

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 Implants¹ and Implants plus an Antibiotic² 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

Table 22 (Continued)

Av. final wt., lbs.	568.5	586.5
Av. daily gain per steer, lbs.	1.51	1.63
Av. daily ration, lbs.:		
Alfalfa hay	4.0	4.0
Atlas sorghum silage	14.1	12.65
Rolled sorghum silage	14.1	12.65
Rolled sorghum grain	4.0	
Pelleted sorghum grain		4.0
Soybean oil meal	0.5	0.5
Salt	0.05	0.02
Bonemeal-salt mixture	0.06	0.04
Feed per cwt. gain, lbs.:		
Alfalfa hay	264.9	245.3
Atlas sorghum silage	933.8	776.1
Rolled sorghum grain	264.9	
Pelleted sorghum grain		245.3
Soybean oil meal	33.1	30.7
Salt	3.4	1.0
Bonemeal-salt mixture	4.0	2.4
Feed cost per cwt. gain ¹	\$10.89	\$10.16
Fattening phase, March 13, 1959, to October 7, 1959—209 days.		
Av. initial wt., lbs.	568.5	586.5
Av. final wt., lbs.	1013.5	1063.0
Av. daily gain per steer, lbs.	2.13	2.28
Av. daily ration, lbs.:		
Alfalfa hay	5.5	2.5
Atlas sorghum silage ²	7.5	7.5
Dehydrated alfalfa pellets	0.5	0.5
Soybean oil meal	0.5	0.5
Rolled sorghum grain	13.5	
Pelleted sorghum grain		13.5
Salt07	.04
Bonemeal-salt mixture04	.04
Feed per cwt. gain, lbs.:		
Alfalfa hay	257.0	109.2
Atlas sorghum silage	200.0	187.3
Dehydrated alfalfa pellets	23.5	21.9
Soybean oil meal	23.5	21.9
Rolled sorghum grain	636.4	
Pelleted sorghum grain		594.3
Salt	3.2	1.7
Bonemeal-salt mixture	1.8	1.7
Feed cost per cwt. gain	\$16.89	\$15.94
Summary, Wintering and fattening, December 2, 1958, to October 7, 1959—309 days.		
Av. total gain, lbs.	595.5	639.0
Av. daily gain, lbs.	1.93	2.07
Av. feed cost per cwt. gain	\$15.37	\$14.47
Percent shrink to market	2.5	2.3
Av. dressing percentage (including 2% cooler shrink)	59.9	61.7
Av. carcass grade ³	11.5	12.6
Av. degree of marbling ⁴	7.2	6.7

1. Based on ingredient prices given on inside back cover.

2. Average for first 118 days. Removed from ration at this time.

3. Based on av. choice, 14; low choice, 13; top good, 12; av. good, 11; and low good, 10.

4. Based on modest amount, 6; small amount, 7; slight amount, 8.

The Value of Grain Sorghum Harvested as Silage and as Dehydrated Pellets. Project 567.

Progress Report

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

This is a progress report of the second test to determine the value of the entire grain sorghum plant in beef cattle rations when harvested as silage or as dehydrated pellets. RS 610 was the hybrid used. The yield was about 85 bushels of grain or approximately 9 tons of silage per acre. The crop was harvested when the grain was in the late-dough stage. Most of the leaves were still green.

Twenty of the heaviest steer calves were equally divided into two lots of 10 each for this test. All animals received soybean oil meal, dehydrated alfalfa pellets, and minerals. One lot is receiving silage and the other dehydrated pellets in the amount that they will clean up. Table 23 gives the gains, feed efficiency, and cost of gain for the first 112 days.

Table 23

Grain sorghum silage vs. dehydrated grain sorghum pellets in steer rations.

December 3, 1959, to March 24, 1960—112 days.

Lot number	5	6
Number animals per lot	10	10
Av. initial wt., lbs.	561	560
Av. final wt., lbs.	788	755
Av. daily gain per animal, lbs.	2.03	1.74
Av. daily ration, lbs.:		
Grain sorghum silage	37.6	
Dehydrated grain sorghum pellets		13.2
Soybean oil meal	1.0	1.0
Dehydrated alfalfa pellets	1.0	1.0
Feed per cwt. gain, lbs.:		
Grain sorghum silage	1857	
Dehydrated grain sorghum pellets		757
Soybean oil meal	49	57
Dehydrated alfalfa pellets	49	57
Feed cost per cwt. gain	\$12.58	\$22.75

Artificially Dried Corn in Cattle Rations
Progress Report

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

With improved harvesting machinery, grain is being harvested earlier. In many cases, this is done before the grain has dried sufficiently to be stored. This means that some method must be used to lower the moisture content to a safe level if the grain is to enter normal storage. There are ways of drying grain with and without heated air.

The wet milling industry has for many years had difficulty in processing corn artificially dried at high temperatures. Opinions vary about the effect drying grain has on its feeding value. Results of controlled work to evaluate any effect produced are scanty. This is a progress report of a test to study the effect on its feeding value for cattle of artificially drying corn. The corn was produced at the Courtland Irrigation Research Farm near Belleville. The drying was done by the Agricultural Engineering Department. All of the corn came from the same field. Three lots of 10 animals each are being used in this test. Sorghum silage is fed as the roughage and each animal receives 1 pound of soybean oil meal daily. Minerals and salt are fed free choice. The corn for each lot was dried as follows:

Lot 7. Harvested November 2, initial moisture 25%, final moisture 13.5%. Dried 394 hours with 1½-hp Butler natural air-drying system (no heat).