

23. Appraisal value per steer @ \$34.00 per cwt., October 8, 1951	308.04	317.56	300.56	311.44
24. Return per steer over initial cost plus feed cost....	49.86	58.96	42.75	52.40
1 Mineral mixture consisted of 2 parts by weight of steamed bonemeal to 1 part salt.				
2 Prairie hay was fed only when snow covered the grass.				
3 One steer in Lot 2 broke a leg and was butchered May 6, 1951—one steer was removed from Lot 3 for experimental purposes.				
4 Difference between final weight for winter phase for Lots 3 and 4 and starting weight for grazing phase is due to removal of one steer from each lot.				
Feed prices: Soybean pellets, soybean meal, \$75.00 per ton; alfalfa hay, \$20 per ton; prairie hay, \$13 per ton; bluestem pasture, \$7.50 winter, \$20 summer; salt, \$12 per ton; steamed bonemeal, \$5.50 per cwt.				

Project 253-4: Wintering and Grazing Yearling Steers

Effect of Feeding a Protein Supplement During the Latter Part of the Grazing Season to Two-Year-Old Steers on Bluestem Pasture, 1951.

E. F. Smith and R. F. Cox

Introduction

The nutritive value of bluestem pasture usually begins to decline rapidly after mid-summer. This test is concerned with what effect the feeding of a protein supplement after mid-summer will have on cattle gains and condition. It is hoped that by starting the feeding at different times the most opportune time to start feeding may be determined.

Experimental Procedure

Thirty-eight head of good quality two-year-old Hereford steers were used in this test. They were wintered on dry bluestem pasture and then grazed together until July 18, when this test started.

The steers were divided into four uniform lots and grazed on bluestem pasture with the following treatment from July 18, 1951, to October 3, 1951.

- Lot 1: July 18 to October 3—received 2 pounds of soybean oil meal pellets per head daily.
- Lot 2: August 10 to October 3—received 2 pound of soybean oil meal pellets per head daily.
- Lot 3: September 1 to October 3—received 2 pounds of soybean oil meal pellets per head daily.
- Lot 4: Received no supplemental feed.

Observations

1. In this test the feeding of a protein supplement on bluestem pasture after mid-summer was not profitable.
2. The average protein content of bluestem pasture grasses in July was 8.45 percent, in August, 7.95 percent, and in September, 7.33 percent. Heavy rains fell in July, and the grass remained green until late in the season.

1. The samples selected were of immature grasses or regrowth after grazing, in an attempt to take samples of grass the cattle were consuming.

3. The lots were ranked as to degree of flesh at the close of the test. Lot 4 appeared to be the fleshiest of the lots, followed by Lots 1, 3, and 2, respectively.

Effect of Feeding a Protein Supplement During the Latter Part of the Grazing Season to Two-Year-Old Steers on Bluestem Pasture (July 18, 1951, to October 3, 1951—77 days)

Lot number	1	2	3	4
No. steers in lot	10	9	9	10
Management	Fed 2 lbs. soybean pellets daily from July 18, '51, to Oct. 3, '51	Fed 2 lbs. soybean pellets daily from Aug. 10, '51, to Oct. 3, '51	Fed 2 lbs. soybean pellets daily from Sept. 1, '51, to Oct. 3, '51	No soybean pellets fed
Av. initial wt.	915	908	905	911
Av. final wt.	1018	1012	1009	1023
Av. gain	103	104	104	112
Av. daily gain	1.34	1.35	1.35	1.45
Gain contributed to feeding of soybean pellets, lbs.	-9	-8	-8	0
Total soybean pellets fed per steer, lbs.	154	108	64	0
Selling price per cwt. on Oct. 10, '51	\$34.00	\$34.00	\$34.00	\$34.00
Gain per steer by periods, lbs.:				
July 18-Aug. 10	35	48	42	47
Aug. 10-Sept. 1	44	42	49	48
Sept. 1-Oct. 3	24	14	13	17
Total gain	103	104	104	112

Project 253-4: Wintering and Grazing Yearling Steers

Methods of Wintering Yearling Steers on Bluestem Pasture, 1951-52.

E. F. Smith, R. F. Cox, and S. B. Fansher

Introduction

The wintering phase of this test will be completed May 1, 1952. The study is to test the value of dry bluestem pasture as a winter feed for yearling steers fed different kinds and amounts of protein supplements.

Experimental Procedure

Thirty head of good quality, about 750-pound, Hereford yearling steers were used in the test which was started December 7, 1951. The steers were purchased in the spring of 1951 and had been grazed on bluestem pastures during the summer and fall. They carried a moderate amount of flesh. They lost some flesh during October and November when they were on grass alone prior to the start of winter tests. The steers were sprayed twice with B.H.C. for lice. All of the pastures in which the steers were wintered had been grazed the previous summer at normal stocking rates, but a plentiful supply of dry grass remained. From 6 to 13 acres of pasture were allowed each steer.

The 30 steers were divided into three lots of 10 steers each and received the following supplements in addition to dry bluestem pasture from December 7, 1951, to April 1, 1952:

Lot 1—2 pounds of cottonseed oil meal pellets daily, salt, and mineral (bonemeal and salt).

