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Response of Steers to Implantation of Diethylstilbestrol During Suckling, Wintering and Finishing Periods

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Cover photo — courtesy of the Texas Hereford Association. The picture was taken on Las Moras Ranch, Menard.

Summary

Implanting 3-month-old suckling steer calves with 12 milligrams (mg.) of diethylstilbestrol increased weaning weight under West Texas range conditions by approximately 15 pounds, an average for 4 years. The weight advantage of the implanted calves ranged from 2 pounds less to 29 pounds more than the unimplanted calves on the same ranch during the 4 years. Implanting appeared to be most effective in increasing weaning weight when range feed conditions were best.

Half to all of the weight advantage gained by implanting suckling calves was lost during subsequent wintering unless the weaned calves were re-implanted with 24 mg. of diethylstilbestrol at the beginning of the wintering period. The weaning weight advantage was maintained by re-implanting, and the re-implanted calves showed the same response during wintering as did those which were implanted for the first time with 24 mg. at the start of wintering.

Some increase in weaning weight may be expected from implanted suckling calves, but this effect does not extend beyond weaning time at 7 to 8 months of age. Implanting weaned calves at the start of wintering also gave some response in gain which, however, appeared to be independent of previous implanting during suckling.

Steers implanted with 36 mg. of diethylstilbestrol at the start of the finishing period following wintering gained 20.7 percent more and required 12.5 percent less feed per unit of gain than did steers not implanted at start of finishing. A 12-mg. implant during the suckling period followed by a 24-mg. implant during the wintering period significantly depressed subsequent feedlot gain when the cattle were given a 36-mg. implant at the start of finishing but not when the 36-mg. implant was not used. One implant during either suckling or wintering did not significantly depress feedlot gains when the cattle were re-implanted for finishing.

Maximum gain was produced by a 24-mg. implant during wintering, followed by a 36-mg. implant during finishing. Diethylstilbestrol should be used in the finishing period because the response is greatest when nutrient intake is highest.

Implanting with 36 mg. at the start of the finishing period lowered carcasses about a third of a grade, but there was little difference in grade among none, one or two implants before the finishing period.

Figure 1 shows the 4-year average gain for each period and treatment.

Response of Steers to Implantation of Diethylstilbestrol During Suckling, Wintering and Finishing Periods

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DIETHYLSTILBESTROL, DES, is a synthetic compound having hormone-like properties similar to the natural estrogens, which are a group of female sex hormones.

The response of steers to diethylstilbestrol has been studied in numerous experiments in recent years. Most of these studies have been concerned with fattening in drylot on rations comparatively high in energy. They have demonstrated conclusively that diethylstilbestrol, either implanted or fed orally, results in increased rate of gain and improved feed efficiency.

Summaries on most of the experiments reported on the use of diethylstilbestrol in the feedlot up to 1959 show a 14.2 to 17-percent increase in feedlot gain with an increase in feed efficiency of 9.8 to 12 percent (23, 24). Later trials showed increases in feedlot gain ranging from 9 to 16.3 percent and improved feed efficiency from 2.7 to 11.4 percent (9, 12, 20, 26). Carcass grades of treated cattle ranged from slightly lower to slightly higher but were not significantly different from those of nontreated cattle.

The response of calves to diethylstilbestrol during the suckling period and of weaned calves or yearlings on pasture has been less thoroughly studied, and existing reports have shown variable results. A 12 milligram (mg.) implant administered to suckling calves resulted in 11 pounds less gain to 53 pounds more gain at weaning than nonimplanted calves (1, 2, 6, 15, 18, 19). Calves implanted during the suckling period and re-implanted, or fed diethylstilbestrol, during a subsequent feedlot period continued to gain faster in some trials, while in other trials (2, 6, 16, 17) their gain was significantly less than that of the controls.

Weaned steer calves or yearlings implanted with 12 to 48 mg. of diethylstilbestrol during a wintering or summering period gained more than controls. When they were reimplanted or fed diethylstilbestrol during a subsequent feedlot period, gains were depressed in some trials; in other trials there was no depressing effect when they were compared with those receiving diethylstilbestrol for the first time during the feedlot period (3, 4, 8, 10, 11, 13, 14, 21, 27). The effect on carcass grades also was variable.

Results of trials in which steer calves were implanted during a wintering period, implanted again during a summering period and given a third implant during a feedlot period showed that previous implants may or may not depress gains during either of the last two periods, when compared with those animals receiving their first implant during that particular period (5, 7, 16, 17, 22).

Many cattle feeders have questioned the practice of implanting feeder cattle with diethylstilbestrol at any time before the final finishing period because of possible lowered subsequent performance in the feedlot. This is a natural concern and many feeder buyers believe there should be some price discrimination against implanted cattle, since it is believed these cattle may not perform as well in the feedlot or respond as well to further hormone treatment as those not previously implanted. This is a problem of considerable economic importance.

The experiments reported in this bulletin were initiated to study the effect of diethylstilbestrol implants on weaning weights of suckling calves under range conditions, and the effect of these preweaning implants on subsequent gains of weaned steer calves on pasture and later as yearlings in the feedlot, when implanted during each of these periods. The study covered a 4-year period.

