

Table 40 (Continued).

Necessary selling price per cwt. to cover		
initial cost plus feed cost .....	19.24	18.09
Carcass data <sup>2</sup>		
Dressing percentage, chilled .....	62.8	61.5
Carcass grade, USDA		
Shipped 12-30-56:		
Av. choice .....		1
Low choice .....	1	1
High good .....		2
Low good .....	1	
Shipped 1-28-57:		
High choice .....		1
Av. choice .....	3	2
Low choice .....	3	1

**Bringing Cattle to Full Feed of Grain Rapidly (with and without Stilbestrol Implants) (Project 253-6).**

B. A. Koch, E. F. Smith, and R. F. Cox

Bringing cattle to a full feed of grain in the shortest time possible is one way to reduce the total time they require to reach market weight. Producers are always faced with the problem of bringing cattle on feed too fast and causing digestive upsets, which lengthen the feeding period. This study was designed to determine what advantage could be gained by mixing cottonseed hulls with the grain ration. One half the animals in the study were implanted with stilbestrol to secure further information as to its value.

**Experimental Procedure**

Twenty head of good-quality two-year-old steers were used in the study. The animals were divided into two uniform lots on the basis of previous treatment and weight. At the start of the study the steers were consuming approximately 25 pounds of cottonseed hulls, 1 pound of alfalfa meal pellets, and 1 pound of soybean pellets per head daily. One half the animals in each lot were implanted in the ear with 84 mg. of stilbestrol on the first day of the study. All animals received a tenth pound of ground limestone mixed in the feed daily and had free access to salt and water during the study. The concentrate portion of the ration was mixed with the cottonseed hulls each day and, as the quantity of milo was increased, the quantity of hulls was decreased.

Treatment differences were as follows:

Lot 1—Started at 4 pounds milo per day and increased 1 pound per head per day until the average daily intake was 12 pounds per head. The cattle were held at that level for one week. The milo intake was then increased 1 pound per day until the animals were eating 22 pounds per head on the 25th day of the trial.

Lot 2—Started at 6 pounds of milo per head daily and increased 2 pounds per head per day until the animals were eating 24 pounds per head on the 10th day of the trial.

**Observations**

1. All animals went to full feed without incident. About the 35th day both lots showed signs of going off feed. Milo intake was reduced to 20 pounds per head daily in both lots.

2. An occasional case of mild bloat was noted throughout the trial.

3. Cattle brought on feed fast showed a considerable weight advantage at the end of the first 28-day period. However, for the overall period there was no significant difference in gain.

4. Cost of gain favored the animals brought to full feed at the slower rate.

5. The cattle implanted with stilbestrol made a significantly greater daily gain.

6. Some side effects were noted in some of the implanted animals (raised tailheads, elongated teats).

7. The steers were grouped according to stilbestrol treatment and sold on the Kansas City market. All steers sold for the same price—\$19.25 per cwt.

Table 41

**Two-Year-Old Steers Brought on Feed at Two Different Rates and Fed for 80 Days.**

February 27, 1956, to May 18, 1956.

Lot number .....	1	2
Number steers .....	9 <sup>1</sup>	10
Av. initial wt., lbs. ....	1038	1033
Av. daily gain, lbs. per day .....	3.16±0.21 <sup>2</sup>	3.28±0.20 <sup>2</sup>
1st 28-day period .....	2.02	4.41
2nd 28-day period .....	4.58	2.82
3rd 24-day period .....	2.82	2.46
Av. daily ration, lbs.:		
Cottonseed hulls .....	9.1	7.5
Milo grain .....	17.1	20.0
Soybean pellets .....	2.0	2.0
Alfalfa pellets .....	1.0	1.0
Feed cost per 100 lbs. gain <sup>3</sup> .....	\$17.81	\$18.92
Carcass grades: <sup>4</sup>		
Choice .....	2	2
Choice - .....	1	3
Good + .....	3	3
Good .....	2	2
Good - .....	1	

1. One steer removed during trial.

2. Standard error of mean.

3. Feed prices inside back cover.

4. Steers were slaughtered 30 days after end of feeding trial (total feeding period 110 days).

Table 42

**Two-Year-Old Steers with and without Stilbestrol Implants Fed for 80 Days.**

February 27, 1956, to May 18, 1956.

