

fall and also late winter may find that they can get a high enough proportion of the ewes lambing in the fall that they can quit breeding for the later lambs. We feel that we have taken a stride toward our objective, namely: to learn what kind of ewes and rams we need and how to manage them to be able to get a large lamb crop in a short period of time and at a time that is most convenient to the sheepman.

Stilbestrol for Suckling Beef Calves*

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Stilbestrol has increased gains and improved feed efficiency rather-consistently when administered to fattening cattle on full-feed. This poses the question of whether or not similar benefits can be obtained with young suckling calves by feeding small amounts of stilbestrol in the creep-feed or by implanting the drug near the base of the ear. Since many range calves are not creep-fed, the latter method may be preferable. In view of this several trials were initiated with suckling beef calves to study:

- 1) The effect of feeding 5 mg. stilbestrol per head daily in the creep-feed.
- 2) The effect of implanting 12 mg. stilbestrol, and re-implanting with 12 mg. 75 days later, where calves were not creep-fed.
- 3) The comparative effect of two 12 mg. pellets per calf implanted periodically vs. feeding 5 mg. stilbestrol per head daily to creep-fed calves.

Trial 1. Stilbestrol in the Creep-feed.

Procedure:

Thirty-four fall-dropped steer and heifer calves were selected from a grade Hereford herd at the Fort Reno station in January, 1957. The calves were divided into two groups on the basis of sex, age, weight, dam productivity, and sire, wherever possible. They were then placed with their dams in separate native grass pastures and given free access to a creep mixture containing 5.5 parts coarsely ground milo, 3 parts whole oats, 1 part cottonseed meal, and 0.5 part dried molasses. Stilbestrol was mixed in the creep ration for the treatment group in amounts such that the calves received approximately 5 mg. per head daily.

All calves were graded as fat slaughter calves and also as feeders on June 24 and sold on the Oklahoma City livestock market the following day. They averaged about eight and one-half months of age. In computing on-foot value, the actual value of the carcass was divided by the final weight taken at Fort Reno.

* This study was supported in part by a Grant-in-Aid from Eli Lilly and Co., Indianapolis, Indiana.

Results:

A summary of the results is given in Table 1. Weight gains were increased $7\frac{1}{2}$ per cent by addition of 5 mg. stilbestrol to the creep-feed over the 158-day test period. This response is considerably less than was noted in some earlier trials, but the actual difference in weight gain was 23 lb. Examination of the data showed that heifers had a greater response to stilbestrol than steers. This response may have been affected by a difference in starting weight of the calves. The stilbestrol-fed heifers weighed 17 lb. more than the control heifers and the stilbestrol-fed steers weighed 11 lb. less than the control steers at the beginning of the test. The stilbestrol group consumed less creep-feed per calf than the control group. Generally, stilbestrol has been shown to increase feed intake slightly; the reason why this effect did not occur in this trial is not apparent.

Slaughter data indicate that calves of the basal group had a slightly higher dressing per cent and graded about $\frac{1}{3}$ of a grade higher in the carcass than those receiving stilbestrol. The controls also tended to show more marbling in the loin eye muscle. Such differences have sometimes been observed, although in many cases there have been no

Table 1.—Effect of adding 5 mg. stilbestrol to the creep-feed of suckling calves (158 days)

	Basal Creep Ration	Stilbestrol Creep Ration
No. of calves per group ¹	17	17
Av. calf weights (lb.)		
Initial, 1-17-57	240	242
Final, 6-24-57	535	560
Av. daily gain	1.87	2.01
Feeder grade	low choice	high good
Live slaughter grade	av. good	av. good
Slaughter data: ²		
Yield, %	59.3	58.8
Carcass grade	good to high good	low good to good
Marbling score	2.94	3.29
Creep-feed consumed per calf (lb.)	605	528
Creep-feed/cwt. gain (lb.)	205	166
Financial results (\$)		
Av. cow & calf feed cost	53.73	51.71 ³
Market value per cwt. ⁴	20.64	19.71
Total value per calf	110.43	110.39
Net return per calf	56.70	58.68
Difference over controls	-----	+ 1.98

¹ Nine steer calves and eight heifer calves per group.

² Yield based on hot carcass weight shrunk $2\frac{1}{2}$ % (hide off). Marbling score: 1=abundant, 3=moderate, 5=very slight.

³ Does not include cost of stilbestrol.

⁴ Based on current value of carcass according to grade and final Ft. Reno weight.

differences between stilbestrol-fed and control cattle when fed for the same length of time.

Market price based on carcass value was nearly one dollar/cwt. more for the control calves. This resulted in essentially the same total value per calf for control and treatment groups. Further trials are necessary before positive conclusions can be drawn as to the effect of stilbestrol on carcass quality of young, suckling calves.

Trials 2 and 3. Implanting Suckling Beef Calves

Procedure:

Twenty-eight spring calves (steers and heifers) were selected at the Fort Reno station and divided into two groups as equally as possible on the basis of sex, age, dam productivity, and sire. The treatment calves were implanted with a 12 mg. stilbestrol pellet on June 7, 1957, and returned with their dams to the same pasture as the controls. Approximately 75 days later, the stilbestrol group was re-implanted with another 12 mg. pellet.

