Table 16

A comparison of different methods of managing bluestem pastures.
May 5, 1959, to November 2, 1959—181 days.

Pasture number	1	2	3	4, 5, 6	9	10	11
Management	Normally stocked	Over-stocked	Under-stocked	Deferred	Early-spring-burned	Mid-spring-burned	Late-spring-burned
Number animals per pasture:							
Steers	17	21	11	50	12	12	12
Heifers[2]	2	6	2	9	2	2	2
Acres in pasture	60	60	60	3-60[1]	44	44	44
Acres per head	3.2	2.2	5.0	3.1	3.1	3.1	3.1
Initial wt. per steer, lbs.	461	462	464	467	463	468	472
Final wt. per steer, lbs.	713	703	726	670	717	743	767
Gain per steer, lbs.	252	241	262	203	254	275	295
Daily gain per steer, lbs.	1.39	1.33	1.45	1.12	1.40	1.52	1.63
Gain per acre, lbs.	79	110	52	65	82	89	95

1. Three 60-acre pastures.
2. The heifers were used to increase the stocking rate; their gains are not reported. They were removed from the pastures July 24.

Table 17

Yearly account of cattle gains under different methods of grazing pastures; 10-year summary, 1950-1959. Average 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 rotated	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
1956	179	184	168	154	212	234	216
1957	243	236	244	209	261	256	279
1958	208	207	207	198	222	270	253
1959	252	241	262	203	254	275	295
Average	**235**	**220**	**234**	**202**	**242**	**263**	**266**

Table 18

Vegetational composition by major groups of plants in major range sites. Amounts given are percentages of total population for 1959.

Treatment	Total[1] big bluestem, little bluestem, indiangrass	Total[2] perennial grass increasers	Total veg. other than perennial grass
Ordinary upland range site			
Not burned	%	%	%
Heavy stocking	35	34	30
Moderate stocking	56	23	19
Light stocking	52	25	21
Def.-rot. grazing[3]	54	25	15
Burned (moderate stocking)			
Early spring	46	28	25
Mid-spring	71	13	15
Late spring	75	15	8
Limestone breaks range site			
Not burned	%	%	%
Heavy stocking	46	24	28
Moderate stocking	68	18	13
Light stocking	65	18	15
Def.-rot. grazing[3]	72	17	10
Burned (moderate stocking)			
Early spring	54	21	24
Mid-spring	72	18	8
Late spring	75	15	9
Clay range sites[4]			
Not burned	%	%	%
Heavy stocking	27	38	31
Moderate stocking	30	36	31
Light stocking	35	46	17
Def.-rot. grazing[3]	38	36	15
Burned (moderate stocking)			
Early spring	6	79	21
Mid-spring	6	83	10
Late spring	17	67	9

1. The two bluestems and indiangrass are the most abundant grasses in these pastures that decrease under heavy grazing pressure.
2. These include the gramas, buffalograss, bluegrass, and others that increase under grazing pressure.
3. Average of pastures 4, 5, and 6.
4. Clay upland sites in the pastures not burned but claypan sites in those burned. The latter are somewhat more restrictive in terms of moisture and plant growth.

Stilbestrol Implants[1] for Steer Calves on a Wintering, Grazing, and Fattening Program; the Value of Aureomycin[2] during the Wintering and Fattening Periods, 1958-1959 (Project 253-6).

E. F. Smith, B. A. Koch, F. W. Boren, and B. D. Carmack

The Hereford steer calves used in this experiment were assigned to experimental lots randomly according to weight. They originated near Paducah, Texas, and graded USDA Good as feeders. All received the same basic ration from December 1, 1958, to April 28, 1959. They were grazed on bluestem pasture from April 28, 1959, to July 24, 1959, and were self-fed grain on grass from July 24 to November 14, 1959.

1. The stilbestrol implants were supplied by Chas. Pfizer & Co., Inc., Terre Haute, Ind.
2. The Aureomycin was supplied by the American Cyanamid Company, Pearl River, N.Y.

