

Table 11

A Comparison of Wintering in Dry Lot with Wintering on Dry Bluestem Pasture for Yearling Steers on a Wintering, Grazing, and Fattening Program.

PROJECT 253-1

Phase 1, Wintering, November 16, 1955, to April 7, 1956—143 days.

Lot number	11	12
	Dry lot	Bluestem pasture
Place wintered	Dry lot	pasture
Initial wt. per steer, lbs.	881	876
Final wt. per steer, lbs.	1114	867
Gain per steer, lbs.	230	-9
Daily gain per steer, lbs.	1.61	-.06
Feed per steer daily, lbs.:		
Soybean oil meal pellets	1.0	1.0
Sorghum silage	64.8	
Dry bluestem pasture		Free choice
Prairie hay	1.61	1.02
Salt	.09	Free choice
Mineral (bonemeal and salt)	.06	Free choice
Feed cost per steer, ³ \$	37.79	11.37

1. A limited quantity of prairie hay was fed the last three weeks of the test to lot 1.
2. Prairie hay was fed to pasture 12 only when snow covered the grass; a small quantity of alfalfa was fed when prairie hay was not available.
3. See inside back cover for feed prices.

Supplementing Bluestem Pasture After Mid-Summer with Protein for Two-Year-Old Steers, 1955. Three-Year Summary, 1953-55.

PROJECT 253-4

E. F. Smith, F. H. Baker, R. F. Cox, and G. L. Walker

The nutritive value of bluestem pasture usually declines after mid-summer. This study is concerned with the effect of supplementing the grass after mid-summer with protein to determine if it will profitably increase steer gains. This is the third test; the other two tests are reported in Circulars 308 and 320. A summary of the three tests is reported here.

Experimental Procedure

Twenty head of good-quality two-year-old steers were used. They had been wintered and summer grazed on bluestem pasture until this test started. The steers were divided into two uniform lots on the basis of previous treatment and weight. They were grazed on bluestem pasture from August 2 to October 17, 1955, with the following treatment.

Lot 1—No supplement.

Lot 2—Two pounds of soybean oil meal pellets per head daily.

The steers were rotated on the two pastures each 15 days to minimize differences due to pastures.

Observations

The grass was brown and dry during most of the test; the late summer season was dry. It rained 2.45 inches in July, with 1.3 inches July 1 and .84 inch July 19. No moisture of any consequence was received in August nor in September until September 26 and 27, when 1.35 inches fell.

Feeding the protein supplement increased the gain of each steer only 8 pounds and was not profitable in this test. The steers fed the pro-

tein supplement did not appear to be in any better condition or carry any more bloom than those not fed protein.

Table 12

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

August 2 to October 17, 1955—76 days.

Lot number	1	2
Number steers in lot	10	10
Soybean pellets fed per steer daily, lbs.	0	2
Initial wt. per steer, lbs.	889	894
Final wt. per steer, lbs.	937	950
Gain per steer, lbs.	48	56
Daily gain per steer, lbs.	.63	.74
Gain in wt. attributed to soybean pellets, lbs. per steer	0	8
Total soybean pellets fed per steer, lbs.	0	152
Gain per steer by periods, lbs.:		
August 2 to September 2	19	28
September 2 to October 1	0	17
October 1 to October 17	29 ¹	11

1. Had the September 26-27 rain not come, this gain would probably have been less.

Three-Year Summary, 1953-54-55.

For the three-year average, Table 13, 152 pounds of protein concentrate produced 23 pounds additional gain. On the basis of gain alone, this would hardly be profitable. In two of the three years the steers receiving the protein supplement were judged by a committee of animal husbandmen to be fleshier. It appears, from these tests, that two-year-old steers, supplemented with small amounts of protein in late summer, would have to sell for a higher price compared with non-supplemented cattle to make caking worth while on bluestem pastures.

A study of similar nature is reported in Circular 297; it, too, is a three-year summary for the years 1950-52. Protein supplementation in those tests failed to increase rate of gain.

