

Table 2 (Continued)

% shrink to market	4.5	3.6	4.1
Av. dress. % based on final feedlot wt. (including 2% cooler shrink)	56.6	57.6	56.4
Av. dress. % based on market wt.	59.2	59.7	58.8
Av. carcass grade before ribbing ⁸	11.2	11.2	11.1
Av. carcass grade after ribbing ⁸	11.3	11.9	11.2
Av. fat thickness at 12th rib, vis. est. ⁷	3.9	3.6	3.7
Av. uniformity of fat distribution ⁹	4.1	3.8	3.8
Av. degree of marbling ⁹	7.4	7.3	7.6
Av. size ribeye, vis. est. ¹⁰	4.5	4.3	4.6
Av. size ribeye, sq. in.	10.2	9.8	9.8
Av. degree of firmness ¹¹	4.6	4.2	4.6
Av. initial cost per animal @ 24¢/lb.	105.96	105.96	105.84
Av. total feed cost	\$ 77.24	83.02	69.48
Av. total cost animal and feed	\$183.20	188.98	175.32
Av. carcass value (Ch 41¢ and G 38¢)	180.25	185.72	181.70

6. Based on top choice 15, av. choice 14, low choice 13, top good 12, av. good 11, low good 10.

7. Based on thick 2, moderate 3, modest 4, slightly thin 5.

8. Based on uniform 2, moderate 3, modest 4, slightly thin 5.

9. Based on slightly abundant 4, moderate 5, modest 6, small amount 7, slight amount 8.

10. Based on large 2, moderately large 3, modestly large 4, slightly small 5.

11. Based on firm 2, moderately firm 3, modestly firm 4, slightly firm 5.

Fundamental Studies of Sorghum Roughages and Grains. I. A Study of the Value of Feeding the Grain Sorghum Plant as Silage and as Dehydrated Pellets. II. A Study of the Value of Pelleting Sorghum Grain. Project 222.

D. Richardson, E. F. Smith, F. W. Boren, B. A. Koch, R. F. Cox, and O. J. Keltz

Combine-type sorghum grain is widely grown in Kansas and normally only the grain is harvested. In many instances, moisture conditions are such at harvest time that grain cannot be stored without artificially drying. Sometimes there is danger of loss to immature grain because of an early freeze. One part of this test was to study the feasibility of harvesting the entire grain sorghum plant as silage or as dehydrated pellets. Previous tests have indicated greater utilization of finely ground pelleted sorghum grain than cracked sorghum grain. The second part of the test was further work in comparing the two methods of preparation. This report is on the wintering phase of the feedlot test.

Experimental Procedure

Forty Hereford steer calves from the same herd were divided as equal as possible on the basis of weight and conformation into four lots of 10 animals each. Grain sorghum from the same field, estimated to yield 45 bushels per acre, was used to make the grain sorghum silage and dehydrated grain sorghum pellets. It produced approximately 6 tons of silage or 2½ tons of dehydrated pellets per acre. Grain from another source was used for cracking and pelleting. The daily ration for all animals consisted of 4 pounds alfalfa hay and 0.5 pound soybean oil meal plus the following:

Lot 1. Average of 7.65 pounds dehydrated grain sorghum pellets.

Lot 2. Average of 20.55 pounds grain sorghum silage.

Lot 3. Average of 14.1 pounds Atlas sorghum silage and 4 pounds cracked sorghum grain.

Lot 4. Average of 12.65 pounds Atlas sorghum silage and 4 pounds finely ground pelleted sorghum grain.

An attempt was made to keep the dry matter intake the same in lots 1 and 2. Salt and a mineral mixture of 2 parts steamed bonemeal and

1 part salt were fed free choice. Water was supplied in automatic electrically-heated water fountains.

Results and Observations

Results of the wintering phase of this test are shown in Table 3. Rate of gain was the same in lots 1 and 2. The gains were economical in lot 2; however, the cost of dehydrating and pelleting considerably increased the cost of gain in lot 1. The silage and pellets were palatable and no digestive disturbances or other trouble were experienced during the test. Animals in lot 4, receiving the finely ground pelleted grain, gained slightly faster and utilized their feed more efficiently than those that received the cracked grain (lot 3). The difference was great enough to more than offset the additional cost of pelleting. The fattening phase of this test is now in progress. All the hay has been removed from lots 1 and 2 and grain increased in lots 3 and 4.