This is the second trial of this experiment. The first is reported on page 22, Circular 371.

The experimental treatment was as follows:

Lot 22. Control group of 10 steer calves implanted with 24 mgs. of stilbestrol August 1, 1959.

Lot 19. Ten steer calves implanted with 24 mgs. of stilbestrol May 7, 1959.

Lot 20. Twelve steer calves, all implanted with 24 mgs. of stilbestrol December 2, 1958; four were reimplanted with 24 mgs. of stilbestrol May 7, 1959, and four others were reimplanted August 1, 1959, leaving only four with the original fall implant. See Table 19 for gains of different implant groups.

Lot 21. Twelve steer calves received the same treatment as lot 20 except for receiving 70 mgs. of Aureomycin per head daily during wintering and fattening phases.

Observations

Results of this test are reported in Tables 19 and 20. In Table 19 a 24-mg. stilbestrol implant increased winter gain slightly; 70 mgs. of Aureomycin fed to implanted animals tended to further increase gains. The stilbestrol-Aureomycin combination produced 0.24 pound more gain per head daily during the winter and slightly reduced feed required for 100 pounds of gain.

Table 20 shows the results of implanting steers with stilbestrol in the fall, spring, and at mid-summer before fattening. A 24-mg. implant in the spring following a fall implant did not increase summer gains. Steers implanted in the spring for the first time tended to gain slightly more during the summer than those previously implanted or those not implanted.

A fall implant tended to lose its effect by August, when the fattening period started.

Previous implants slightly increased gains during the fattening period.

As shown in Table 19, three implants tended to lower carcass grade. Aureomycin in the fattening ration increased both gains and carcass grade of steers implanted at three different dates: fall, spring, and mid-summer.

Table 19

Stilbestrol implants for steer calves on a wintering, grazing, and fattening program; the value of Aureomycin during wintering and fattening periods.

Phase 1—Wintering—December 1, 1958, to April 28, 1959—148 days.				
Lot number	22	19	20	21
Number steers	10	10	12	12
Treatment	Control—Stilbestrol implant Aug. 1, 1959	Stilbestrol implant May 7, 1959	Stilbestrol implant Dec. 2, 1958[1]	Stilbestrol implant Dec. 2, 1958[1] and Aureomycin[2]
Initial wt. per steer, lbs.	488	489	494	495
Gain per steer	265	267	284	302
Daily gain per steer	1.79	1.80	1.92	2.04
Daily ration per steer, lbs.:				
Sorghum grain	4.8	4.8	4.8	4.8
Soybean meal	0.5	0.5	0.5	0.5
Sorghum silage	24.1	24.0	25.7	25.2
Alfalfa hay	3.0	3.0	3.0	3.0
Bonemeal	0.1	0.1	0.1	0.1
Stilbestrol implants, 24-mg.[1]	No	No	Yes	Yes

1. All steers in lots 20 and 21 were implanted with 24 mgs. stilbestrol December 2, 1958; four were reimplanted May 7, 1959, with 24 mgs., and four were reimplanted August 1, 1959. See Table 20 for gains by phases of each implanted group.

Table 19 (Continued)

