

OBSERVATIONS

1. Yearling steers were satisfactorily wintered on dry bluestem grass and a protein supplement. The average gain for the lots varied from 46 to 75 pounds per head for the winter.

2. In this test steers fed every other day made the largest gain, followed by steers fed daily. The lowest gaining lot was fed alfalfa hay, which has been true in two previous trials. Lot 4, which was fed the meal-salt mixture, did not gain quite as much as the steers fed every day in lot 1, but did compare very favorably with them.

3. Although not shown, it is of interest that all lots lost weight during February except lot 2 which was fed every other day.

4. It was very difficult to regulate the salt-meal intake of lot 4 so as to maintain meal consumption at approximately 2 pounds per head daily.

5. The winter of 1950-51 was very mild and favorable for wintering cattle on dry grass.

Wintering Yearling Steers on Bluestem Pasture December 13, 1950 to April 18, 1951—126 Days

1. Lot number	1	2	3	4
2. Number of steers per lot..	10	10	10	10
3. Method of feeding	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 winter ration, lbs.:				
Soybean pellets	2.02	2.03	—	—
Soybean oil meal	—	—	—	1.97
Salt .....	.19	.13	.05	.69
Alfalfa hay	—	—	7.32	—
Mineral mixture ¹ .....	.02	.03	.01	.05
Prairie hay ² .....	.76	.75	.49	.58
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 ..	\$16.41	\$16.51	\$15.72	\$16.63
10. Initial cost per steer at \$32.25 per cwt.	\$220.27	\$220.59	\$220.59	\$220.91
11. Initial cost per steer plus feed cost	\$236.68	\$237.10	\$236.31	\$237.54
12. Necessary selling price per cwt. to cover initial cost plus wintering cost	\$31.77	\$31.24	\$32.37	\$32.14
13. Appraised value per cwt. on May 5, 1951				

1. Mineral mixture consisted of 2 parts by weight of steamed bone meal to 1 part salt.

2. Prairie hay was fed only when snow covered the grass. Feed prices: Soybean pellets, soybean meal, \$75.00 a ton; alfalfa hay, \$20.00 a ton; prairie hay, \$13.00 a ton; bluestem pasture, \$6.00 for the winter; salt, \$12.00 a ton; steamed bone meal, \$5.50 a cwt.

3. Management	Fed 3 lbs. Soybean Pellets from July 15-Sept. 20, 1950	Fed 3 lbs. Soybean Pellets from Aug. 10-Sept. 29, 1950	Fed 3 lbs. Soybean Pellets from Sept. 1-Sept. 20, 1950	No Soybean Pellets fed
4. Av. initial weight	850	851	851	852
5. Av. final weight	979	975	947	947
6. Average gain	129	124	96	97
7. Av. daily gain	1.70	1.63	1.26	1.28
8. Gain contributed to feeding of soybean pellets, lbs.	32	27	-1	0
9. Total soybean pellets fed per steer, lbs.	228	150	84	0
10. Gain per cwt. of soybean pellets fed, lbs.	14.04	18.00	0	0
11. Selling price per cwt. on Oct. 3	\$28.00	\$28.00	\$28.00	\$28.00
12. Gain per steer by periods, pounds:				
July 15-August 10	47	49	46	37
August 10-Sept. 1	33	26	30	34
September 1-Sept. 29	49	49	20	26
Total gain	129	124	96	97

Project 253-4: Wintering and Grazing Yearling Steers

Wintering Yearling Steers on Dry Bluestem Pasture, 1950-51

E. F. Smith, R. F. Cox

INTRODUCTION

The primary purpose of this test is to determine if yearling steers can be satisfactorily wintered 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—4 pounds of soybean pellets per head every other day (average 2 pounds a day)

Lot 3—2 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.

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

A Comparison of Different Methods of Managing Bluestem Pastures—1950.

E. F. Smith and Kling Anderson

INTRODUCTION

In the present series the first test to compare different methods of grazing bluestem pasture was conducted in 1949 and was reported in Kansas Agricultural Experiment Station Circular 265. This report is concerned with the second test conducted in 1950.

The objective of this experiment is to find out what the carrying capacity of bluestem pasture is, how deferred and rotation grazing compare with season long grazing, and if bluestem pastures should be burned or not.

EXPERIMENTAL PROCEDURE

One hundred and twenty-eight moderately fleshed, good quality, yearling Hereford steers weighing about 620 pounds per head on May 8 were used to stock the pastures.

The method of management of each pasture was as follows:

Pasture 1: Normal rate of stocking, 4 acres per head.

Pasture 2: Over-stocked, 3 acres per head.

Pasture 3: Under-stocked, 6 acres per head.

Pastures 4, 5, 6: Deferred and rotation grazing, 3.6 acres per head. All steers were held in two pastures until June 20, then turned into the protected pasture until it was deemed advisable to allow them the run of all three pastures, which in 1950 was August 1.

Pasture 7: Rate of stocking—4 acres per head. This pasture was burned March 24, 1950.

Pasture 8: Rate of stocking—4 acres per head. This pasture was burned April 13, 1950.

Pasture 9: Rate of stocking—4 acres per head. This pasture was burned May 2, 1950.

OBSERVATIONS

1. Among all the methods of management tested, there was not a large difference in gain per steer except on the medium-burned pasture where the steers gained 33 pounds more per head than on Pasture 1 which was normally stocked. Several years' work will be required to verify results of this type.

2. The largest gain per acre occurred on the over-stocked pasture and the smallest gain per acre on the under-stocked pasture.

3. At the close of the grazing season, 1950, the burned pastures did not appear to be as heavily grazed as the non-burned Pasture 1. More spot grazing took place in the non-burned pasture. Pasture 2 appeared to be closely grazed and Pasture 3 lightly grazed. The deferred and rotated pastures, 4, 5, and 6, compared favorably with Pasture 1 which was grazed straight through the summer.

4. The effects of grazing management on the vegetation are being studied chiefly in terms of plant populations because the species population in a given pasture is the best indicator of its range condition. By means of annual sampling, the relative amounts of each important native species have been determined each year since 1947. On the basis of these records, any changes brought about in the management can be detected by future sampling. If species like the bluestems, Indiangrass, and switchgrass become more abundant, it may be taken

as evidence of improvement. If, on the other hand, the shorter grasses like buffalograss and the gramas increase or if weedy species invade, deterioration will be indicated. Any such trends can then be correlated with livestock responses.

Studies on the relation of soil type to plant population were started in 1950 when a detailed soils map of pastures 1 to 6 was made. Plant population samples from each of 10 major soil categories were compared, and certain ones were found to be alike so far as vegetative cover was concerned. This made it possible to combine them into 4 categories, and future sampling will take these groups into account.

Considering pastures 1 to 6 as a whole, the following vegetative populations have been observed:

Species	% of Total Population
Big bluestem	17.6
Little bluestem	24.1
Indiangrass	7.7
Sideoats grama	8.1
Blue grama	3.5
Hairy grama	2.7
Buffalograss	4.5
Kentucky bluegrass	8.3
All other perennial grasses	7.8
Total perennial grasses	84.3
Sedges and rushes	6.0
Annual grasses	1.7
Total grass and grasslike species	92.0
Perennial broad-leaf plants	5.5
Annual broad-leaf plants	2.2
Shrubs	0.3

Population counts like these and measurements of actual areas occupied by each species have been made for each pasture, for each year, and for each soil type. They will furnish the basis for evaluating any trends that develop as the experiments progress.