Lot 2—4 pounds of cottonseed oil meal pellets every other day (average 2 pounds a day), salt, and mineral (bonemeal and salt).

Lot 3—Cottonseed oil meal, salt self-fed, and mineral (bonemeal and salt). (The salt was mixed with the soybean oil meal to limit its consumption and make it possible to self-feed the cottonseed oil meal. This mixture was fed in a self-feeder.)

The cottonseed oil meal pellets were fed on the ground.

Observations

1. Weather conditions were favorable for wintering on dry grass except during the month of December and the first week in March.

2. All lots lost weight during the wintering period. Lot 1 fed every day wintered slightly better than Lot 2 fed every second day, and the steers in Lot 3 self-fed salt and cottonseed oil meal lost considerable weight, an average of 55 pounds per head for the winter. Usually April is a favorable month for cattle gains on dry grass, and some of the weight losses will probably be decreased or eliminated during April.

Wintering Yearling Steers on Bluestem Pasture (December 7, 1951, to April 1, 1952—116 days)

Lot number	1	2	3
Number of steers per lot	10	10	10
Method of feeding	Fed cottonseed oil meal pellets daily	Fed cottonseed oil meal pellets every other day	Self-fed cottonseed oil meal and salt
Average initial weight	745	741	746
Average final weight	737	726	691
Average gain	-8	-15	-55
Average daily gain	-.06	-.13	-.47
Average daily winter ration, lbs.:			
Cottonseed oil meal pellets	2.00	2.00	
Cottonseed oil meal			2.05
Salt	.09	.07	.65
Mineral mixture ¹	.14	.12	.09
Prairie hay ²	1.52	1.47	1.42
Bluestem pasture	ad lib	ad lib	ad lib
Total feed cost per steer ³	\$17.78	\$17.61	\$18.14
Initial cost per steer at \$35.00 per cwt.	\$260.75	\$259.35	\$261.10
Initial cost per steer plus feed cost	\$278.53	\$276.96	\$279.24
Necessary selling price per cwt. to cover initial cost plus wintering costs	\$37.79	\$38.14	\$40.41

1 Mineral mixture composed of 2 pounds steamed bonemeal to 1 of salt.

2 Prairie hay was fed only in unfavorable weather.

3 Feed prices may be found on page 58 of this bulletin.

Project 253-3: The Effect of Grazing Systems on Livestock and Vegetation

A Comparison of Different Methods of Managing Bluestem Pastures—1951.

E. F. Smith and Kling L. Anderson

Introduction

The objectives of this experiment are to determine the effects of different stocking rates, deferred and rotation grazing, and burning on livestock gains, productivity of pastures, and the vegetation itself.

Results are reported here for the third year of the experiment. Only two years' results on burning and understocking have been obtained. The results for 1949 and 1950 may be found in Kansas Agricultural Experiment Station Circulars 265 and 273, respectively.

Experimental Procedure

Good quality Hereford yearling steers, moderately thin, weighing about 520 pounds were used to stock the pastures. The method of management of each pasture was as follows:

Pasture 1—normal rate of stocking, 3.3 acres per head.

Pasture 2—over-stocked, 2.5 acres per head.

Pasture 3—under-stocked, 5 acres per head.

Pastures 4, 5, 6—deferred and rotation grazing, 3.3 acres per head. All steers were held in two pastures until July 6, then turned in to the protected pasture until it was deemed advisable to allow them the run of all three pastures, which in 1951 was August 3.

Pasture 7—burned March 22, 1951; rate of stocking was 3.4 acres per head.

Pasture 8—burned April 13, 1951; rate of stocking was 3.4 acres per head.

Pasture 9—burned April 26, 1951; rate of stocking was 3.4 acres per head.

Pasture 10—not burned; rate of stocking was 3.5 acres per head.

Due to accident, Pastures 1 through 6 were burned on April 26, 1951. The only pasture reported here that was not burned is Pasture 10.

Observations

1. In this year's test, the method of management which resulted in the greatest difference in gain per head was on the under-stocked pasture, where the steers gained 48 pounds more per head than on the normally-stocked pasture. This was not true in 1950 when the steers on the under-stocked pasture lacked 7 pounds per head gaining as much as those on the normally-stocked pasture.

2. There is probably not enough difference in gain per head among the various methods of management, other than the under-stocked pasture, to be significant. However, over a period of years, small differences may become important.

3. Deferred and rotation grazing has been compared with season-long stocking for three grazing seasons. Each year steers grazed season-long have made a greater gain per head; in 1949 it was 23 pounds, in 1950 it was 16 pounds, and in 1951 it was 8 pounds.

4. Burned Pastures 7, 8, and 9 produced comparable gains to those of Pasture 10 which was not burned.

5. The time of burning may have some effect on cattle gain. In 1950 and 1951 the early spring burning produced the least gain of the three different times of burning, and the medium spring burning the most gain; the late spring burned pasture has been between the other two in gains produced.