Aureomycin, 70 mgs. per head daily[2]	No	No	No	Yes
Salt, free choice				
Feed per cwt. gain, lbs.:				
Sorghum grain	266	264	248	234
Soybean meal	28	28	26	25
Sorghum silage	1345	1330	1334	1235
Alfalfa hay	168	166	156	147
Feed cost per cwt. gain[3]	$11.34	$11.24	$10.79	$10.09
Phase 2—Grazing—April 28, 1959, to July 24, 1959—87 days.				
Initial wt. per steer	753	756	778	797
Gain per steer	37	55	40	40
Daily gain per steer	0.43	0.63	0.46	0.46
Stilbestrol implants, 24-mg.	No	Yes	See footnote No. 1	
Phase 3—Fattening—July 24, 1959, to November 14, 1959—113 days.				
Initial wt. per steer	790	811	818	837
Gain per steer	297	291	282	317
Daily gain per steer	2.63	2.58	2.50	2.81
Daily ration per steer, lbs.:				
Ground corn, self-fed	16.4	16.9	16.9	17.8
Soybean meal	1.5	1.5	1.5	1.5
Ground limestone	0.1	0.1	0.1	0.1
Salt, free choice				
Bluestem pasture, free choice				
Stilbestrol implants, 24-mg.	Yes	Implanted May 7	See footnote No. 1	
Aureomycin, 70 mgs. per head daily	No	No	No	Yes
Feed per cwt. gain:				
Ground corn	624	657	657	635
Soybean meal	57	58	58	53
Feed cost per cwt. gain[3]	$18.72	$19.51	$20.13	$18.68
Summary of Phases 1, 2, and 3—December 1, 1958, to November 14, 1959—348 days.				
Final wt. per steer, lbs.	1087	1102	1100	1154
Gain per steer, all phases	599	613	606	659
Daily gain per steer	1.72	1.76	1.74	1.89
Feed cost per steer[3]	$ 92.64	$ 93.77	$ 94.41	$ 96.69
Feed cost per cwt. gain	$ 15.47	$ 15.30	$ 15.58	$ 14.67
Sale price per cwt., live wt., based on carcass value[4]	$ 23.78	$ 23.27	$ 22.83	$ 23.04
Return or loss per steer above feed cost and initial steer cost at 34¢ a lb.	$ −0.05	$ −3.59	$ −10.58	$ −0.89
Dressing percentage	59.4	59.0	58.2	58.6
Av. carcass grade, USDA[5]	16.9	16.8	15.8	16.7
Av. marbling score[6]	7.7	7.8	8.4	7.8

2. Aureomycin was mixed with the soybean meal and fed at the rate of 70 mgs. per head daily during the wintering and fattening phases.

3. Feed prices may be found inside back cover.

4. Sale price per cwt. was based on the following carcass value per cwt.: Choice, $41; good, $39; standard, $35.

5. The USDA grade, high standard, was assigned a numerical grade of 15; low good, 16; average good, 17.

6. Degree of marbling: A score of 7 indicates small amount, 8 indicates slight amount, and 9 indicates traces only. The higher the score, the less marbling.

Table 20

The effect of implanting steers with stilbestrol at different times during a wintering, grazing, and fattening program.

	Number of steers per treatment	Winter gain, Dec. '58 to Apr. '59, 148 days	Summer gain, Apr. '59 to July '59, 87 days	Fattening gain, July '59 to Nov. '59, 113 days	Total gain, Dec. '58 to Nov. '59, 348 days	Average carcass grade[1]
Implanted in December, 1958, with 24 mgs.	8[2]	297	48	278	623	16.5[2]
Implanted in December, 1958, and April, 1959, with 24 mgs. each time	7[2]	289	42	299	630	16.0[2]
Implanted in December, 1958; April, 1959; August, 1959, with 24 mgs. each time	8[2]	289	31	320	640	16.3[2]
Implanted in May, 1959, with 24 mgs.	10	267	55	291	613	16.8
Implanted in August, 1959	10	265	37	297	599	16.9

1. The USDA grade, low good, was assigned a numerical score of 16; average good, 17.

2. Half of the animals in each implant group are from lot 20 and half from lot 21, except where seven steers are listed; one steer in this group from lot 20 died.

The Value of Diethylstilbestrol Implants[1] and Implants plus an Antibiotic[2] for Wintering Steer Calves, 1959-60.

E. F. Smith, B. A. Koch, D. Richardson, and F. W. Boren

Forty-four good-to-choice Hereford steer calves from near Fort Davis, Texas, were randomly allotted according to weight to three treatments. All lots were fed the same high roughage rations. They received per head daily: 5 pounds of sorghum grain and 1 pound of soybean meal. Sorghum silage was fed according to appetite, and salt was offered free choice.

