December 1, 1948 to April 18, 1949
138 Days

1—Lot Number	1	2	3	4
2—Number of steers per lot	10	10	10	10
3—Method of feeding	Fed 3 lbs. Soybean Pellets every other day.	Self-fed Cottonseed meal & salt mixed together	Fed alfalfa hay daily	Fed Soybean pellets daily
4—Daily winter ration, lbs.				
Soybean meal	1.5			1.5
Cottonseed meal		2.83		
Salt	ad lib	.89	ad lib	ad lib
Alfalfa hay			6.23	
Bluestem grass	ad lib	ad lib	ad lib	ad lib
Prairie hay*				
5—Initial weight per steer	745.	755.	755.	749.
6—Gain or loss per Steer	-10.	31.	-6.	9.
7—Final weight per steer	735.	786.	749.	758.
8—Daily gain or loss per steer	-.07	.22	-.04	.06
9—Total feed consumed per steer, lbs.				
Cottonseed meal		391.3		
Soybean meal	210.			210.
Alfalfa hay			860.7	
Bluestem grass	ad lib	ad lib	ad lib	ad lib
Prairie hay	318.	300.	156.	276.
Salt		123.2		
10—Feed cost per steer**	$ 20.27	$ 27.54	$ 19.78	$ 19.89
11—Initial cost per steer.	$ 189.98	$ 192.53	$ 192.53	$ 191.00
12—Initial cost per steer plus winter feed cost	$ 210.25	$ 220.07	$ 212.31	$ 210.89
13—Necessary selling price per cwt. to cover initial cost plus wintering cost.	$ 28.61	$ 28.00	$ 28.35	$ 27.82
14—Appraised value per cwt. on May 7, 1949				

* All lots were fed Prairie hay when snow covered the grass. For the amount see line 9, total feed consumed per steer.

** Feed prices:
Cottonseed meal and soybean meal, $75 per ton; alfalfa hay, $20 per ton; prairie hay, $15 per ton; bluestem grass for winter 1948-49 $10. per head; salt, $10 per ton.

***30 to 40 pounds salt to 100 pounds cottonseed meal.

OBSERVATIONS

1. The steers of all four lots in this test gained up to March 1 and all except lot 4 showed moderately heavy losses during March. Lot 1 lost 67 pounds, lot 2 lost 28 pounds and lot 3 lost 58 pounds per head.
2. For the first 18 days of April the steers made substantial gains.
3. This season's gains were not as large as those of last winter. During the winter of 1947-48 one lot of ten yearling steers which were fed three pounds of cottonseed cake per head every other day, gained 66 pounds per head for the season.
4. Prairie hay was fed only when grass was covered with snow.
5. Lot 2 self-fed the salt-cottonseed meal mixture ate almost twice as much cottonseed meal as was hand fed to lots 1 and 4. This probably accounts for the larger gain in this lot.
6. The limited information available indicates that a steer will eat nearly one pound of salt daily. On this basis it would require 50 to 60 pounds of salt with 100 pounds of meal to limit the cottonseed meal consumption to two pounds or less per steer daily.
7. All steers in this test wintered in strong thrifty condition. No ill effects from the high salt consumption in lot 2 were observed.

Project 253: Factors Influencing Profitable Grass Utilization and Sound Pasture Management.

AMOUNT AND SEASONAL TREND OF GAINS OF YEARLING STEERS ON BLUESTEM PASTURE

A. G. Pickett—Ed F. Smith

One hundred thirty-five yearling steers which had been wintered as calves at Guymon, Oklahoma, on short grass, sorghum bundles, prairie hay and cottonseed cake, were furnished to Kansas State College by the Robbins Ranch of Belvidere, Kansas. These steers were thin in flesh but were thrifty in condition.

Beginning weights were taken after the steers had been at the College about one week. They were fed hay and a small feed of silage and weighed with a normal fill. No protein or other supplement was fed.

The accompanying table and chart shows the gains and the trend of gains by weigh periods.

Effect of Burning Pastures on Gains of Steers

The purpose for which these steers were grazed was to compare the six pastures to be used in future experimental work. The six pastures, numbered one to six inclusive, were burned about April 15 in order to give them all an even start. The odd lot of steers listed as lot seven was grazed on unburned adjoining pasture. There was an abundant growth of old dead grass. These steers on unburned pasture made gains equal to the six lots of cattle on pastures that had been burned.

