12.	Necessary selling price per cwt. to pay for feed and initial cost	$40.83	$44.69	$36.54	$34.32
13.	Appraised value per cwt. May 3, 1952	$	$	$	$

1 Cottonseed cake was fed to Lot 2 at the rate of 2 pounds per head daily from February 15 to April 1.
2 Prairie hay was fed to Lots 1 and 2 only when snow covered the grass.
3 Alfalfa hay was fed Lot 2 from February 1 to 15 at the rate of about 6 pounds per head daily.
4 Mineral mixture consisted of 2 pounds steamed bonemeal to 1 pound of salt.
5 Feed prices may be found on page 58 of this bulletin.

Project 253-4: Wintering and Grazing Yearling Steers

Methods of Wintering Yearling Steers on Dry Bluestem Pasture, 1950-51.

E. F. Smith and R. F. Cox

Introduction

This test is to determine if yearling steers can be wintered satisfactorily on dry bluestem pasture. Different protein supplements as well as methods of feeding them on dry bluestem pasture are being tested.

Experimental Proccdure

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—four pounds of soybean pellets per head every other day (average 2 pounds a day).
Lot 3—two 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.

Observations

1. The steers wintered satisfactorily under all methods of feeding. The steers fed every other day made the largest winter gain. In two previous tests this was not true. The lot fed alfalfa hay made the smallest gain, which has been the case in two previous tests.

2. Steers self-fed a mixture of soybean oil meal and salt compared very favorably in gain with the steers hand-fed soybean oil meal pellets each day (see Lots 1 and 4).

3. At the close of the summer grazing phase, July 18, 1951, Lot 2, fed every second day, was still the largest gaining lot. Steers fed alfalfa hay ranked last in gain, and Lot 1, fed soybean oil meal pellets every

day, turned in about the same gain as Lot 4, self-fed the salt and soybean oil meal mixture.

4. The winter of 1950-51 was very mild and favorable for wintering cattle on dry grass in this area.

Wintering Yearling Steers on Bluestem Pasture

Phase I—December 13, 1950, to April 18, 1951—126 days.

1.	Lot number	1	2	3	4
2.	Number steers in lot	10	10	10	10
3.	Management	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 ration, lbs.:				
	Soybean oil meal pellets	2.02	2.03		
	Soybean oil meal				1.97
	Alfalfa hay			7.32	
	Prairie hay[2]	.76	.75	.49	.58
	Salt	.19	.13	.05	.69
	Mineral mixture[1]	.02	.03	.01	.05
	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....	$17.91	$18.01	17.22	$18.13

Phase II—Grazing—April 18, 1951, to July 18, 1951—91 days.

10.	Number steers in lot	10	9[3]	9[3]	10
11.	Average initial weight	745	757[4]	724[4]	739
12.	Average final weight	906	934	884	916
13.	Average gain	161	177	160	177
14.	Average daily gain	1.77	1.95	1.76	1.95

Summary of Phases I and II

December 13, 1950, to July 18, 1951—217 days.

15.	Average initial weight	683	684	684	685
16.	Average final weight	906	934	884	916
17.	Average gain	223	250	200	231
18.	Average daily gain	1.03	1.15	.92	1.06
19.	Total feed cost per steer	$37.91	$38.01	$37.22	$38.13
20.	Feed cost per 100 lbs. gain	17.00	15.20	18.61	16.51
21.	Initial cost per steer @ $32.25 per cwt.	220.27	220.59	220.59	220.91
22.	Initial cost per steer plus feed costs	258.18	258.60	257.81	259.04

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[1] 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.