

Table 4
Effects of Feeding a Protein Supplement During the Latter Part of the Grazing Season to Yearling Steers on Bluestem Pasture.

August 2 to October 17, 1955—76 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	802	806	803
Final wt. per steer	880	925	897
Gain per steer	78	119	94
Daily gain per steer	1.03	1.57	1.24
Gain in lbs. contributed to feeding soybean pellets or corn		41	16
Total soybean pellets or corn fed per steer, lbs.:		152	152
Soybeans			
Corn			
Gain per steer by periods:			
August 2-September 2	51	28	49
September 2-October 1	2	51	7
October 1-October 17	25	40	38
Total gain August 2-October 17	78	119	94

Level of Winter Protein Supplementation for Steer Calves Both Wintered and Summer Grazed on Bluestem Pasture, 1955-56.

PROJECT 253-1

E. F. Smith, B. A. Koch, D. L. Good, and G. L. Walker

This is a progress report of the wintering phase of the third trial of this experiment. The results of the other two tests are reported in Circular 308 and elsewhere in this publication. The test is designed to study the level of protein supplementation most desirable for wintering steer calves to be sold off summer grass as stocker or feeder yearlings. Results of the experiment are measured by the combined winter and summer performance of the steers.

Experimental Procedure

Thirty good-quality Hereford steer calves purchased from the Williams Ranches near Lovington, N. M., were used in the test. They were the heaviest steer calves of 256 purchased. They were divided on the basis of weight into three lots of 10 calves each and grazed together on a 190-acre bluestem pasture during the winter. Each morning they were gathered and divided into three feeding pens to receive their supplements. The treatment assigned to each lot was as follows:

Lot 12A—One pound of soybean oil meal pellets per head daily.

Lot 12B—Two pounds of soybean oil meal pellets per head daily.

Lot 12C—One pound of soybean oil meal pellets and 1 pound of corn per head daily.

All had free choice of dry bluestem pasture, salt, and mineral (steamed bonemeal and salt).

Observations

Results in this test are measured on the basis of winter and summer performance combined. This is a progress report on only the wintering phase. It is interesting to note that at this stage 1 pound of a 41 percent protein concentrate is apparently not enough supplemental feed for calves wintered on dry bluestem pasture. This has been true on the basis of the combined winter and summer gain in the two previous trials.

(10)

Table 5
Level of Protein Supplementation for Steer Calves Wintered on Dry Bluestem Pasture, 1955-56.

Phase 1, January 4, 1956, to April 7, 1956—93 days.

Lot number	12A	12B	12C
Number steers	10	10	9
Initial wt. per steer, lbs.	581	590	591
Final wt. per steer, lbs.	604	647	634
Gain per steer, lbs.	23	57	43
Daily gain per steer, lbs.	.25	.61	.46
Daily ration per steer, lbs.:			
Soybean oil meal pellets	1.0	2.0	1.0
Ground corn			1.0
Prairie and alfalfa hay ¹	1.0	1.0	1.0
Dry bluestem pasture		Free choice, all lots	
Salt		Free choice, all lots	
Mineral (bonemeal and salt)		Free choice, all lots	
Feed cost per steer, ² \$	6.26	9.52	8.96

1. Fed only when snow covered the grass.

2. Feed prices may be found inside back cover. \$1 was charged per steer for mineral and salt.

The Value of Dry Bluestem Pasture and a Comparison of Supplements for Heifer Calves in a Wintering, Grazing, and Fattening Program, 1955-56.

PROJECT 253-2

E. F. Smith, B. A. Koch, D. L. Good, and V. D. Severns

Circular 320 from this station contains a three-year summary comparing heifers wintered in dry lot with heifers wintered on dry grass and the effect of this winter treatment on their total performance in a wintering, grazing, and fattening program. The results of this test showed the heifers wintered on dry grass gained 32 pounds less for the year, had a lower dressing percentage, graded lower, and sold for about \$1 a hundred less than heifers wintered in dry lot. However, the heifers wintered on dry grass returned as much money above feed costs as the heifers wintered in dry lot, due primarily to lower winter feed costs and high summer grass gains.

In this test the plane of nutrition has been raised slightly for the heifers wintered on dry grass, to acquire some of the desirable characteristics associated with dry-lot wintering, but still maintaining low winter feed costs. In addition different levels of protein supplementation are being compared.

Experimental Procedure

Thirty head of good-quality Hereford heifer calves purchased from the Williams Ranches at Lovington, N. M., were used in the test. They were divided on the basis of weight and quality into three lots of 10 calves each and assigned to the following treatments:

Lot 4—Wintered in dry lot on sorghum silage, 3 pounds of alfalfa hay, and 1½ pounds of corn per head daily, to be grazed on bluestem pasture from May 1 until August 1, fattened to choice grade in dry lot starting August 1.

Lot 7—Wintered on dry bluestem pasture, 3 pounds of alfalfa hay, and 1½ pounds of corn per head daily, to be grazed on bluestem pasture until August 1, fattened to choice grade in dry lot starting August 1.

