12. Return per steer above initial cost and feed cost	$121.18	$108.71	$117.82	$115.12	$112.20

1 Grazing phase for Lot 1 began April 18, 1951, rather than May 1, 1951.
2 Prairie hay was fed to Lot 1 only when snow covered the grass.
3 Mineral mixture consisted of 2 parts bonemeal and 1 part salt. Fed only last ⅓ of wintering period.
4 Selling price per steer is based on a selling price of $35.00 cwt., and market weight, which represents an average shrink of 3 percent from home weights.
5 Feed prices: Milo grain, $2.30 cwt.; Soybean pellets, $75.00 ton; Prairie hay, $13.00 ton; Sorghum silage, $6.50 ton; Salt, $12.00 ton; Steamed bonemeal, $5.50 cwt.; Winter pasture, $5.00 season; Summer pasture, $15.00 season.

Project 253-1: Wintering and Grazing Steer Calves

Methods of Wintering Steer Calves That Are To Be Grazed a Full Season and Sold Off Grass, 1951-52.

E. F. Smith, D. L. Good, and R. F. Cox

Introduction

This is a report on the wintering phase of this test. It will be completed at the close of the grazing season in 1952. This study is to determine the best method of wintering good quality steer calves that are to be grazed on bluestem pastures the following summer and sold off grass.

Experimental Procedure

Five lots of good quality Hereford steer calves, 10 head to a lot, were used in this study. They were a part of the light end of a group of 150 steer calves originating at Marfa, Texas, and purchased for experimental purposes.

They were received November 8, 1951, and started on test December 22, 1951. Until they were started on test, they were fed sorghum silage, prairie hay, and 1 pound of cottonseed cake per head daily with free access to salt. During the experiment all were fed in dry lot, except Lot 1, which was fed out on dry bluestem pasture. All lots had free access to a mineral mixture (bonemeal and salt) and salt during the winter. The different lots received the following rations from December 22, 1951, to April 5, 1952:

Lot 1—bluestem pasture and 2 pounds cottonseed meal pellets per head daily, salt, and bonemeal and salt mineral mixture.

Lot 2—sorghum silage and cottonseed cake per head daily, salt, and mineral (bonemeal and salt).

Lot 3—prairie hay and 1 pound cottonseed cake per head daily, salt, and mineral (bonemeal and salt).

Lot 4—prairie hay, 2 pounds milo grain, and 1 pound cottonseed cake per head daily, salt, and mineral (bonemeal and salt).

Lot 5—prairie hay, 4 pounds milo grain, and 1 pound cottonseed cake per head daily, salt, and mineral (bonemeal and salt).

All lots will be grazed on bluestem pasture a full season in 1952 and sold as feeder yearlings in the fall.

Observations

1. The steer calves in Lot 1, wintered on dry bluestem pasture, were strong and thrifty and made a satisfactory gain. With the exception

of the month of December and the first week of March, the winter was very favorable for wintering outside. The calves were wintered in a 190-acre bluestem pasture with 10 heifer calves. The pasture was stocked at a normal rate during the summer season, but a plentiful supply of dry, dead grass remained.

2. Lot 2, fed sorghum silage (Tennessee Orange the first half of the winter and Atlas and Black Amber mixed the last half) consumed a smaller amount of silage than normal, due to poor quality silage. They also failed to gain as much as the calves in Lot 3 fed prairie hay.

3. The steers in Lot 3 made a satisfactory gain on good quality prairie hay that was cut August 10-20.

4. The addition of grain to the wintering rations of Lots 4 and 5 increased the gains in those lots to the extent that they could be sold for less per cwt. than any of the other lots and pay initial costs plus feed costs.

Wintering and Grazing Steer Calves

Phase I—Wintering

(December 22, 1951, to April 5, 1952—105 days[1])

1.	Lot number	1	2	3	4	5
2.	No. steers in lot	10	10	10	10	10
3.	Place of wintering	Bluestem pasture	Dry lot	Dry lot	Dry lot	Dry lot
4.	Av. initial weight, lbs.	388	389	389	390	391
5.	Av. final weight, lbs.	446	463	484	527	547
6.	Av. gain, lbs. ..	58	74	95	137	156
7.	Av. daily gain, lbs.	.57[1]	.70	.90	1.30	1.49
8.	Av. daily ration, lbs.:					
	Ground milo grain				2.00	4.02
	Cottonseed cake, or pellets	1.99	1.00	1.00	1.00	1.00
	Prairie hay ..	1.42[2]		10.78	10.23	10.37
	Sorghum silage		20.67			
	Salt	.05	.12	.06	.07	.06
	Mineral mixture[3]	.04	.14	.12	.12	.09
	Dry bluestem pasture	ad lib				
9.	Feed required for 100 lbs. gain, lbs.:					
	Ground milo grain				153.28	270.51
	Cottonseed cake or pellets	346.55	141.89	110.53	76.64	67.31