Treatment .....	Control	Implanted <sup>1</sup>
Number steers .....	9 <sup>2</sup>	10
Av. initial wt., lbs. ....	1042	1030
Av. daily gain, lbs. per day .....	2.91±0.20 <sup>3</sup>	3.49±0.17 <sup>3</sup>
1st 28-day period .....	3.45	3.12
2nd 28-day period .....	3.18	4.09
3rd 24-day period .....	1.99	3.25
Carcass grades: <sup>4</sup>		
Choice .....	2	3
Choice - .....	3	
Good + .....	4	2
Good .....		4
Good - .....		1

1. Seven 12-mg. pellets of stilbestrol in the ear (84 mg. total).

2. One steer removed during the study.

3. Standard error of mean.

4. Steers were slaughtered 30 days after the end of the feeding trial (total feeding period 110 days).

E. F. Smith, D. Richardson, B. A. Koch, D. L. Mackintosh, and W. E. Stitt

Spaying is removing the ovaries, the primary source of 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 to increase rate of gain in fattening yearling steers. This test is a study of the effect of: 1. spaying, 2. spaying plus stilbestrol, 3. non-spaying, and 4. nonspaying plus stilbestrol on the performance of heifer calves on a high roughage ration, followed by a fattening 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 wintering test. On April 7 the heifers were started on a full feed of grain. During this fattening period the heifers in all lots had free access to ground milo grain in one bunk and alfalfa hay in another bunk. 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. In Phase 1, the wintering period, spaying depressed the rate of gain (compare lots 7 and 9). Stilbestrol increased the daily gain on spayed heifers by 0.17 of a pound (see lots 7 and 8). However, the spayed heifers fed stilbestrol in lot 8 did not perform so well as the nonspayed control group, lot 9. Stilbestrol did not increase the gain of the nonspayed heifers. Feed efficiency was somewhat lower for the spayed heifers in lot 7.

2. During the fattening phase, stilbestrol increased the gain of the spayed heifers in lot 8 and the open heifers in lot 10, as compared with the control heifers in lot 9. The spayed heifers of lot 7 were the lowest gainers during this phase as they were during the wintering phase. Spaying seemed to decrease feed consumption in lot 7. Stilbestrol feeding apparently increased grain consumption slightly for lot 10. The most efficient gains were made by the spayed heifers fed stilbestrol.

3. In summarizing the wintering and fattening period combined, all lots made about the same total gain except the spayed heifers in lot 7. Their gain was considerably lower than any other lot. The heifers fed stilbestrol in lot 10 made the lowest financial return, primarily due to their lower selling price. Half of the carcasses in this lot (10) graded only good, whereas only one carcass graded good in each of the other lots. The most desirable treatment in this particular test is probably that of lot 9, the control lot.

1. Furnished by the Eli Lilly Company, Indianapolis, Ind., as Stilbosol (a diethylstilbestrol premix).

**Table 48**

The Effect of Feeding Stilbestrol to Open and Spayed Heifers.  
Phase 1, Wintering, November 16, 1955, to April 7, 1956—143 days.

Treatment .....	Spayed	Spayed <sup>1</sup> plus stilbestrol	Nonspayed	Nonspayed <sup>1</sup> 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 <sup>2</sup> .....	.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 <sup>3</sup> .....	\$15.11	\$13.80	\$12.48	\$12.84

Phase 2—Full feeding, April 7, 1956, to July 27, 1956—111 days.

Initial wt. per heifer, lbs. ....	574	597	613	613
Final wt. per heifer, lbs. ....	758	822	812	829
Gain per heifer, lbs. ....	184	225	199	216
Daily gain per heifer, lbs. ....	1.66	2.03	1.79	1.95
Daily ration per heifer, lbs.:				
Ground milo grain, self-fed ..	10.80	11.53	11.49	12.05
Soybean oil meal .....	1.00	1.03	1.03	1.03
Alfalfa hay .....	5.07	5.76	5.89	5.66
Sorghum silage <sup>4</sup> .....	2.04	2.79	2.38	2.37
Salt .....	.03	.04	.03	.03
Lbs. feed per cwt. gain:				
Ground milo grain .....	652	569	640	619
Soybean oil meal .....	60	51	57	53
Alfalfa hay .....	306	284	312	291
Sorghum silage .....	129	138	136	122
Salt .....	2	2	2	1
Feed cost per heifer <sup>3</sup> .....	\$38.49	\$42.18	\$41.02	\$43.26
Feed cost per 100 lbs. gain <sup>3</sup> .....	20.91	18.74	20.61	20.03

Summary of Phases 1 and 2—November 16, 1955, to July 27, 1956—254 days.

Lot number .....	7	8	9	10
Total gain per heifer, lbs. ....	392	457	448	464
Daily gain per heifer, lbs. ....	1.54	1.80	1.76	1.83
Feed cost per cwt. gain <sup>3</sup> .....	\$17.83	\$16.22	\$16.06	\$16.18
Total feed cost per heifer <sup>3</sup> .....	69.92	74.21	71.99	75.11

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; 0.6 cent per head per day was charged for 10 mg. of stilbestrol.

