

All lots have free access to salt and mineral (equal parts of bone-meal and salt).

Four of the heifers in each lot were implanted with 48 mg. of stilbestrol, results of which will be reported elsewhere.

Observations

This is a progress report on the wintering phase, and only tentative statements are in order. It may be noted, however, that a much larger gain has been made in dry lot. The heifers receiving only 3 pounds of alfalfa hay on dry grass are apparently receiving sufficient protein, since their gain with the additional 1½ pounds of grain is the same as for the heifers receiving 6 pounds of alfalfa hay per head daily.

Table 6

The Value of Dry Bluestem Pasture and a Comparison of Supplements for Heifer Calves in a Wintering, Grazing, and Fattening Program, 1955-56.

PROJECT 253-2

Wintering, November 15, 1955, to April 7, 1956—144 days.

Lot number	4	7	8
Number of heifers	10	9 ¹	10
		bluestem	bluestem
Place wintered	dry lot	pasture	pasture
Initial wt. per heifer, lbs.	473	474	477
Final wt. per heifer, lbs.	644	501	503
Gain per heifer, lbs.	171	27	26
Daily gain per heifer, lbs.	1.19	.19	.18
Daily ration per heifer, lbs.:			
Alfalfa hay	3.00	3.00	6.00
Corn	1.40	1.50	
Sorghum silage	28.0		
Dry bluestem pasture		free choice	free choice
Prairie and alfalfa hay ²		.28	.28
Salt	.07	.03	.03
Mineral (bonemeal and salt)	.09	.04	.04
Feed cost per heifer, ³ \$	23.80	14.19	12.23

1. One heifer was removed from Lot 7 with a prolapsed vagina.
2. A limited quantity of prairie and alfalfa hay was fed when snow covered the ground.
3. Feed prices may be found inside the back cover.

Different Methods of Managing Bluestem Pastures, 1955.

PROJECTS 253-3 and 253-5

E. F. Smith, K. L. Anderson, F. H. Baker, and G. L. Walker

This experiment was to determine effects of different stocking rates, deferred grazing, and pasture burning on livestock gains, productivity of pastures, and range condition as determined by plant population changes. In addition to the yearly report, a summary of the cattle gains for the first six years of this test is included.

Experimental Procedure

Good-quality Hereford two-year-old steers weighing about 700 pounds were used to stock the pastures. They were the light end of the steers used on the pastures in 1954. The method of management of each pasture was:

Pasture 1—Normal rate of stocking, 5 acres per head (5.9 acres per animal unit).

Pasture 2—Overstocked, 3.5 acres per head (4.2 acres per animal unit).

Pasture 3—Understocked, 7.5 acres per head (8.8 acres per animal unit).

Pastures 4, 5, 6—Deferred grazing, 5 acres per head (5.9 acres per animal unit). All steers were held in pastures 4 and 5 until early July, then placed on deferred pasture 6 until mid-September. From mid-September on, they were allowed the run of all three pastures.

Pasture 9—Burned March 8, 1955; normal rate of stocking (5.9 acres per animal unit).

Pasture 10—Burned April 1, 1955; normal rate of stocking.

Pasture 11—Burned April 25, 1955; normal rate of stocking.

The steers were weighed off last September 29, 1955, but remained on the pastures until October 19. From September 29 to October 19 they received about 1.5 pounds of cottonseed cake per head daily.

Observations

1. The cattle gains were greatest on the mid- and late-spring-burned pastures and least on the deferred and on the overstocked pastures.

2. Ample moisture was received early in the season for grass growth, but after early June little moisture was received. It rained 1.31 inches July 1 and 0.84 inch July 19. The total for August was only 0.23 inch. September was extremely dry, with 0.61 inch September 26 and 0.71 inch September 27. Gains were low in August, less than 1 pound per head daily, and steers on most of the pastures showed a weight loss for September except those on pastures 1, 3, and 11.

3. Cattle gains have not yet reflected fully the response of the vegetation to the impact of grazing treatment. During recent drought years there has been a decline in total plant population and in actual amounts of major forage grasses on all pastures. The greatest decline has occurred on the overstocked pasture. Taken as percentage of total plant population to indicate relative importance, the decrease of major forage grasses has been especially pronounced on the overstocked pasture. Such grasses as bluegrass, the grammas, and buffalograss tend to make up an increasing percentage of the plant population under close grazing. They have increased sharply over most of pasture 2 and on a small area, along the eastern edge of pasture 1, which, due to location, is grazed closely.

