

Table 8  
Monthly gain (pounds per head) of steers on four native bluestem pastures,  
December 5, 1961, to November 1, 1962—331 days.

Lot no.	7A		7B		7C		7D	
	Monthly gain	Accumulative gain	Monthly gain	Accumulative gain	Monthly gain	Accumulative gain	Monthly gain	Accumulative gain
December	5	5	-22	-22	-4	-4	-4	-4
January	-10	-5	-12	-34	-17	-21	-8	-12
February	-14	-19	9	-25	3	-18	7	-5
March	-27	-46	-39	-64	-19	-40	-42	-47
April	10	-36	18	-46	26	-14	34	-13
May	107	71	120	74	127	113	115	102
June	52	123	39	113	32	145	32	184
July	64	187	58	171	74	219	73	207
August	52	239	64	235	36	255	42	249
September	42	281	23	258	41	299	50	299
October	-29	252	15	273	-2	297	-13	286

(26)

Different Methods of Managing Bluestem Pastures, 1962 (Projects 253-3 and 253-5).

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This experiment was designed to determine the effect of different stocking rates, of deferred grazing, and of pasture burning on cattle performance, productivity of pastures, and range condition as determined by plant population changes. In addition to the yearly report, a summary of cattle gains for the past 13 years of the study is included.

Experimental Procedure

Yearling Hereford steers with an average USDA feeder grade of about high good were used in 1962. The steers came from near Fort Davis, Texas, and were wintered at the Manhattan Station on prairie hay and alfalfa hay the winter preceding the grazing season. Due to a shortage of yearlings to stock the pastures, some two-year-old steers were assigned to each pasture to increase the stocking rate. Their weight gains are not reported.

The experimental treatment for each pasture was:

Pasture 1. Moderate stocking rate, 3.3 acres per steer.

Pasture 2. Overstocked, 1.8 acres per steer.

Pasture 3. Understocked, 4.6 acres per steer.

Pastures 4, 5, and 6. Deferred grazing at the moderate stocking rate, 3.3 acres per steer. The steers were grazed on Pastures 5 and 6 from May 2 to July 2. They were then moved to Pasture 4 where they remained until September 15, when all were allowed to graze in all three pastures until October 3, close of trial.

Pasture 9. Burned March 19, 1962, moderate rate of stocking.

Pasture 10. Burned April 10, 1962, moderate rate of stocking.

Pasture 11. Burned May 2, 1962, moderate rate of stocking.

The steers were gathered about 2 p.m., held over night without feed or water and weighed the following morning, about 8 a.m. The starting and final weights were obtained after putting all the steers together and weighing them in random order.

Observations

The results are reported in Tables 9, 10, and 11.

Steer gains appeared to be lowered by all treatments, especially deferred grazing and overstocking. This is the second consecutive year and the only two years when the weight gain on the nonburned Pasture 1 exceeded the gain made by steers on the mid- and late-spring-burned pastures. Forage was sufficient only on Pasture 9 among the burned pastures to permit the entire pasture to be burned. This is two consecutive years the entire early-spring-burned pasture has burned. Only about three fourths of the mid-spring-burned pasture burned and very little of the late-spring-burned pasture was burned; only on the slopes was there sufficient forage to permit burning; new growth was apparent on over half of the pasture by May 2, which hampered burning where little old growth was available to carry the fire.

Yields of vegetation were approximately equal to those of the previous year, but range condition has declined slightly under burning and heavy grazing. This appears to contribute to the somewhat lower yields of beef under those treatments.

Table 9  
Yearly account of summer steer gains under different methods of grazing pastures; 13-year summary, 1950-62. Average gain per steer in pounds for the summer season of approximately 150 days.

Pasture no.	1	2	3	4, 5, 6	9	10	11
Management	Moderately-stocked	Over-stocked	Under-stocked	Deferred rotated	Early-spring-burned	Mid-spring-burned	Late-spring-burned
1950	221	210	214	205	216	254	230
1951	242	256	240	234	243	265	254
1952	246	209	228	197	251	278	253
1953	226	194	233	197	205	217	234
1954	231	237	236	214	270	271	306
1955	270	224	253	213	232	305	307
1956	179	184	168	154	212	234	216
1957	243	236	241	209	251	256	279
1958	208	207	207	198	222	270	253
1959	252	241	262	203	254	275	295
1960	267	242	255	235	299	289	314
1961	255	217	227	187	243	245	237
1962	232	177	215	167	201	205	212
Average	239	218	233	201	243	259	263

(28)

Table 10  
A comparison of different methods of managing bluestem pastures, May 2, 1962, to October 2, 1962—153 days.

Pasture no.	1	2	3	4, 5, 6	9	10	11
Management	Moderately-stocked	Over-stocked	Under-stocked	Deferred	Early-spring-burned	Mid-spring-burned	Late-spring-burned
No. steers per pasture	18	33	13	51	14	14	14
Yearling steers	16	28	12	48	12	12	12
Two-year-old steers <sup>1</sup>	2	5	1	6	2	2	2
Acres in pasture	60	60	60	3-60 <sup>2</sup>	44	44	44
Acres per head	3.3	1.8	4.6	3.3	3.1	3.1	3.1
Initial wt. per steer, lbs.	473	481	479	487	485	483	485
Final wt. per steer, lbs.	705	658	634	654	686	688	697
Gain per steer, lbs.	232	177	215	167	201	205	212
Daily gain per steer, lbs.	1.52	1.16	1.41	1.09	1.31	1.34	1.39
Gain per acre	62	79	43	45	55	56	58

<sup>1</sup> Acres per head include two-year-olds but all gain data are on yearling steers only.