	Prairie hay ..	246.55		1191.47	784.38	698.14
	Sorghum silage		2933.11			
	Salt	7.93	17.70	6.21	5.04	3.78
	Mineral mixture	6.64	19.32	13.05	9.23	6.15
	Dry bluestem pasture	ad lib				
10.	Cost of feed per 100 lbs. gain[4]	$21.56	$17.70	$15.16	$14.49	$16.51
11.	Total feed cost per steer[1]	$13.34	$13.10	$14.40	$19.86	$25.76
12.	Initial cost per steer @ $41 per cwt.	$159.08	$159.49	$159.49	$159.90	$160.31
13.	Initial cost plus feed cost	$172.42	$172.59	$173.89	$179.76	$186.07
14.	Necessary selling price per cwt. to cover initial cost plus feed cost	$38.66	$37.27	$35.93	$34.11	$34.02
15.	Appraised value per cwt. May 3, 1952	$	$	$	$	$

1 The wintering period for Lot 1 was 101 days.
2 Prairie hay was fed to Lot 1 on dry bluestem pasture only when necessary.
3 Mineral mixture was composed of 2 parts steamed bonemeal to 1 part salt.
4 Feed prices may be found on page 58 of this publication.

Wintering Steer Calves on Alfalfa Silage, 1951-52

R. F. Cox and E. F. Smith

Introduction

This test was intended to compare alfalfa silage with alfalfa hay as a roughage for wintering steer calves by feeding nonwilted alfalfa silage to one lot, wilted alfalfa silage to another, and alfalfa hay to a third lot. However, the alfalfa hay lot was omitted this year because of a lack of hay comparable to the silage.

Experimental Procedure

Eighteen good quality Hereford steer calves were used in the test. They were part of a group of 150 steer calves obtained from Marfa, Texas, for experimental purposes. They were divided into two lots of 9 head each and started on test December 22, 1951. Both lots were given free access to a mineral mixture and salt. Lot 1 was fed nonwilted alfalfa silage, and Lot 2 was fed wilted alfalfa silage. No preservative was added to either silage. Each type of silage was stored separately in small tile silos. The silage was made from second-cutting alfalfa approaching full bloom. The nonwilted silage

was somewhat more mature than the wilted silage. The calves were fed all of the silage they would eat twice daily.

Observations

1. Nonwilted or wilted alfalfa silage put up without a preservative did not prove satisfactory in this test as the only roughage for wintering steer calves.
2. Wilted alfalfa silage was superior to nonwilted alfalfa silage in producing steer gains.
3. The calves on the nonwilted alfalfa silage did not consume enough silage to meet their dry matter requirement. They simply did not get enough to eat, although they were fed all they would clean up. The test was discontinued after 86 days, due to a shortage of wilted alfalfa silage and to the condition of the calves.
4. Following is the analysis of the two types of alfalfa silage:

Type	Moisture %	Protein %	Fat %	Fiber %	N-free ext. %	Ash %	Carotene dry basis mg/100gm
Nonwilted	75.28	4.00	.93	9.84	7.44	2.51	.63
Wilted	57.00	7.58	.89	16.50	13.61	4.40	.36

Wintering Steer Calves on Alfalfa Silage
(December 22, 1951, to March 17, 1952—86 days)

1.	Lot number	1	2
2.	Number steers per lot	9	9
3.	Ration fed	Nonwilted silage	Wilted silage
4.	Average initial weight, lbs.	387	387
5.	Average final weight, lbs.	372	412
6.	Average gain, lbs.	−15	25
7.	Average daily gain, lbs.	−.17	.29
8.	Average daily ration, lbs.:		
	Nonwilted alfalfa silage, no preservative	24.87	
	Wilted alfalfa silage, no preservative		21.83
	Salt	.04	.04
	Mineral[1]	.05	.04

1 Composed of 2 parts steamed bonemeal to 1 part salt.

Project 253-2: Wintering, Grazing, and Fattening Heifers, 1950-51

E. F. Smith, R. F. Cox, D. L. Good, and D. L. Mackintosh

Introduction

This test was to obtain further information about fattening heifers in regard to the following points:

1. Cottonseed oil meal as compared to soybean oil meal as a protein supplement in winter rations.
2. Influence of the level of wintering on future gain and finishing of heifers.
3. Extending the grazing season on bluestem pasture for heifers that are to be finished for a fall market.
4. Compare full-feeding grain on brome grass to full-feeding grain in dry lot.