Table 3

Comparative results with (1) dehydrated grain sorghum pellets and grain sorghum silage, and (2) cracked sorghum grain and finely ground pelleted sorghum grain in beef steer wintering rations.

Wintering phase—December 2, 1958, to March 11, 1959—100 days.

Lot number	1	2	3	4
Number calves per lot	10	10	10	10
Av. initial wt., lbs.	415.5	416	418	424
Av. final wt., lbs.	550.5	552	568.5	586.5
Av. daily gain per calf, lbs.	1.35	1.36	1.51	1.63
Av. daily ration, lbs.:				
Alfalfa hay	4	4	4	4
Grain sorghum silage		20.55		
Atlas sorghum silage			14.1	12.65
Dehydrated grain sorghum pellets	7.65			
Cracked sorghum grain			4	
Pelleted sorghum grain				4
Soybean oil meal .....	.5	.5	.5	.5
Salt .....	.035	.018	.052	.016
Bonemeal-salt mixture .....	.085	.061	.061	.039
Feed per cwt. gain, lbs.:				
Alfalfa hay	296.3	294.1	264.9	245.3
Grain sorghum silage		1511		
Atlas sorghum silage			933.8	776.1
Dehydrated grain sorghum pellets	566.7			
Cracked sorghum grain			264.9	
Pelleted sorghum grain				245.3
Soybean oil meal	37	36.8	33.1	30.7
Salt	2.6	1.3	3.4	1.0
Bonemeal-salt mixture	6.3	4.5	4.0	2.4
Feed cost per cwt. gain ¹	\$17.59	10.86	10.89	10.16

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

The Value of Implanting Beef Steer Calves on a Fattening Ration with Stilbestrol and Synovex Pellets. Project 222.

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

Stilbestrol and Synovex implants are used with beef cattle to stimulate increased gains. This test was planned to study level of stilbestrol implant and the effect of stilbestrol and Synovex implants on rate of gain and carcass quality. Animals within each lot in Project 222 were randomly allotted to the various treatments of this test. Treatments were control

(no implant), 24 mgs. stilbestrol implant, 36 mgs. stilbestrol implant, and Synovex implant. All implants were made at the base of the ear.

Results and Observations

Results of this test are shown in Table 4. All implants greatly improved rate of gain; however, Synovex-S showed a greater increase in this test. Average daily gains in a previous test were 1.94, 2.64, 2.31, and 2.22 pounds, respectively for control, 24 and 36 mgs. of stilbestrol and Synovex-S. When both tests are considered, implants of 24 mgs. of stilbestrol produced the highest rate of gain followed by Synovex and 36 mgs. of stilbestrol. It is interesting that carcass conformation scores tended to be higher for animals implanted with stilbestrol; however, there was a tendency for carcasses from all implanted animals to grade slightly lower. The differences were small, but they did show up when average value per 100 pounds of carcass was calculated. The design of the test did not permit feed efficiency data to be gathered.

Table 4

Results of implanting beef steer calves on fattening rations with 24 and 36 mgs. of stilbestrol and Synovex-S pellets.

March 17, 1958, to August 2, 1958—138 days.

Treatment	Control	24 mgs. stilbestrol	36 mgs. stilbestrol	Synovex-S ¹
Number animals per treatment	12	10	10	10
Av. initial wt., lbs.	615.4	630.0	632.5	631.0
Av. final wt., lbs.	859.2	932.5	931.0	955.0
Av. daily gain, lbs.	1.77	2.19	2.16	2.35
Av. carcass conformation grade ²	13.1	13.4	13.6	13.0
Av. carcass grade before ribbing ³	11.3	11.5	11.3	11.4
Av. carcass grade after ribbing ⁴	11.1	10.6	10.3	10.7
Av. fat thickness at 12th rib, vis. est. ⁵	3.8	3.4	3.9	3.5
Av. uniformity of fat distribution ⁶	3.8	3.7	4.0	4.0
Av. degree of marbling ⁷	7.3	7.8	7.9	7.8
Av. size of ribeye, vis. est. ⁸	4.3	4.5	4.7	4.3
Av. size ribeye, sq. in.	10.0	10.2	10.2	10.2
Av. degree of firmness ⁹	4.7	4.8	4.7	4.5
Av. value carcass per cwt., Ch 41¢ and G 38¢	\$38.77	38.34	38.00	38.00

- Based on top choice 15, av. choice 14, low choice 13, top good 12, av. good 11, low good 10.
- Based on thick 2, moderate 3, modest 4, slightly thin 5.
- Based on uniform 2, moderately uniform 3, modestly uniform 4, slightly uneven 5.
- Based on modest amount 6, small amount 7, slight amount 8, traces 9.
- Based on large 2, moderately large 3, modestly large 4, slightly small 5.
- Based on firm 2, moderately firm 3, modestly firm 4, slightly firm 5.
- 200 mgs. progesterone and 20 mgs. estradiol benzoate.