Another criterion by which the impact of grazing on vegetation may be judged is degree of use. Significantly greater amounts of forage residue remained at the close of the grazing season on pastures 3 (understocked) and 4, 5, 6 (deferred) than on the other pastures. Pastures 2 (overstocked) and 9 (burned in early spring) had the least top growth remaining after the grazing season.

Table 8
Comparison of Different Methods of Managing Bluestem Pastures.
 April 28 to September 29, 1955—155 days.

Pasture number	1	2	3	4, 5, 6	9	10	11
Management	Normally stocked	Over-stocked	Under-stocked	Deferred rotated	Early spring burned	Mid-spring burned	Late spring burned
Number of steers per pasture	12	17	8	36	9	9	9
Acres in pasture	60	60	60	3-60 ¹	44	44	44
Number acres per head	5	3.53	7.5	5	4.89	4.89	4.89
Initial wt., lbs.	697	695	688	692	700	693	697
Final wt., lbs.	967	919	941	905	982	998	1004
Gain per steer, lbs.	270	224	253	213	282	305	307
Daily gain, lbs.	1.74	1.45	1.63	1.37	1.82	1.97	1.98
Gain per acre, lbs.	54	63.46	33.73	42.6	57.67	62.37	62.78

1. Three 60-acre pastures.

(14)

Table 9
Yearly Account of Cattle Gains under Different Methods of Grazing Pastures.
 Six-Year Summary, 1950-1955.

Gain per Steer in Pounds for the Summer Season of Approximately 150 Days.

Pasture number	1	2	3	4, 5, 6	9	10	11
Management	Normally stocked	Over-stocked	Under-stocked	Deferred-rotation grazing	Early spring burned	Mid-spring burned	Late spring burned
1950	221	210	214	205	216	254	230
1951	242	256	290	234	243	265	254
1952	246	209	228	197	251	278	283
1953	226	194	233	197	205	217	234
1954	261	237	236	214	270	271	306
1955	270	224	253	213	282	305	307
Average	244	222	242	210	245	265	269

Table 10

Trends in Relative Amounts of Native Grasses on Ordinary Upland Range Sites¹ as Affected by Grazing Treatment. Amounts Expressed as Percentage of Total Vegetation.

	Portion of total plant population			
	Decreasers ²		Increaseers ³	
	1950	1955	1950	1955
Overstocked, Pasture 2	60	29	26	57
Moderately stocked, Pasture 1	69	56	17	20
Understocked, Pasture 3	55	53	31	26
Deferred-rotation, Pastures 4, 5, 6	65	44	25	35

1. Rolling uplands with deep, permeable soils constitute the major portion of the trial area.

2. The more valuable forage grasses, mainly bluestems and indiagrass.

3. The less valuable forage grasses, mainly bluegrass, gramas, buffalo-grass, and other short grass types.

A Comparison of Wintering in Dry Lot with Wintering on Dry Bluestem Pasture for Yearling Steers on a Wintering, Grazing, and Fattening Program, 1955-56.

PROJECT 253-4

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Yearling steers often are used by Kansas producers in a wintering, grazing, and fattening program or some variation of it. They can usually be purchased at a lower price per hundredweight than steer calves and may be finished with a relatively shorter feeding period in the late summer or fall. They consume large quantities of roughage, which may increase their feed cost considerably in the wintering phase. This study is concerned with lowering the cost of wintering and its effect on future performance, especially with respect to the effect on the carcass produced. The steers will be grazed on bluestem pasture until about July 1, when they will be started on a full feed of grain. They will be marketed when they reach the choice slaughter grade.

Experimental Procedure

Twenty head of good-quality yearling Hereford steers were used in the test. They were purchased from the Lonker Ranch, Medicine Lodge, Kan., as calves and were grazed on bluestem pastures during the summer of 1955. November 16, they were divided into two lots of 10 steers each. The only difference in treatment planned for the two lots is in the method of wintering. The treatment for each lot is as follows:

Lot 11—wintered in dry lot on good-quality roughage supplemented with protein; grazed on bluestem pasture from May to July 1; full fed grain on grass from July 1, until they grade choice.

Lot 12—Wintered on dry bluestem pasture supplemented with protein; grazed on bluestem pasture until July 1; full fed grain on grass from July 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. Wintering in dry lot on good-quality roughage has proved much superior to wintering on dry grass at this stage. The steers wintered on dry grass just about maintained their weight, whereas those in dry lot gained 230 pounds each.

(15)