |

Phase 2—Grazing—May 4 to July 30, 1953—87 days.

| | | | | |
|---|------|------|------|------|
| Initial wt. of steer | 550 | 516 | 535 | 545 |
| Final wt. per steer | 727 | 691 | 717 | 721 |
| Gain per steer | 167 | 175 | 182 | 176 |
| Daily gain per steer | 1.92 | 2.01 | 2.09 | 2.02 |
| Cost per 100 lbs. pasture gain \$ | 9.58 | 9.14 | 8.79 | 9.09 |

Summary of Phases 1 and 2

December 18, 1952, to July 30, 1953—224 days.

| | | | | |
|-----------------------------------|----------|---------|----------|----------|
| Initial wt. per steer | 417 | 416 | 416 | 417 |
| Final wt. per steer | 727 | 691 | 717 | 721 |
| Gain per steer | 310 | 275 | 301 | 304 |
| Daily gain per steer | 1.38 | 1.23 | 1.34 | 1.36 |
| Feed cost per 100 lbs. gain | \$ 13.87 | \$ 9.72 | \$ 10.05 | \$ 10.77 |
| Feed cost per steer | 43.01 | 26.73 | 30.26 | 32.74 |

1. The wintering ration for Lot 1 was discontinued April 23 for Lots 2, 3, and 4 on April 18; the final weight for the winter period was taken May 4.

2. Prairie hay was fed to Lots 2, 3, and 4, only when snow covered the grass.

3. Mineral was two parts steamed bonemeal to one part salt.

4. Feed prices: corn, \$1.60 per bushel; soybean pellets, \$95 per ton; prairie hay, \$25 per ton; dry bluestem pasture, \$.50 per head per month; summer bluestem pasture, \$16 for season.

Wintering and Grazing Steer Calves

Effect of Feeding Yearling Steers on Bluestem Pasture 2 Pounds of Corn or Soybean Pellets During the Latter Part of the Grazing Season, 1953.

PROJECT 253-1

E. F. Smith, F. H. Baker, R. F. Cox, and L. A. Holland

The nutritive value of bluestem pasture usually declines rapidly after midsummer. This test is an attempt to maintain a high rate of gain after midsummer with small amounts of concentrate feed.

Experimental Procedure

Thirty-six head of good quality yearling Hereford steers were used in this test. They had been grazing together on bluestem pasture previous to the test. The steers were divided into three lots of 12 steers each, in a manner to equalize any difference due to previous winter treatments. They were grazed on bluestem pasture and received the following treatment from August 6, 1953, to October 23, 1953.

Lot 1—No supplement.

Lot 2—Two pounds of soybean pellets per head daily.

Lot 3—Two pounds of corn per head daily.

The steers were rotated on the pastures every 15 days to equalize any differences that might be due to pastures.

Observations

1. Both supplements increased the gain slightly but not enough to pay for the supplement.

2. Apparently there was no great lack of protein in the grass, since the corn increased the gain slightly more than the soybean pellets.

3. As evaluated by a committee of animal husbandmen, the steers fed soybean pellets did not show so much bloom as those fed no supplement or those fed 2 pounds of corn.

Table 2.—Effects of Feeding a Protein Supplement During the Latter Part of the Grazing Season to Yearling Steers on Bluestem Pasture.

August 6-October 23, 1953—78 days.

| Lot number | 1 | 2 | 3 |
|--|---------------|--------------------------|---------------|
| Number steers per lot | 12 | 12 | 12 |
| Management | No supplement | 2 pounds soybean pellets | 2 pounds corn |
| Initial wt. per steer | 703 | 705 | 710 |
| Final wt. per steer | 811 | 823 | 835 |
| Gain per steer | 108 | 118 | 125 |
| Daily gain per steer | 1.38 | 1.51 | 1.60 |
| Gain in wt. contributed to feeding soybean pellets or corn | 0 | 10 | 17 |
| Total soybean pellets or corn fed per steer—lbs.: | | | |
| Soybeans | | 156 | |
| Corn | | | 156 |
| Gain per steer by periods: | | | |
| August 6-September 3 | 50 | 58 | 40 |
| September 3-October 2 | 42 | 35 | 62 |
| October 2-October 23 | 16 | 25 | 23 |
| Total gain August 6-October 23 | 108 | 118 | 125 |