Fundamental Studies of Sorghum Roughages and Grains. A Study of the Value of Pelleting Sorghum Grain. Project 222.

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

A previous test with steers indicated improved efficiency of sorghum grain in a fattening ration when it was finely ground and pelleted. This test was an effort to further evaluate finely-ground, pelleted sorghum grain in beef cattle rations.

Experimental Procedure

Forty Hereford steer calves from the same herd were divided as equally as possible, on the basis of weight and conformation, into four lots of 10

animals each. Two additional steers became available 10 days after the test started and they were added to lot 3. The daily wintering ration consisted of 1 pound soybean oil meal, 5 pounds grain, 2 pounds alfalfa hay, and all the sorghum silage they would clean up. Salt and a mineral mixture of 2 parts steamed bonemeal and 1 part salt were fed free choice. The grain used was as follows: Lot 1, rolled sorghum grain; lot 2, cracked corn; lot 3, finely-ground, pelleted sorghum grain; lot 4, finely-ground sorghum grain. The fattening ration was the same except silage was removed after 32 days. An attempt was made to maintain the same level of grain in all lots.

Results and Observations

Results of this test are shown in Table 5. Rate of gain and feed efficiency during the wintering phase were exceptionally good. The slightly lower rate of gain in lot 4 was caused primarily by two animals which had to be treated for foot rot.

The results of the fattening phase are shown; however, there is some doubt as to their value because of a severe outbreak of foot rot in lot 3 about midway of the fattening period. Seven animals were affected and several lost as much as 40 pounds before recovering. There was one case in each of lots 1 and 2, and also a chronic boaster in lot 1.

Table 5

Comparative results with cracked corn, cracked sorghum grain, finely-ground sorghum grain and finely-ground, pelleted sorghum grain in beef steer calf rations.

Wintering phase—December 7, 1957, to March 17, 1958—100 days.

Lot number	1	2	3	4
Number calves per lot	10	10	12	10
Av. initial wt., lbs.	431	432	426.3	432
Av. final wt., lbs.	636	628	623.3	620
Av. daily gain per calf, lbs.	2.05	1.96	2.00	1.88
Av. daily ration, lbs.:				
Sorghum silage	19.2	17.6	17.7	17.8
Alfalfa hay	2.0	2.0	2.0	2.0
Soybean oil meal	1.0	1.0	1.0	1.0
Cracked sorghum grain	5.0			
Corn		5.0		
Pelleted sorghum grain			5.0	
Finely-ground sorghum grain				5.0
Lbs. feed per cwt. gain:				
Sorghum silage	938	897	870	945
Alfalfa hay	97.6	102	100	106.4
Soybean oil meal	48.8	51.0	50.0	53.2
Cracked sorghum grain	243.9			
Corn		255.1		
Pelleted sorghum grain			250.0	
Finely-ground sorghum grain				266.0
Feed cost per cwt. gain ¹	\$10.57	11.54	10.76	11.26

Fattening phase—March 17, 1958, to August 2, 1958—138 days.

Lot number	1	2	3	4
No. steers per lot	10	10	12	10
Av. initial wt., lbs.	636.0	628.0	623.3	620.0
Av. final wt., lbs.	891	931.5	904.6	941.5
Av. total gain, lbs.	255	303.5	281.3	321.5
Av. daily gain per steer, lbs.	1.85	2.20	2.04	2.33
Av. daily ration, lbs.:				
Sorghum silage ²	16.7	14.5	11.1	14.5
Alfalfa	6.2	5.2	3.4	5.5

1. Based on silage \$7 per ton, alfalfa hay \$16 per ton, soybean oil meal \$70 per ton, ground sorghum grain \$2 per cwt., pelleted sorghum grain \$2.10 per cwt., mineral mixture \$50 per ton, salt \$20 per ton.
2. Sorghum silage fed only first 32 days.