

Table 59.—Comparison of different methods of managing bluestem pasture, 1954.

Pasture number	1	2	3	4, 5, 6	7	8	9
Management	Normal stocked	Overstocked	Understocked	Deferred rotation	Early spring burned	Mid-spring burned	Late-spring burned
Number head per pasture	17	25	13	51	12	12	12
Acres in pasture	60	60	60	3-60*	44	44	44
Number acres per head	3.53	2.4	4.62	3.53	3.67	3.67	3.67
Initial wt. per steer, lbs.	456	456	462	456	463	454	457
Final wt. per steer, lbs.	717	693	698	670	733	725	763
Gain per steer, lbs.	261	237	236	214	270	271	306
Daily gain per steer, lbs.	1.65	1.50	1.49	1.35	1.71	1.72	1.94
Gain per acre, lbs.	73.94	98.75	51.08	60.62	73.57	73.84	83.38

* Three 60-acre pastures.

Table 60.—Yearly account of cattle gains under different methods of grazing pastures. Five-year summary, 1950-1954

Pasture number	1	2	3	4, 5, 6	7	8	9
Management	Normal stocked	Overstocked	Understocked	Deferred rotation	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
Average	239	221	240	209	237	257	263

The Effect of Grazing Systems on Livestock and Vegetation

Comparison of Different Methods of Managing Bluestem Pastures, 1954.

PROJECTS 253-3 and 253-5

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

This experiment is to determine effects of different stocking rates, deferred grazing, and burning on livestock gains, productivity of pastures, and range condition as determined by plant population changes. In addition to the yearly report, a brief summary of the cattle gains for the first 5 years of this test is included.

Experimental Procedure

Good-quality Hereford yearling steers weighing about 460 pounds were used to stock the pastures. The method of management of each pasture was:

Pasture 1—Normal rate of stocking, 3.5 acres per head.

Pasture 2—Overstocked, 2.4 acres per head.

Pasture 3—Understocked, 4.6 acres per head.

Pastures 4, 5, 6—Deferred and rotation grazing, 3.5 acres per head.

All steers were held in two pastures until July 1, then turned in to the protected pasture until it seemed advisable to allow them the run of all three pastures.

Pasture 7—Burned February 23, 1954; rate of stocking, 3.67 acres per head.

Pasture 8—Burned April 10, 1954; rate of stocking, 3.67 acres per head.

Pasture 9—Burned April 24, 1954; rate of stocking, 3.67 acres per head.

Observations

1. The cattle grazing in all the pastures made satisfactory gains. However, greatest gains were made by steers in the late-spring burned pasture, and least gains by steers in pastures handled in the deferred and rotation grazing system.

2. June and July were very hot and dry, which reduced the growth of grass and lowered cattle gains. However, several August rains resulted in satisfactory regrowth of grass.

3. Effects of the various stocking treatments on the vegetation did not become apparent until 1952. Before that, the better than average moisture conditions resulted in better than average growth of forage. This tended to obscure the effects of heavy grazing. Despite the drought of the past three years, bluestem vegetation, as measured by vegetative population counts, improved under light stocking and under deferred grazing, while rather severe depletion developed under heavy stocking.

Chief criterion for evaluating range condition is the vegetative population. Under conservative use the major forage species, big bluestem, little bluestem, Indiangrass, and switchgrass, are increasing while less productive forage species and weedy invaders are decreasing. Opposite trends are noted in the pastures stocked heavily and are beginning to be evident in early- and mid-spring burned pastures.

Wintering and Grazing Yearling Steers

The Most Efficient Level of Winter Protein Feeding for Yearling Steers Wintered and Summer Grazed on Bluestem Pasture, 1953-54.

PROJECT 253-4

E. F. Smith, F. H. Baker, R. F. Cox, and L. A. Holland

Experiments conducted at this station during the past five years have demonstrated that yearling steers can be successfully wintered

on dry bluestem pasture with 1½ to 2 pounds of cottonseed or soybean oil meal or cake per head daily. The experiment reported here is the second of a series of tests designed to determine if the level of winter protein feeding may be reduced without affecting the yearly performance of the steers. Results of the first trial indicated that yearling steers wintered and grazed on bluestem pasture made more economical annual gains when they received a winter ration of 1 pound of soybean cake daily than when fed 2 pounds of soybean cake daily.