Table 13

Three-Year Summary. Effect of Feeding a Protein Supplement During the Late Summer to Two-Year-Old Steers on Bluestem Pasture, 1953-55.

August to October—76 days.

Lot number	1	2
Number steers	30	30
Protein fed per steer daily, lbs.	0	2
Initial wt. per steer, lbs.	997	997
Final wt. per steer, lbs.	1066	1089
Gain per steer, lbs.	69	92
Daily gain per steer, lbs.	.91	1.21
Gain in wt. attributed to protein supplement, lbs. per steer	0	23
Total protein fed per steer, lbs.	0	152
Gain per steer by periods, lbs.:		
1st period	35	30
2nd period	19	47
3rd period	15	15

Level of Winter Protein Feeding for Yearling Steers Wintered and Then Summer Grazed on Bluestem Pasture, 1954-55.

Three-Year Summary, 1952-55.

PROJECT 253-4

E. F. Smith, F. H. Baker, R. F. Cox, and G. L. Walker

Earlier experiments conducted at this station demonstrated that yearling steers could be successfully wintered on dry bluestem pasture supplemented with 1½ to 2 pounds of cottonseed cake or soybean oil meal pellets per head daily. The test reported here is the third of a series to determine if this level of winter protein feeding may be lowered to 1 pound per head daily. The first test was reported in Kansas Agr. Expt. Sta. Cir. 308, the second in Cir. 320. The third test and a summary of the three tests are reported here.

Procedure

For the 1954-55 test 20 head of good-quality yearling Hereford steers were divided into two lots of 10 steers each. They were purchased as calves from the Joyce Ranch at Carlsbad, N.M., in the fall of 1953. During the summer of 1954 the steers were used in pasture-management studies. This test was started November 10, 1954, and continued to August 2, 1955. The winter pastures the steers were grazed on had been stocked at a normal rate during the previous summer, but had sufficient grass remaining to provide ample winter grazing. During the winter phase the steers were rotated among pastures to minimize pasture differences.

In addition to dry bluestem pasture, the steers were fed as follows during the winter:

Lot 1—One pound of soybean oil meal pellets per head daily.

Lot 2—Two pounds of soybean oil meal pellets per head daily.

The steers of both lots were grazed together during the summer of 1955.

Observations

In 1954-55 feeding 1 additional pound of soybean pellets during the winter increased the yearly gain by 35 pounds, enough to pay for the additional protein fed. The cost of production was lowered slightly where only 1 pound of soybean oil meal pellets was fed per head daily. Either level of feeding appeared satisfactory. The 2-pound level might have some additional advantage if it gave the cattle better appearance at sale time.

Table 14

Level of Winter Protein Feeding for Yearling Steers Wintered and Summer Grazed on Bluestem Pasture.

Phase 1, Wintering, November 10, 1954, to April 6, 1955—147 days.

Method of feeding	1 lb. soybean pellets daily on dry grass	2 lbs. soybean pellets daily on dry grass
Lot number	1	2
Number steers per lot	10	10
Initial wt. per steer, lbs.	601	597
Final wt. per steer, lbs.	633	663
Gain per steer, lbs.	32	66
Daily gain per steer, lbs.	.22	.45
Daily ration per steer, lbs.:		
Soybean cake	1.00	2.00
Prairie hay ¹	1.83	1.83
Dry bluestem pasture	Free choice	Free choice
Salt	Free choice	Free choice
Mineral (bonemeal and salt)	Free choice	Free choice
Feed cost per steer ²	\$11.22	\$17.24

Table 14 (Continued).

Phase 2, Grazing, April 6 to August 2, 1955—118 days.

