

Table 32

Results with and without Stilbestrol in the Wintering and Fattening Ration of Heifer Calves.

Wintering Phase, November 16, 1954, to April 5, 1955—140 days.

Lot	1	2 ¹
Number heifers per lot	5	5
Av. initial wt., lbs.	336	338
Av. final wt., lbs.	577	592
Av. total gain, lbs.	241	254
Av. daily gain, lbs.	1.72	1.82
Av. daily ration, lbs.:		
Soybean oil meal	1.00	1.00
Ground milo grain	4.00	4.00
Atlas sorghum silage	22.57	22.54
Salt	.13	.11
Mineral (½ bonemeal, ½ salt)	.18	.18
Lbs. feed per 100 lbs. gain:		
Soybean oil meal	58.09	55.03
Ground milo grain	232.37	220.13
Atlas sorghum silage	1311.2	1240.17
Salt	7.72	5.90
Mineral (½ bonemeal, ½ salt)	10.79	10.22
Feed cost per 100 lbs. gain	\$13.63	\$13.33

Fattening Phase, April 5, 1955, to September 20, 1955—169 days.

Av. initial wt., lbs.	577	592
Av. final wt., lbs.	919	955
Av. total gain, lbs.	342	363
Av. daily gain, lbs.	2.02	2.15
Av. daily ration, lbs.:		
Soybean oil meal	1.00	1.00
Ground milo grain	15.74	16.44
Alfalfa hay	1.78	1.78
Prairie hay	3.26	3.59
Lbs. feed per 100 lbs. gain:		
Soybean oil meal	49.1	46.3
Ground milo grain	778.1	765.3
Alfalfa hay	87.7	82.6
Prairie hay	161.4	167.2
Feed cost per 100 lbs. gain ²	23.88	23.78
% shrink to market	4.46	5.34
Dressing % (hot wt.)	61.18	59.87
Dressing % (chilled wt.)	59.93	58.72
Actual 48-hr. cooler shrink (lbs.)	55.0	52.0
% 48-hr. cooler shrink	2.05	1.92

Carcass grade:	before ribbing	after ribbing
Low prime		1
Top choice		1
Av. choice	2	3
Low choice	2	2
Top good	1	3
Av. good		1
Low good		2
Degree of marbling:		
Slightly abundant		1
Moderate		
Modest	4	
Small	1	
Slight		3
Traces		1

1. Received 10 milligrams stilbestrol per head daily.

2. Soybean oil meal, \$70 per T.; milo grain, \$2.50 per cwt.; alfalfa hay, \$25 per T.; prairie hay, \$20 per T.; stilbestrol @ .7c per head daily.

Table 32 (Continued).

Av. size rib-eye, sq. in.	11.52	10.92
Av. fat thickness, cm.	1.55	1.79
Av. firmness ³	2.8	3.6
Av. % moisture in rib-eye	73.43	73.10
Av. press fluid in rib-eye, ml./25 gm.	5.68	7.12
Av. % moisture in fat	8.02	7.27

3. Based on very firm, 1; firm, 2; moderately firm, 3; modestly firm, 4; slightly soft, 5; soft, 6.

Table 33

Average Results of Cooking Rib Roasts from Heifers Fed Rations with and without Stilbestrol.

	Control	10 mg. stilbestrol per head daily for 309 days
Number of roasts	5	5
% total loss	22.1	20.6
% volatile loss	16.8	15.0
% drip loss	5.3	5.6
Cooking time, min. per lb.	40.0	38.1
Internal temperature, from oven	158 °F.	158 °F.
Internal temperature, maximum	162 °F.	162 °F.
Palatability scores: ¹		
Aroma	9.1	8.9
Flavor, lean	8.2	8.9
Flavor, fat	8.3	8.6
Tenderness	8.3	8.5
Juiciness	8.1	8.4
Shear values, lbs. ²	17.9	18.0
Press fluid yields, ml./25 gm.: ²		
Total	7.8	9.1
Serum	6.3	7.6
Fat	1.5	1.5

1. The higher the figure, the more desirable the score (10 = maximum).

2. Values obtained from rib-eye.

The Value of Stilbestrol in Beef Cattle Rations.

PROJECT 370

D. Richardson, E. F. Smith, and R. F. Cox

This is the second test in an experiment to determine the value of stilbestrol in the deferred cattle-feeding program. This report gives information on the wintering phase of this test.

Experimental Procedure

Twenty-seven Hereford steer calves were divided as equally as possible into three lots of 9 animals each. One lot received stilbestrol at the rate of 5 milligrams per head daily for the first 56 days. The rate was increased to 10 milligrams per head daily for the remainder of the test. Previous work indicated a lower level for young calves might be more desirable during the first part of the feeding period. The other two lots served as controls. Due to lack of pen space, they were fed together. All animals will graze bromegrass pasture without stilbestrol this summer. After returning to the feed lot, all animals except one control lot will receive stilbestrol in the fattening ration.

Results

The results of this test are shown in Table 34.

Observations

1. Rate and efficiency of gain were higher for animals fed stilbestrol.
2. Marked differences in high tailheads and weak loins were not ob-

served. This test and previous work indicate that a low level (5 mg. per head daily) of stilbestrol may be more desirable than a higher level (10 mg. per head daily) when fed to steer calves.

Table 34

Results with and without Stilbestrol in the Wintering Ration of Beef Steer Calves.

November 30, 1955, to April 17, 1956—129 days.