This represents only a one-year test. It is planned to have the grass project developed so that regular burning tests can be started with the 1950 grazing season.

Protein Content of Bluestem Grass

The accompanying chart shows the protein content of bluestem grass from the Kansas State College pastures during the 1948 grazing season. There appears to be a definite correlation between the protein content and the rate of gain as the grazing season progresses.

EFFECT OF BURNING PASTURES ON GAINS OF STEERS
April 26 to Oct. 15. 1948—172 Days

	Bluestem Pasture Burned						Not Burned
	1	2	3	4	5	6	7
1—Lot Number							
2—Number of head per pasture	20	20	20	20	20	20	15
3—Number of acres per pasture	60	60	60	60	60	60	
4—Initial weight per steer	526	526	525	524	524	523	579
5—Gain per steer also daily gain by periods:							
April 26 to June 11							
Gain per steer	139.00	153.70	149.25	145.00	144.00	151.70	152.33
Daily gain per steer	3.08	3.40	3.31	3.22	3.20	3.37	3.37
June 11 to July 15							
Gain per steer	73.00	61.00	61.70	61.50	64.70	63.20	68.66
Daily gain per steer	2.15	1.79	1.81	1.80	1.89	1.85	2.02
July 15 to August 16							
Gain per steer	68.00	79.70	79.00	56.50	104.70	81.20	56.00
Daily gain per steer	2.06	2.41	2.39	1.71	3.17	2.46	1.69
August 16 to September 15							
Gain per steer	53.00	54.50	30.50	61.70	18.50	23.50	54.66
Daily gain per steer	1.89	1.94	1.08	2.20	.66	.84	1.95
September 15 to October 15							
Gain per steer	3.50	3.25	22.50	31.75	21.85	25.75	12.66
Daily gain per steer	.12	.11	.80	1.10	.78	.92	.45
6—Total gain per steer	337.	352.	343.	356.	354.	345.	344
7—Final weight per steer	863.	878.	868.	880.	878.	868.	923
8—Daily gain per steer	1.96	2.05	1.95	2.07	2.06	2.01	2.00

It is planned to keep a record of the protein content of bluestem grass at two-week intervals throughout the grazing season over a period of several years. Such a record should be valuable in determining at what time during the grazing season the feeding of a protein supplement might be expected to be profitable.

Project 78: A Study of Factors Influencing Rate of Grain, Quantity of Feed Consumed and Carcass Grade.

1947-1948

F. W. Bell, D. L. Mackintosh, A. G. Pickett

INTRODUCTION

This is a study of the characteristics of feeder calves which are associated with differences in:

1. Rate of gain.
2. Kind and amount of feeds required to make gain.
3. Value of the carcass.

EXPERIMENTAL PROCEDURE

The two lots of calves were selected from 100 range-bred heifer calves purchased in November 1947 for feeding tests at this station. These calves graded good to choice feeders and were quite uniform.

Sorting for the two lots in this trial was made on probable differences in performance during the fattening period as indicated by body capacity. chest room, natural fleshing or muscling, form, and general appearance. The ten calves in lot 1 were those which were somewhat deficient in one or more of the above characteristics as compared to those in lot 2. All calves were graded individually by using a standard feeder chart.

The calves in both lots received the same kinds of feed and were given as much corn and silage as they would consume. The same amount of cottonseed meal and alfalfa hay was fed in each lot.

Differences in rate of gain and in the kind and amount of feed required as well as carcass grades are given in the table which follows. These differences indicate the relation of the body features of feeder calves to the efficiency of the calves in producing beef.

November 11, 1947 to June 22, 1948—224 Days

1—Lot Number	1	2
2—Number of heifers in lot	10	10
3—Average daily ration		
Ground shelled corn	8.74	9.43
Atlas sorgo silage	7.47	13.52
Cottonseed meal	1.23	1.23
Alfalfa hay	1.86	1.92
Prairie hay	.77	1.20
Ground limestone	.09	.09
4—Average initial weight	373.	455.
5—Average final weight	757.	888.
6—Average total gain	384.	433.
7—Average daily gain	1.71	1.93