Initial wt. per steer, lbs.	633	663
Final wt. per steer, lbs.	876	907
Gain per steer, lbs.	243	244
Daily gain per steer, lbs.	2.06	2.06
Cost per 100 lbs. pasture gain ²	\$8.23	\$8.19

Summary, Phases 1 and 2

Initial wt. per steer, lbs.	601	597
Final wt. per steer, lbs.	876	907
Gain per steer, lbs.	275	310
Total feed cost per steer ²	\$31.22	\$37.24
Feed cost per cwt. gain ²	\$11.35	\$12.01

1. Fed only when snow covered the grass.

2. See inside back cover for feed prices.

Three-Year Summary, 1952-55.

When the three years are combined, as shown in Table 15, it appears that the 1-pound level is somewhat superior, based on winter and summer gains combined. An additional 143 pounds of protein fed during the winter produced only 14 pounds more gain. To make the additional pound of protein pay, it would be necessary to establish that it increases the bloom or condition of the steers so that they would sell for enough more to pay for the additional protein fed.

Table 15

Three-Year Summary, Level of Winter Protein Feeding for Steers Wintered and Summer Grazed on Bluestem Pastures, 1952-55.

Phase 1, Wintering, November to April—143 days.

Method of feeding	1 lb. protein ¹	2 lbs. protein ¹
Lot number	1	2
Number steers per lot	30	30
Initial wt. per steer	687	687
Final wt. per steer	752	789
Gain per steer, lbs.	65	102
Daily gain per steer, lbs.	.45	.71
Daily ration per steer, lbs.:		
Protein ¹	1.00	2.00
Prairie hay ²	1.61	1.61
Dry bluestem pasture	Free choice	Free choice
Salt	Free choice	Free choice
Minerals ³	.19	.16
Feed cost per steer	\$11.33	\$16.91

Phase 2, Grazing, April to August—110 days.

Initial wt. per steer	752	789
Final wt. per steer	990	1004
Gain per steer, lbs.	238	215
Daily gain per steer, lbs.	2.16	1.95
Cost per 100 lbs. pasture gain	\$6.72	\$7.44

Summary of Phases 1 and 2—253 days.

Initial wt. per steer, lbs.	687	687
Final wt. per steer, lbs.	990	1004
Gain per steer, lbs.	303	317
Daily gain per steer, lbs.	1.20	1.25
Total feed cost per steer	\$28.67	\$34.24
Feed cost per cwt. gain	\$9.46	\$10.80

1. Soybean oil meal pellets were fed in 1952-53 and 1954-55; cottonseed cake was fed in 1953-54.

2. Prairie hay was fed only when snow covered the grass.

3. The mineral was 2 parts bonemeal to 1 part salt.

The Use of Stilbestrol Implants for Steer Calves on a Wintering Ration.

PROJECT 253-6

G. L. Walker, E. F. Smith, R. F. Cox, D. Richardson, and B. A. Koch

This test was conducted to study the effect of stilbestrol implants on steer calves fed a wintering type ration. Its value as a growth stimulant in fattening-type rations has been extensively studied; however, little information is available on its use with calves fed high roughage rations.

Experimental Procedure

Twenty-seven steer calves, weighing approximately 399 pounds each, were divided into two lots of 9 and 18² animals. The lot with 18 animals served as a control and the other lot was implanted with 36 mg. of stilbestrol at the base of the right ear.

Sorghum silage was used as the roughage in both lots and the calves were fed all they would consume each day. The concentrate part of the ration consisted of 4 pounds of ground milo grain and 1 pound soybean oil meal pellets for each steer. A mineral mixture consisting of equal parts of bonemeal and salt and salt alone were fed free choice.

Observations

1. Undesirable side effects often noted as a result of stilbestrol implants such as high tailheads or increase in size of reproductive organs were not readily apparent.
2. Stilbestrol increased rate of gain .23 pound per day.
3. Feed efficiency was not increased by stilbestrol implants.

Table 16

The Use of Stilbestrol Implants for Steer Calves on Wintering-Type Rations.

November 30, 1955, to April 7, 1956—129 days.