Thirty, slightly older (3½ months) steer and heifer calves were selected at the Lake Blackwell station and divided into two groups, with the treatment lot receiving the first 12 mg. implant on May 24, 1957, and the second implant about 75 days later.

Management of the calves was similar at both stations. The calves were placed with their dams on comparable native grass pastures, and were not creep-fed. Both trials continued until weaning in early October when the calves (approximately 210 days of age) were weighed off experiment and assigned a feeder grade. They were hauled to Stillwater for a three-week weaning period, followed by a feed-lot test in which the long-term effects of early stilbestrol implantation could be studied. Results of this test are reported elsewhere in this publication.

Results:

The results of both trials are given in Table 2. In the Fort Reno experiment, the response to stilbestrol was an 11.5 per cent greater gain (24 lb.) for the four-month period. Essentially no increase was obtained from stilbestrol implants with steers, although a rather considerable response (34 lb.) was obtained with heifers.

Calves at Lake Blackwell showed a much greater increase in gain in favor of the implanted group. The latter gained 48 lb. (18 percent) more than their controls. Both sexes responded well to treatment in this case; that is, stilbestrol increased the gains of steers 53 lb. and of heifers, 40 lb. The reason for the difference in response with steers between stations is not apparent.

In both cases, feeder grade was nearly ⅓ of a grade higher for implanted calves. However, shortly after the second implant was given, rather noticeable side effects showed up. Depressed loins, high

Table 2.—Effect of implanting two 12 mg. pellets in suckling calves not creep-fed

	Control	Stilbestrol implanted
<i>Fort Reno trial (123 days)</i>		
Number of calves	13	14
Steers	4	5
Heifers	9	9
Av. age at first implant (days) ¹	82	80
Av. gain to weaning	208	232
Steers	229	230
Heifers	199	233
Feeder grade at weaning	5.7(C+)	4.5(B—)
<i>Lake Blackwell trial (137 days)</i>		
Number of calves	15	15
Steers	8	9
Heifers	7	6
Av. age at first implant (days) ¹	106	97
Av. gain to weaning	245	292
Steers	244	297
Heifers	246	286
Feeder grade at weaning ²	5.7(C+)	5.0(B—)

¹ Implanted twice with 12 mg. stilbestrol each time; second implant approximately 75 days after first.

² Includes only those calves used in feed-lot studies to measure long term effects of stilbestrol.

tail heads, and increased udder development were prevalent in both steers and heifers and persisted until after weaning. These conditions were readily observed and feeder buyers might reduce the price paid for treated calves on the market.

Trial 4. Implanting vs. Feeding Stilbestrol

Procedure:

Three lots of 17 to 20 spring-dropped calves were used, with age, weight, condition and dam productivity being considered in allotment. All calves were started on creep-feed June 24 and fed until weaned in early October. The creep-feed was the same as that fed in Trial 1, except that liquid molasses was used in this test. One lot served as controls, the second lot was fed 5 mg. stilbestrol per day in the creep ration, and the third lot received two 12 mg. pellet implants about 75 days apart in a manner similar to that described for Trials 2 and 3. Weight gains and creep-feed consumption were recorded.

Results:

The results of this trial are summarized in Table 3. The implanted calves gained 35 lb. more than the controls or 12 per cent more.

Table 3.—Comparison of implanting vs. feeding stilbestrol to creep-fed suckling calves (137 days)

	Control	Stilbestrol in feed ¹	Stilbestrol implanted ²
Number of calves per lot	20	17	20
Steers	10	8	8
Heifers	10	9	12
Av. age at start of test (days)	96	94	92
Av. initial wt. (lb.)	236	239	230
Av. gain to weaning (lb.)	289	287	324
Steers	309	316	340
Heifers	270	261	312
Av. daily creep feed consumed (lb.)	3.25	3.13	3.85

¹ 5 mg. per head daily.

² Implanted at start of test with 12 mg., re-implanted with 12 mg. 75 days later.

However, those receiving stilbestrol in the creep-feed actually gained slightly less than the control calves. Considerable difficulty was encountered in getting calves to start eating the creep ration, even though attempts were made to minimize pasture differences and to place creep-feeders in frequented areas. The "fed" lot, especially, and the control lot to a lesser extent, ate little creep-feed and gained poorly during the early part of the trial. By mid-August, the time of the second implant, calves fed stilbestrol had gained 27 lb. less than the implanted group, and 19 lb. less than controls. Although feed consumption was nearly equal from this time on, the "fed" lot never recovered from this early setback.

Summary

Four trials were conducted with young suckling beef calves to study the effect of feeding 5 mg. stilbestrol per head daily or implanting two 12 mg. pellets. Except for one lot in Trial 4, gains were increased in every case by administration of stilbestrol. In these studies, greater increases in gain were obtained from implanting than from feeding, but undesirable side effects were found with the former method, particularly after the second implant was given.

Studies on the subsequent feed-lot performance of certain of the implanted calves are reported elsewhere in this publication.