

Table 34 (Continued)

Av. lbs. feed per cwt. gain:			
Ground sorghum grain	274	226	253.20
Soybean oil meal	68.50	56.50	63.30
Sorghum silage	897.35	740.15	867.21
Prairie hay	472.65	406.80	436.77
Av. feed cost per cwt. gain, \$	14.22	11.85	13.28
Implant cost per cwt. gain ²	0.77	0.10	0.10
Av. total cost per cwt. gain ..	14.22	12.62	13.38

². Stilbestrol cost—approximately 18c per steer; Synovex cost—approximately \$1.50 per steer (no charge made for actual implanting procedure).

The Use of Stilbestrol¹ and Synovex^{2,3} Implants for Steers During the Wintering and Fattening Period (Project 253-6).

B. A. Koch, E. F. Smith, R. F. Cox, D. Richardson and G. L. Walker

The steers used in this study were implanted with either stilbestrol or Synovex at the start of the wintering period. The results of the first 112 days of the wintering period were reported in Circular 349.

This report summarizes the results of the entire wintering period and also the results of the fattening period which followed.

Experimental Procedure

Forty steer calves, weighing approximately 440 pounds each, were divided into three groups (one group of 10 and two groups of 15). Five animals were removed from each of the larger groups at the end of the winter period for use in a pasture study. (Animals were randomly selected for future summer pasture and feedlot tests at the beginning of the wintering period.) One group of 15 served as the winter control lot. Each animal in the other group of 15 received a 24-mg. implant of stilbestrol in the right ear. Each animal in the group of 10 received a Synovex implant in the right ear at the start of the winter period.

After 168 days on the wintering ration 10 animals in each lot were started on the fattening phase of the study. At that time 5 animals in the stilbestrol lot were reimplanted with 24 mg. of stilbestrol and 5 animals in the Synovex lot were reimplanted with a Synovex implant.

The steers were brought to a full feed of sorghum grain and alfalfa hay plus one pound of soybean meal per day during a three-week period. After the cattle were on full feed, sorghum grain and alfalfa hay were available to the animals at all times on a free-choice basis. The soybean meal was fed once per day and was scattered over the grain in the feed bunk. A mineral mixture made up of equal parts of salt and bonemeal was available to the animals at all times. Salt alone was also available to the animals at all times.

Observations

1. Undesirable side effects such as high tailheads, elongated teats and sexual stimulation were not readily apparent in any of the implanted animals.

2. Reimplantation did not appear to change the physical activity or the general appearance of those animals that were reimplanted.

3. Implanted steers made an average daily gain of approximately 0.4 pound more than the control animals during the fattening phase of the study. Synovex and stilbestrol gave similar increases in gain.

4. Steers implanted with either Synovex or stilbestrol made more efficient gains than did control animals during the fattening period. Synovex-implanted animals appeared to be more efficient than the stilbestrol-implanted animals.

5. Conclusions must be made with care when studying the reimplant data due to the small numbers involved. The magnitude of the standard errors reported also indicates that there was considerable variation within groups. However, it would appear that the original Synovex implant

did not show much effect upon the steers during the fattening period. The Synovex reimplant apparently gave those animals receiving it an added stimulus.

The original stilbestrol implant was apparently still showing some effect in the fattening period. The stilbestrol reimplant apparently had little or no effect upon those animals receiving it.

6. The implants apparently had little or no effect upon carcass grade. It should be noted that both the highest grading and lowest grading carcasses were in the stilbestrol reimplanted group of animals.

Detailed results of the study are summarized in Table 35.

Table 35

The Use of Stilbestrol¹ and Synovex^{2,3} Implants for Steers During the Wintering and Fattening Periods (Project 253-6).

Phase 1—Wintering—December 4, 1956, to May 21, 1957—168 days.