Lot number	6	17
Number steers	9	18
Initial wt. per steer, lbs.	399	399
Final wt. per steer, lbs.	643	614
Gain per steer, lbs.	244	215
Daily gain per steer, lbs.	1.89	1.66
Daily ration per steer, lbs.:		
Ground milo grain	3.90	3.90
Soybean oil meal pellets	1	1
Sorghum silage	32.98	29.68
Mineral (bonemeal and salt)	.08	.03
Salt	.07	.04
Lbs. feed required per 100 lbs. gain:		
Ground milo grain	206	236
Soybean oil meal pellets	52.86	60.43
Sorghum silage	1744	1795
Mineral (bonemeal and salt)	4.73	2.21
Salt	4.18	2.75
Feed cost per 100 lbs. gain, \$	12.56	13.53

Winter Management for Steer Calves on a Wintering, Grazing, and Fattening Program, 1955-56.

PROJECT 253-6

E. F. Smith, B. A. Koch, R. F. Cox, and G. L. Walker

Dry bluestem pasture has been used successfully several years at this station as a source of winter roughage for steer calves that are

1. Supplied by Wick and Fry, Inc., Cumberland, Ind.
2. Eighteen animals were placed in one lot because it was to be divided into two lots at a later date for other experimental work.

to be grazed during the summer and sold off grass as feeder or stocker yearlings. This is the first attempt to supplement dry grass during the winter with several pounds of grain combined with protein, in an effort to attain sufficient winter gain so the calves could be finished on grain in the late summer and sold as fat yearlings. The test is to determine if dry grass can be supplemented in such a manner that calves will compare favorably in total performance with steer calves wintered on good-quality roughages.

The steers will be grazed until August 1 on bluestem pasture, then fattened in dry lot to choice grade.

Experimental Procedure

Seventeen head of good-quality Hereford steer calves purchased from the Williams Ranches near Lovington, N. M., were assigned to the test. The calves were allotted to their respective treatments on the basis of weight and quality. Eight calves were assigned to the pasture group and nine to the dry-lot group. Nine other calves on a similar treatment were wintered with the dry-lot group.

The treatment assigned to each lot in this experiment is as follows:

Lot 18—Wintered in dry lot on sorghum silage, 4 pounds of ground milo, and 1 pound of soybean pellets per head daily, free access to salt and mineral (bonemeal plus salt); grazed on bluestem from May 1 to August 1, fattened in dry lot from August 1 until they grade choice.

Lot 15—Wintered on dry bluestem pasture, 4 pounds of milo, and 1 pound of soybean pellets per head daily; continued on grass from May 1 to August 1 without supplemental feed; fattened in dry lot from August 1 until they grade choice.

Observations

Since the results of the test will be measured primarily by the yearly performance of the steers, this report is intended only as a progress report on the wintering phase. The steers wintered in dry lot (18) have made a much larger gain at a lower cost per cwt. than the steers in Lot 15 wintered on dry bluestem pasture.

Table 17

Winter Management for Steer Calves on a Wintering, Grazing, and Fattening Program, Progress Report for 1955-56.

November 30, 1955, to April 7, 1956—129 days.

Lot number	18	15
Number steers	91	8
Place of wintering	Dry lot	Bluestem pasture
Initial wt. per steer, lbs.	391	379
Final wt. per steer, lbs.	622	501
Gain per steer, lbs.	231	118
Daily gain per steer, lbs.	1.79	.92
Daily ration per steer, lbs.:		
Ground milo grain	3.9	3.6
Soybean oil meal pellets	1	1
Sorghum silage	29.7	
Prairie and alfalfa hay ²		.57
Dry bluestem pasture		
Salt	.04	.05
Mineral (bonemeal and salt)	.03	.04
Feed cost per steer, ³ \$	29.05	19.56
Feed cost per 100 lbs. gain, ³ \$	12.58	16.58

1. Nine other calves on a similar treatment were wintered with the dry-lot group, making a total of 18 head for the winter.
2. Prairie or alfalfa hay was fed to Lot 15 when snow covered the grass.
3. Feed prices may be found inside the back cover.