Procedure

Twenty head of good-quality Hereford yearling steers, 10 per lot, were used. They were purchased as steer calves in the fall of 1953 from the Brite Ranch at Marfa, Texas, and used in summer grazing tests on bluestem pasture in 1953. During the winter phase of this test the steers were moved from pasture to pasture every 15 days to minimize any differences due to pastures. The winter pastures the steers were grazed in had been stocked at normal rate during summer, but had sufficient grass remaining to provide ample winter grazing.

In addition to dry bluestem pasture, the steers were fed in the following manner during the winter:

Lot 1—1 pound of cottonseed cake per head daily.

Lot 2—2 pounds of cottonseed cake per head daily.

The steers of both lots were grazed together during the summer of 1954.

Observation

The steers wintered on 1 pound of cake per head daily made 7 pounds more annual gain than those fed 2 pounds of cake per head daily during the winter.

Table 61.—Wintering and grazing yearling steers.

Phase 1—Wintering, October 26, 1953-April 1, 1954—158 days			
Lot number	1	2	
Number of steers per lot	10	10	
Method of feeding	1 lb. cottonseed cake daily on dry grass	2 lbs. cottonseed cake daily on dry grass	
Initial wt. per steer, lbs.	743	743	
Final wt. per steer, lbs.	838	872	
Gain per steer, lbs.	95	129	
Daily gain per steer, lbs.61	.83	
Daily ration per steer, lbs.:			
Cottonseed cake	1.00	2.00	
Mineral (bone meal and salt)16	.12	
Salt	Free choice	Free choice	
Dry bluestem pasture	Free choice	Free choice	
Feed cost per steer*	\$11.47	\$17.13	
Phase 2—Grazing, April 1-August 4, 1954—122 days			
Initial wt. per steer, lbs.	838	872	
Final wt. per steer, lbs.	1091	1084	
Gain per steer, lbs.	253	212	
Daily gain per steer, lbs.	2.07	1.74	
Cost per 100 lbs. pasture gain*	\$6.32	\$7.55	
Summary Phases 1 and 2			
Initial wt. per steer, lbs.	743	743	
Final wt. per steer, lbs.	1091	1084	

Table 61 (Continued).

Gain per steer, lbs.	348	341
Total feed cost per steer*	\$27.47	\$33.13
Feed cost per cwt. gain*	\$ 7.89	\$ 9.72

* Feed prices: Cottonseed cake, \$75 per ton; mineral (2 lbs. bone meal to 1 lb. salt), \$4 per cwt.; salt, \$0.75 per cwt.; winter pasture, \$0.75 per month; summer grazing, \$16.

Wintering and Grazing Yearling Steers

The Most Efficient Level of Winter Protein Feeding for Yearling Steers Wintered and Grazed on Bluestem Pasture, 1954-55.

PROJECT 253-4

F. H. Baker, R. F. Cox, E. F. Smith, and L. A. Holland

This is a progress report of the wintering phase of the third trial of this experiment. The results of the first trial were reported in Kansas Agr. Expt. Sta. Cir. 308, and the second trial on page 63 of this publication. This experiment was conducted to determine if 1 pound or 2 pounds of soybean cake per head daily is the more profitable method to winter yearling steers on bluestem pasture. The results are to be measured by the combined winter and summer gains and the condition of the cattle.

Experimental Procedure

Twenty good-quality Hereford yearling steers were used in this test. They were purchased as steer calves in the fall of 1953 from the Joyce Ranch near Carlsbad, N.M. During the summer of 1953 the steers were used in pasture management experiments. The current test was initiated November 10, 1954, and continued to April 6, 1955. To minimize differences due to pastures, the steers were moved monthly from pasture to pasture.

Observations

1. The weather was quite severe for wintering cattle on dry grass pasture. This is reflected in the gains of both lots of steers. Compared with the two previous experiments, the gains were reduced about 50 percent.

2. The winter gains of the steers fed 2 pounds of cake were significantly higher than those of the lot fed 1 pound of cake. However, the economical and practical significance of the results cannot be determined until the end of the summer grazing phase of the test.

Table 62.—Wintering and grazing yearling steers.

Phase 1—Wintering Nov. 10, 1954-April 6, 1955—147 days			
Lot number	1	2	
Method of feeding	1 lb. soybean cake daily on dry grass	2 lbs. soybean cake daily on dry grass	
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.	0.22	0.45	