The experimental treatments were as follows:

Lot 1. Control.

Lot 2. Each steer implanted with 24 mgs. of diethylstilbestrol in the right ear.

Lot 3. Each steer implanted with 24 mgs. of diethylstilbestrol in the right ear and fed 70 mgs. of Aureomycin per head daily. The Aureomycin was added to the soybean meal.

The animals in this experiment will be grazed and fattened during the summer and fall of 1960; some will be reimplanted with diethylstilbestrol to collect more information on its use in a wintering, grazing, and fattening program.

Observations

Weight gains and feed efficiency of steers on high roughage rations were increased by the use of a 24-mg. diethylstilbestrol implant given each steer in the ear. Including 70 mgs. of Aureomycin in the feed per steer daily in addition to the diethylstilbestrol implant resulted in further weight-gain increase and improved feed efficiency.

1. The diethylstilbestrol implants (Stimplants) were furnished by Chas. Pfizer & Co., Inc., Terre Haute, Ind.

2. Chlortetracycline (Aureomycin) was furnished by American Cyanamid Company, Pearl River, N.Y.

Table 21

The value of diethylstilbestrol implants with and without chlortetracycline (Aureomycin) for wintering steer calves.

December 1, 1959, to March 25, 1960—115 days.

Treatment	Control	Diethylstilbestrol implant	Diethylstilbestrol implant and Aureomycin
Lot number	1	2	3
Number steers	20	12	12
Initial wt. per steer, lbs.	520	524	523
Daily gain per steer, lbs.	1.46	1.61	1.84
Standard error of mean	± .05	± .08	± .09
Daily ration per steer, lbs.:			
Soybean oil meal	1.00	1.00	1.00
Sorghum grain	5.00	5.00	5.00
Sorghum silage	29.4	31.0	33.0
Salt, free choice	Yes	Yes	Yes
Diethylstilbestrol implant, 24-mg.	No	Yes	Yes
Aureomycin, 70 mgs. per head daily	No	No	Yes
Feed per cwt. gain, lbs.:			
Soybean oil meal	69	62	54
Sorghum grain	342	311	271
Sorghum silage	2013	1927	1790
Feed cost per cwt. gain[1]	$13.76	$12.74	$11.66

1. Feed prices may be found inside back cover.

Rolled vs. Finely Ground Pelleted Sorghum Grain in Cattle Rations. Project 567.

D. Richardson, E. F. Smith, B. A. Koch, F. W. Boren, and W. S. Tsien

This was the third test to further compare rolled or cracked sorghum grain with finely ground pelleted sorghum grain in cattle rations. Previous tests have shown increased rate of gain and feed efficiency when the grain was finely ground and pelleted.

Experimental Procedure

Twenty Hereford steer calves were divided as equally as possible on the basis of weight and conformation into two lots of 10 animals each. The average daily rations are shown in Table 22 for the wintering and fattening phases. The ingredients were the same in both lots except rolled grain was used in lot 1 and finely ground pelleted grain in lot 2. The concentrate part of the ration was kept constant, with all the roughage the animals would clean up.

Results and Observations

Results of the wintering and fattening phase, including a summary, are shown in Table 22. Weight gains and feed efficiency were improved in both the wintering and fattening phases by finely grinding and pelleting sorghum grain. Cost per unit of gain was less with pelleted grain, allowing $3 per ton for pelleting. The animals receiving the pelleted grain consumed less total feed per day. Since the amount of concentrates was kept constant, the difference was in roughage. Dressing percentage and carcass grades were highest for animals fed pelleted grain.

Table 22

Rolled sorghum grain vs. finely ground pelleted sorghum grain in steer rations.

Wintering phase, December 2, 1958, to March 12, 1959—100 days.

Lot number	1	2
Number steers per lot	10	10
Av. initial wt., lbs.	418	424