Treatment	Control	Synovex implant	Stilbestrol implant
Lot number	1	2	3
Number steers per lot	10	10	10
Av. initial wt. per steer, lbs.	444.0	444.5	444.5
Av. final wt. per steer, lbs.	726.5	747.5	752.0
Av. total gain per steer, lbs.	282.5	303.0	307.5
Av. daily gain per steer, lbs.	1.68±0.06 ¹⁵	1.80±0.04 ¹⁵	1.83±0.09 ¹⁵
Daily ration per steer, lbs.:			
Ground milo grain	4.8	4.8	4.8
Soybean oil meal	1.0	1.0	1.0
Sorghum silage ⁴	24.9	25.4	27.2
Alfalfa hay ⁴	0.7	0.8	0.8
Salt .....	.05	.05	.04
Feed per cwt. gain, lbs.:			
Ground milo grain	285.7	266.7	262.2
Soybean oil meal	59.5	55.6	54.6
Sorghum silage	1482.1	1411.0	1486.3
Alfalfa hay	41.7	44.4	43.7
Salt	3.0	2.8	2.2
Feed cost per cwt. gain, ⁵ \$	15.69	14.82	14.98
Implant cost per cwt. gain ⁶ .....		.61	.06
Total cost per cwt. gain, \$	15.69	15.43	15.04

Phase 2—Fattening—May 21, 1957, to August 13, 1957—84 days (by pens).

Av. initial wt. per steer, lbs.	726.5	747.5	752.0
Av. final wt. per steer, lbs.	891.5	954.5	952.0
Av. total gain per steer, lbs.	165.0	207.0	200.0

1. Supplied by Chas. Pfizer & Co. (24 mg. per steer—implanted in the ear; 24 mg. reimplant also).

2. Supplied by E. R. Squibb & Sons.

3. Each implant contained 1,000 mg. progesterone and 20 mg. estradiol benzoate. Each reimplant contained 200 mg. of progesterone plus 20 mg. of estradiol benzoate.

4. No hay fed before May 6, 1957; no silage fed after May 10, 1957.

5. Feed prices: sorghum grain, \$2.50 per cwt.; soybean oil meal, \$70.00 per ton; sorghum silage, \$8.00 per ton; alfalfa hay, \$25.00 per ton; salt, \$0.75 per cwt.; bonemeal-salt mixture, \$4.00 per cwt.

6. Stilbestrol cost, approximately 18c per steer; Synovex cost, approximately \$1.85 per steer. (No charge made for implanting procedure.)

15. Standard error of mean.

Table 35 (Continued)

Av. daily gain per steer, lbs.	1.96±0.08	2.46±0.14	2.38±0.06
Daily ration per steer, lbs.:			
Ground milo grain	15.7	16.7	17.3
Soybean oil meal	1.0	1.0	1.0
Alfalfa hay	5.6	5.8	5.9
Salt	0.06	0.03	0.06
Bonemeal-salt ⁷	0.02	0.02	0.02
Feed per cwt. gain, lbs.:			
Ground milo grain	801.0	678.9	726.9
Soybean oil meal	51.0	40.6	42.0
Alfalfa hay	285.7	235.8	247.9
Salt	3.1	1.2	3.1
Bonemeal-salt	1.0	0.8	0.8
Feed cost per cwt. gain, \$	25.43	21.38	22.79

Phase 2—Fattening—May 21, 1957, to August 13, 1957—84 days (by treatment).

Treatment	Control	Synovex Implant	Synovex reimplant	Stilbestrol implant	Stilbestrol reimplant
Lot number	1	2	2	3	3
Number of steers	10	5	5	5	5
Av. initial wt. per steer, lbs.	726.5	730.0	765.0	755.0	749.0
Av. final wt. per steer, lbs.	891.5	920.0	989.0	952.0	952.0
Av. total gain per steer lbs.	165.0	190.0	224.0	197.0	203.0
Av. daily gain per steer, lbs.	1.96	2.26	2.67	2.34	2.42
	±0.08	±0.20	±0.18	±0.10	±0.08
Carcass grades, USDA:					
Av. choice					1
Low choice	4	1	1	1	1
High good	1	1	1	2	..
Av. good	2	1	1	2	..
Low good	3	2	2	..	2
High standard .....	..	..	..	..	1
Av. USDA grade ¹⁰	11.6	11.2	11.2	11.8	11.2
Av. marbling score ¹¹	7.8	8.0	8.0	7.6	8.0
Av. fat thickness score ¹²	3.8	4.2	3.4	3.8	4.6
Av. rib eye size score ¹³	4.7	4.6	4.8	4.8	4.2
Av. firmness score ¹⁴	4.9	4.8	4.8	4.2	5.0

Summary of Phases 1 and 2—December 4, 1956, to August 13, 1957—252 days.