Lot number	5 ¹	17A	17B
Number steers per lot	9	9	9
Av. initial wt., lbs.	397	402	397
Av. final wt., lbs.	645	622	607
Av. total gain, lbs.	248	220	210
Av. daily gain, lbs.	1.92	1.70	1.63
Av. daily ration, lbs.:			
Soybean oil meal	1.0	1.0	1.0
Ground milo	3.9	3.9	3.9
Atlas sorgo silage	30.1	29.7	29.7
Mineral (bonemeal and salt)	.08	.03	.03
Salt	.08	.04	.04
Lbs. feed per 100 lbs. gain:			
Soybean oil meal	52.0	58.6	61.4
Ground milo	203.2	229.1	240.0
Atlas sorgo silage	1563.7	1741.3	1824.2
Mineral (bonemeal and salt)	4.3	1.8	1.9
Salt	4.3	2.3	2.4
Feed cost per 100 lbs. gain, ² \$	12.48	12.98	13.81

1. Received 5 milligrams of stilbestrol per head daily for first 56 days and 10 milligrams per head daily thereafter.

2. Stilbestrol cost figured at .06 cent per milligram.

The Effect of Spaying and Feeding of Stilbestrol on the Performance of Heifer Calves on Wintering (High Roughage) Rations, 1955-56.

PROJECT 370

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

Spaying is the act of removing the ovaries, which are the primary source of the estrogenic hormones. Stilbestrol is a synthetic compound resembling these estrogenic hormones in its physiological action. Experimental evidence indicates that spaying lowers the rate of gain, whereas stilbestrol has been successfully used in increasing rate of gain in fattening yearling steers. This test is a study of the effect of: 1. spaying, 2. spaying plus stilbestrol, 3. nonspaying, and 4. nonspaying plus stilbestrol, on the performance of heifer calves on a high roughage ration.

Experimental Procedure

Forty good-quality Hereford heifer calves from the Williams Ranches near Lovington, N. M., were used in the test. They were divided into four lots of 10 heifers each on the basis of weight and quality. The heifers were started on test November 16, 1955. November 17 two lots were spayed. The four lots of heifers were fed the same feeds: 3.8 pounds of ground milo grain and 1 pound of soybean oil meal per head daily, all of the sorghum silage they would eat, and free access to bonemeal and salt. About 6 pounds of alfalfa hay was fed per head daily during the last 17 days of the test.

1. The stilbestrol was furnished by the Eli Lilly Company, Indianapolis, Ind., as Stilbosol (a diethylstilbestrol premix).

The experimental treatment for each lot was as follows:

Lot 7—Spayed.

Lot 8—Spayed plus 5 mg. of stilbestrol per head daily the first 56 days, and 10 mg. per head daily during the remainder of the test.

Lot 9—Nonspayed (control lot).

Lot 10—Nonspayed plus 5 mg. of stilbestrol per head daily during the first 56 days of the test and 10 mg. per head daily during the remainder of the test.

The stilbestrol was fed mixed with the soybean oil meal.

Observations

1. Spaying depressed the rate of gain (compare Lots 7 and 9). Apparently the spaying operation itself did not seriously retard the heifers, as may be seen in the table showing the gain of the spayed and nonspayed heifers by periods. The nonspayed heifers made their greatest increase in gain over the spayed heifers during the latter part of the feeding trial. The spayed heifers were least efficient in converting feed to weight gains.

2. Stilbestrol increased the daily gain on spayed heifers by .17 pound (see Lots 7 and 8). However, the spayed heifers fed stilbestrol, Lot 8, did not perform so well as the nonspayed control group, Lot 9.

3. Stilbestrol did not increase the gain of nonspayed heifers.

4. Stilbestrol did not seem to have any harmful effects except that one heifer in Lot 10 had a slightly protruding vagina, but she appears to have recovered with no treatment.

Table 35

The Effect of Spaying and Feeding of Stilbestrol on the Performance of Heifer Calves on Wintering Rations.

November 16, 1955, to April 7, 1956—143 days.

Treatment	Spayed	Spayed ¹ plus stilbestrol	Nonspayed	Nonspayed ¹ plus stilbestrol
Lot number	7	8	9	10
Number heifers per lot	10	10	10	10
Initial wt. per heifer, lbs.	366	365	364	365
Final wt. per heifer, lbs.	574	597	613	613
Gain per heifer, lbs.	208	232	249	248
Daily gain per heifer, lbs.	1.45	1.62	1.74	1.73
Daily ration per heifer, lbs.:				
Ground milo grain	3.81	3.81	3.81	3.81
Soybean oil meal	1.02	1.02	1.02	1.02
Sorghum silage	25.54	25.29	24.86	25.10
Alfalfa hay ²	.82	.81	.82	.81
Mineral (bonemeal and salt)	.07	.08	.05	.06
Salt	.07	.06	.05	.07
Lbs. feed required per 100 lbs. gain:				
Ground milo grain	262	235	219	220
Soybean oil meal	70	63	59	59
Sorghum silage	1756	1559	1428	1448
Alfalfa hay	56	51	47	47
Mineral (bonemeal and salt)	5	3	3	4
Salt	5	5	3	4
Feed cost per 100 lbs. gain ³	15.48	13.55	12.44	12.85

1. Five mg. of stilbestrol was fed the first 56 days of the test and 10 mg. thereafter.

2. Alfalfa hay was fed only the last 17 days of the test at the rate of about 6 pounds per head daily.

3. Feed prices may be found inside the back cover; .6 cent per head per day was charged for 10 mg. of stilbestrol.