4. Sorghum silage was fed only the first four weeks of the fattening period.

Table 43 (Continued).

Initial heifer cost @ \$19.50				
per cwt. ....	71.37	71.18	70.98	71.18
Selling price per cwt. ....	22.00	21.50	22.50	20.00
Return per heifer above initial cost, plus feed cost ....	22.47	31.34	39.73	19.51
% shrinkage in shipping to market ....	3.03	1.20	1.84	2.29
Dressing %, chilled ....	60.19	59.67	59.25	58.72
Carcass grades, USDA:				
Low prime .....	0	0	1	0
High choice .....	0	0	2	1
Av. choice .....	3	4	3	1
Low choice .....	6	5	3	3
High good .....	1	0	1	2
Av. good .....	0	1	0	3
Av. grade <sup>a</sup> .....	13.2	13.2	13.9	12.5
Av. marbling score <sup>b</sup> .....	6.8	6.8	6.0	7.2
Av. fat thickness score <sup>c</sup> .....	3.9	4.0	3.8	4.1
Av. ribeye size score <sup>d</sup> .....	4.2	4.1	4.1	4.4
Av. firmness score <sup>e</sup> .....	3.4	3.7	3.4	3.9

5. Average grade was based on low prime = 16, high choice = 15, average choice = 14, low choice = 13, high good = 12, average good = 11.  
 6. Marbling score was based on: moderate = 5, modest = 6, small amount = 7, slight amount = 8.  
 7. Fat thickness score at 12th rib based on: moderate = 3, modest = 4, slightly thin = 5.  
 8. Ribeye score size was based on: moderately large = 3, modestly large = 4, slightly small = 5.  
 9. Firmness of ribeye was based on: firm = 2, moderately firm = 3, modestly firm = 4, slightly firm = 5.

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Little difference in performance was noted between open or nonspayed heifers in lot 13, nonspayed plus stilbestrol in lot 14, and spayed plus stilbestrol in lot 16. The spayed heifers in lot 15 gained considerably less, 34 pounds per head, than the open or nonspayed heifers in lot 13 and their cost to produce 100 pounds of gain was greater.

The milo mill-feed fed to lot 17 proved fully equal to the ground milo grain fed to lot 13A. Milo mill-feed is a by-product obtained in dry milling milo grain. A chemical analysis of this product is given in the feedstuff analysis table in this circular.

Table 44

The Feeding of Stilbestrol to Spayed and Nonspayed Heifer Calves on Roughage Rations: Milo Mill-Feed Compared with Milo Grain.

December 8, 1956, to April 3, 1957—116 days.  
 January 9 to April 3, 1957—84 days on lots 13A and 17.

Treatment	Nonspayed	Spayed	Spayed plus stilbestrol	Ground milo grain	Milo mill-feed
Lot number	13	15	16	13A	17
Number of heifers per lot	10 <sup>1</sup>	11	11	10	11
Initial wt. per heifer, lbs.	373	371	370	420	422
Final wt. per heifer, lbs.	570	534	565	570	571
Gain per heifer, lbs.	197	163	195	150	149
Daily gain per heifer, lbs.	1.69	1.41	1.68	1.78	1.77
Daily ration per heifer, lbs.:					
Ground milo grain	4.66	4.66	4.63	4.98	4.93
Milo mill-feed <sup>2</sup>	.17	.17	.17	.23	.23
Soybean meal <sup>3</sup>	17.0	15.3	15.9	18.62	17.1
Sorghum silage	2.65	2.50	2.66	2.49	2.45
Alfalfa hay	.07	.06	.03	.07	.08
Salt					
Stilbestrol, 5 mgs. per head daily the first 56 days of test, 10 mgs. daily thereafter <sup>4</sup>	yes	yes	yes		
Lbs. feed required for 100 lbs. gain:					
Ground milo grain	273	332	277	277	272
Milo mill-feed					13
Soybean meal	10	12	10	13	945
Sorghum silage	996	1086	953	1036	945
Alfalfa hay	155	190	159	138	136
Feed cost per 100 lbs. gain <sup>5</sup>	\$13.12	\$15.47	\$13.36	\$13.29	\$12.75

1. One heifer was removed from this lot because she failed to recover sufficiently from dehorning.  
 2. The milo mill-feed was furnished by Grain Products, Inc., Dodge City, Kans.  
 3. Soybean meal was fed at the rate of .5 lb. per head daily the last 30 days of test.  
 4. Stilbestrol was furnished by Eli Lilly and Co., Indianapolis, Ind., as Stilbosol (a diethylstilbestrol premix).  
 5. Feed prices for 1956-57 are inside back cover.