Av. total gain per steer, lbs.	447.5	510.0	507.5
Av. daily gain per steer, lbs. ...	1.78±0.04	2.02±0.06	2.01±0.08

7. Salt fed free choice and a mixture of 2 bonemeal plus 1 salt, also fed free choice in fattening period.

10. Average grade determined as follows: high choice, 15; average choice, 14; low choice, 13; high good, 12; average good, 11; low good, 10; high standard, 9.

11. Visual marbling score determined as follows: moderate, 5; modest, 6; small amount, 7; slight amount, 8.

12. Visual fat covering at 12th rib: moderate, 3; modest, 4; slightly thin, 5.

13. Visual rib eye score: moderately large, 3; modestly large, 4; slightly small, 5.

14. Firmness of rib eye: firm, 2; moderately firm, 3; modestly firm, 4; slightly firm, 5.

Table 35 (Continued)

Av. total feed cost per steer (including implants), \$..	86.28	91.01	92.39
Av. initial cost per steer ⁸	102.12	102.23	102.23
Initial cost plus feed cost	183.40	193.24	194.62
Selling price per cwt. ⁹	23.48	23.12	22.76
Av. value per steer	209.32	220.68	216.68
Av. return per steer	20.92	27.44	22.06
Av. dressing percent	59.64	59.70	58.11
Carcass grades, USDA:			
Av. choice .....	..	..	1
Low choice	4	2	2
High good	1	2	2
Av. good	2	2	2
Low good	3	4	2
High standard .....	..	..	1
Av. USDA grade ¹⁰	11.6	11.2	11.5
Av. marbling score ¹¹	7.8	8.0	7.8
Av. fat thickness score ¹²	3.8	3.8	4.2
Av. rib eye size score ¹³	4.7	4.7	4.5
Av. firmness score ¹⁴	4.9	4.8	4.6

8. Initial cost per steer was \$23.00 per cwt.

9. Based on carcass grades and carcass weights with U.S. choice at 40c and U.S. good carcasses at 37c per pound.

10. Average grade determined as follows: high choice, 15; average choice, 14; low choice, 13; high good, 12; average good, 11; low good, 10; high standard, 9.

11. Visual marbling score determined as follows: moderate, 5; modest, 6; small amount, 7; slight amount, 8.

12. Visual fat covering at 12th rib: moderate, 3; modest, 4; slightly thin, 5.

13. Visual rib eye score: moderately large, 3; modestly large, 4; slightly small, 5.

14. Firmness of rib eye: firm, 2; moderately firm, 3; modestly firm, 4; slightly firm, 5.

Nutritive Value of Forages as Affected by Soil and Climatic Differences; Limestone Pasture vs. Sandstone Pasture (Project 430).

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

This report is a summary of the results obtained in the first trial of a study designed to determine differences in the nutritive value, for beef cattle, of forages grown on limestone or sandstone soils. Preliminary results were reported in detail in Kansas Circular 349.

In a study of this sort there are many variables which cannot be completely controlled or eliminated. It is virtually impossible to select pastures and meadows that are alike in every detail. Pastures within a few miles of each other receive differing amounts of moisture in a given period of time. Previous treatment, type of forage, yield of forage; all of these and many other variables affect the results obtained. Therefore, several trials extending over a number of years must be carried out before definite conclusions can be made.

Experimental Procedure

Spayed Hereford heifers were used in this first trial extending over a period of 18 months. Throughout the trial animals in each group received roughage grown either on sandstone or limestone soil. Detailed procedures for the first three phases of the study were reported in Circular 349 from this station.

During a three-week period beginning on March 9, 1957, the heifers were gradually brought to full feed on a fattening ration. The heifers were hand-fed daily all the feed they would eat throughout the fattening period. Those animals receiving supplemental phosphorus before the fattening period began continued to receive it throughout the fattening period. Rations fed and results obtained are listed in detail in Tables 36 and 37.