Lot 8—Wintered on dry bluestem pasture and 6 pounds of alfalfa hay per head daily, to be grazed on bluestem pasture until August 1, fattened to choice grade in dry lot starting August 1.

(11)

All lots have free access to salt and mineral (equal parts of bone-meal and salt).

Four of the heifers in each lot were implanted with 48 mg. of stilbestrol, results of which will be reported elsewhere.

Observations

This is a progress report on the wintering phase, and only tentative statements are in order. It may be noted, however, that a much larger gain has been made in dry lot. The heifers receiving only 3 pounds of alfalfa hay on dry grass are apparently receiving sufficient protein, since their gain with the additional 1½ pounds of grain is the same as for the heifers receiving 6 pounds of alfalfa hay per head daily.

Table 6

The Value of Dry Bluestem Pasture and a Comparison of Supplements for Heifer Calves in a Wintering, Grazing, and Fattening Program, 1955-56.

PROJECT 253-2

Wintering, November 15, 1955, to April 7, 1956—144 days.

Lot number	4	7	8
Number of heifers	10	9 ¹	10
Place wintered	dry lot	bluestem pasture	bluestem pasture
Initial wt. per heifer, lbs.	473	474	477
Final wt. per heifer, lbs.	644	501	503
Gain per heifer, lbs.	171	27	26
Daily gain per heifer, lbs.	1.19	.19	.18
Daily ration per heifer, lbs.:			
Alfalfa hay	3.00	3.00	6.00
Corn	1.40	1.50	
Sorghum silage	28.0		
Dry bluestem pasture		free choice	free choice
Prairie and alfalfa hay ²28	.28
Salt07	.03	.03
Mineral (bonemeal and salt)09	.04	.04
Feed cost per heifer, ³ \$	23.80	14.19	12.23

1. One heifer was removed from Lot 7 with a prolapsed vagina.

2. A limited quantity of prairie and alfalfa hay was fed when snow covered the ground.

3. Feed prices may be found inside the back cover.

Different Methods of Managing Bluestem Pastures, 1955.

PROJECTS 253-3 and 253-5

E. F. Smith, K. L. Anderson, F. H. Baker, and G. L. Walker

This experiment was to determine effects of different stocking rates, deferred grazing, and pasture burning on livestock gains, productivity of pastures, and range condition as determined by plant population changes. In addition to the yearly report, a summary of the cattle gains for the first six years of this test is included.

Experimental Procedure

Good-quality Hereford two-year-old steers weighing about 700 pounds were used to stock the pastures. They were the light end of the steers used on the pastures in 1954. The method of management of each pasture was:

Pasture 1—Normal rate of stocking, 5 acres per head (5.9 acres per animal unit).

Pasture 2—Overstocked, 3.5 acres per head (4.2 acres per animal unit).

Pasture 3—Understocked, 7.5 acres per head (8.8 acres per animal unit).

Pastures 4, 5, 6—Deferred grazing, 5 acres per head (5.9 acres per animal unit). All steers were held in pastures 4 and 5 until early July, then placed on deferred pasture 6 until mid-September. From mid-September on, they were allowed the run of all three pastures.

Pasture 9—Burned March 8, 1955; normal rate of stocking (5.9 acres per animal unit).

Pasture 10—Burned April 1, 1955; normal rate of stocking.

Pasture 11—Burned April 25, 1955; normal rate of stocking.

The steers were weighed off test September 29, 1955, but remained on the pastures until October 19. From September 29 to October 19 they received about 1.5 pounds of cottonseed cake per head daily.

Observations

1. The cattle gains were greatest on the mid- and late-spring-burned pastures and least on the deferred and on the overstocked pastures.

2. Ample moisture was received early in the season for grass growth, but after early June little moisture was received. It rained 1.31 inches July 1 and 0.84 inch July 19. The total for August was only 0.23 inch. September was extremely dry, with 0.61 inch September 26 and 0.71 inch September 27. Gains were low in August, less than 1 pound per head daily, and steers on most of the pastures showed a weight loss for September except those on pastures 1, 3, and 11.

3. Cattle gains have not yet reflected fully the response of the vegetation to the impact of grazing treatment. During recent drought years there has been a decline in total plant population and in actual amounts of major forage grasses on all pastures. The greatest decline has occurred on the overstocked pasture. Taken as percentage of total plant population to indicate relative importance, the decrease of major forage grasses has been especially pronounced on the overstocked pasture. Such grasses as bluegrass, the grammas, and buffalograss tend to make up an increasing percentage of the plant population under close grazing. They have increased sharply over most of pasture 2 and on a small area, along the eastern edge of pasture 1, which, due to location, is grazed closely.

Another criterion by which the impact of grazing on vegetation may be judged is degree of use. Significantly greater amounts of forage residue remained at the close of the grazing season on pastures 3 (understocked) and 4, 5, 6 (deferred) than on the other pastures. Pastures 2 (overstocked) and 9 (burned in early spring) had the least top growth remaining after the grazing season.