<sup>2</sup> Three 60-acre pastures.

(29)

Table 11  
Production and disappearance of forage, weeds, and mulch in 1962, yields given as pounds air-dry weight per acre.

Pasture no.	1	2	3	4, 5, & 6 (av.)	9	10	11
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
Ordinary uplands—Forage	3,470	3,104	4,310	4,364	2,163	3,005	2,959
Weeds	456	558	139	192	333	267	170
Mulch	2,919	1,823	3,682	2,761	(a)	(a)	(a)
Limestone breaks—Forage	2,643	1,984	2,890	3,150	1,922	2,670	1,960
Weeds	386	388	176	348	675	712	143
Mulch	1,605	849	2,280	3,189	(a)	(a)	(a)
Disappearance (an index of grazing use)							
Ordinary uplands—Forage	1,528	1,993	955	1,587	1,060	1,417	1,402
Weeds	306	258	(b)	(b)	139	139	99
Mulch	992	466	126	571	(a)	(a)	(a)
Limestone breaks—Forage	867	961	179	833	891	754	631
Weeds	82	134	53	326	205	509	(b)
Mulch	287	(b)	(b)	279	(a)	(a)	(a)
Remainder (amount left as cover at close of grazing season)							
Ordinary uplands—Forage	1,942	1,291	3,355	2,477	1,103	1,594	1,557
Weeds	156	300	139	192	194	128	80
Mulch	1,927	1,417	3,556	2,190	(a)	(a)	(a)
Limestone breaks—Forage	1,776	1,023	2,711	2,317	1,031	1,916	1,329
Weeds	304	254	123	122	470	293	143
Mulch	1,318	849	2,580	2,910	(a)	(a)	(a)
Gross decreases and gross increases given as % of total population, and estimated range condition given as %							
Ordinary uplands—Gross decreases	46	36	45	47	39	63	65
Gross increases	35	36	32	36	31	18	19
Range condition	54	42	50	51	50	75	80
Limestone breaks—Gross decreases	58	49	65	60	15	65	74
Gross increases	24	29	24	23	70	21	18
Range condition	75	69	84	78	57	87	91

a. No mulch in burned pastures.  
b. No measurable disappearance.

The Value of Supplemental Cobalt for Heifers on Fattening Rations, 1961-62 (Project 253-6).

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The 40 heifer calves, 10 per lot, used in this experiment were good to choice Herefords from near Fort Davis, Texas, and were assigned on a random weight basis to their treatments.

All lots received all the prairie hay they would consume; ground shelled corn was gradually increased until they were on full feed; then the ground corn was self-fed. Soybean oil meal was fed once daily in a separate bunk, ground limestone was added to the soybean oil meal to supply 1/10 pound daily per head, and vitamin A concentrate was added to the soybean oil meal to supply 10,000 I.U. daily per head. Cobalt sulfate was added to the soybean oil meal of two of the lots to supply 1 mg. of cobalt daily per head.

Results of the trial are reported in Table 12. There were no significant differences among the lots, although a small increase in gain and carcass weight occurred in the cobalt-supplemented lots.

Table 12  
The value of supplemental cobalt in the ration of fattening heifers, December 4, 1961, to October 11, 1962—311 days.

Lot no.	19	20	21	22
Treatment	Control	Control	Cobalt	Cobalt
No. heifers per lot	10	10	10	10
Initial wt. per heifer, lbs.	379	379	378	381
Daily gain per heifer, lbs.	1.77	1.84	1.94	1.91
Daily ration per heifer, lbs.:				
Ground corn, self-fed	10.98	11.23	11.69	11.99
Soybean meal <sup>1</sup>	1.53	1.54	1.53	1.58
Prairie hay	4.05	4.14	4.31	4.28
Salt, free choice				
Feed per cwt. gain, lbs.:				
Ground corn	618.70	610.70	602.70	626.94
Soybean meal	86.27	83.65	79.07	82.40
Prairie hay	228.35	224.90	222.47	223.85
Feed cost per cwt. gain <sup>1</sup>	\$18.54	\$18.25	\$17.88	\$18.53
Carcass data:				
Average carcass wt., lbs.	597	594	627	619
Average packer yield, %	64.1	62.5	64	63.4
Average USDA grade <sup>4</sup>	13.7	13.6	14.2	13.2
Average yield grade <sup>5</sup>	4.6	4.6	4	3.9
Average marbling score <sup>6</sup>	5.1	5.3	4	5.2

1. Cobalt was mixed with the soybean meal fed to lots 21 and 22 in the form of CoSO<sub>4</sub> · 7H<sub>2</sub>O at the rate of 1 mg. of cobalt daily.

2. The soybean meal of all lots was fortified to furnish per head daily a tenth of a pound of ground limestone and 10,000 I.U. of vitamin A.

3. Feed prices may be found on inside back cover.

4. Average grade determined as follows: High choice, 15; average choice, 14; low choice, 13; high good, 12.

5. Score from 1 to 6 on basis of yield, with 1 being the highest yield in closely trimmed boneless retail cuts.

6. Average marbling determined as follows: Moderately abundant, 3; slightly abundant, 4; moderate, 5; modest amount, 6.