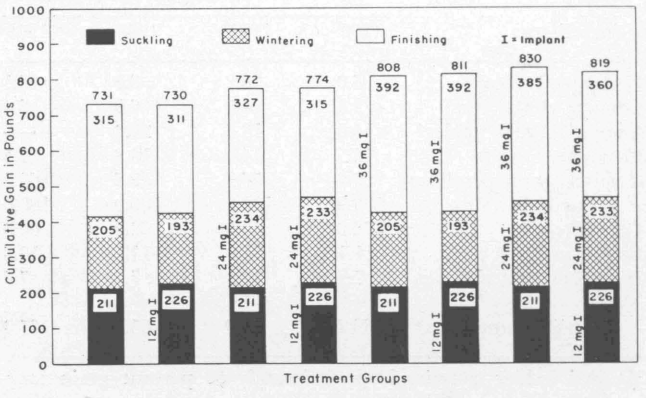

Figure 1. Gains of steers implanted with diethylstilbestrol during suckling, wintering and finishing phases.

*Respectively, formerly associate animal husbandman in charge, Livestock Unit, Trans-Pecos Experiment Station, Balmorhea; now associate animal husbandman, Livestock and Forage Research Center, McGregor; and professor, Department of Animal Science, Texas A&M University.

TABLE 1. DESIGN OF THE EXPERIMENT AND DIETHYLSTILBESTROL TREATMENTS

Treatment periods	80 suckling steer calves							
Suckling period	40 implanted 12 mg.				40 not implanted			
Wintering period	20 implanted 24 mg.		20 not implanted		20 implanted 24 mg.		20 not implanted	
Finishing period	10 implanted 36 mg.	10 not implanted	10 implanted 36 mg.	10 not implanted	10 implanted 36 mg.	10 not implanted	10 implanted 36 mg.	10 not implanted

PROCEDURE

The design of the experiment and the diethylstilbestrol treatments used are included in Table 1.

During 1959-62 approximately 40 Hereford steer calves were made available by each of two ranches each year. Las Moras Ranch of Menard County in Central Texas provided calves all 4 years, and the Lane Ranch, near Marfa in the Davis Mountain area of the Trans-Pecos region, provided calves the last 3 years. The Merrill Ranch of Fort Davis provided calves from that area the first year. The calves were dropped in January, February and March. They were tattooed and birth dates were recorded. Half of the calves were implanted with 12 mg. of diethylstilbestrol about June 1 each year. After 1959, the calves were from known sire groups, so that half the calves from each sire were implanted using alternate birth dates to determine which individuals were to be implanted. This permitted division of the sire groups through all three periods of the experiment and aided materially in reducing variablility.

The calves were weaned in September or October and trucked to the Livestock Unit, Trans-Pecos Experiment Station, Balmorhea, for wintering and fattening periods. They were kept on growing rations for 4 to 6 weeks after arrival at the station and then turned on grain sorghum stalk fields and green oats for the winter, except during the winter of 1962-63 when no green oat grazing was available.

TABLE 2. PERCENTAGE COMPOSITION OF FATTENING RATIONS

Ingredients	Years			
	1960	1961	1962	1963
Cottonseed meal	6.0	6.2	6.8	6.1
Ground alfalfa hay	3.3	4.0	6.0	6.4
Ground hegari fodder[1]	18.0	18.6	20.8	—
Cottonseed hulls	12.5	14.9	16.8	27.5
Ground grain sorghum	60.2	56.3	49.6	60.0
Total	100.0	100.0	100.0	100.0
Concentrates	72.0	68.0	62.0	66.0
Crude protein[2]	11.1	11.0	11.1	10.8
Digestible protein[2]	7.9	7.8	7.7	7.6
Total digestiible nutrients[2]	69.2	67.9	65.9	67.8

[1]Hegari fodder contained approximately 30 percent grain each year.

[2]Calculated using values given by Morrison, Feeds and Feeding, 22nd edition.

At the start of the wintering period, half of the calves from each of the two original groups were implanted with 24 mg. of diethylstilbestrol. This gave four groups for wintering. Following wintering periods of 120 to 161 days, half of each of the four wintering groups were implanted with 36 mg. of diethylstilbestrol at the start of the finishing period, except in 1962. That year a 30-mg. implant of diethylstilbestrol plus 10 mg. in the ration were used daily.

During the fattening period all groups were self-fed the same mixed ration as shown for each year in Table 2.

Each year the steers were sold on carcass basis involving both grade and weight. In 1960, 1961 and 1963 the steers were trucked to Fort Worth, approximately 400 miles, and in 1962 they were trucked to Lubbock, approximately 225 miles, for slaughter. They were rested for 36 to 48 hours after shipment before slaughter. Slaughter data were obtained each year, but in 1962 the identity was lost in the cooler on about 20 percent of the carcasses.

RESULTS AND DISCUSSION

Influence of Diethylstilbestrol on Suckling Calves

The results of implanting suckling calves are shown in Table 3. The implanted calves had an average weaning weight advantage of 25 pounds per head at the Las Moras Ranch in Menard County the first 3 years. In 1962, the nonimplanted calves had a 2 pound weight advantage. This reversal in 1962 may be partially explained because range conditions were better the first 3 years. Diethylstilbestrol response in cattle is better on fattening than on growing rations and when pastures are good rather than poor. All calves were from cows 3 years old or older.

Range conditions were good in the Marfa-Fort Davis area in 1959 and the implanted calves showed an average advantage of 18 pounds in weaning weight. The range conditions were not as good after 1959,

ERRATA

B-1035, "Response of Steers to Implanation of Diethylstilbestrol During Suckling, Wintering and Finishing," page 6, right column, first paragraph, last sentence.

This sentence should read: "That year 10 mg. of diethylstilbestrol was put in the ration daily and a 30-mg. implant was added at the start of the finishing period."

TABLE 3. THE INFLUENCE OF DIETHYLSTILBESTROL IMPLANTS (12 MG.) UPON WEANING WEIGHTS AND GAIN OF SUCKLING STEER CALVES UNDER RANGE CONDITIONS, 4-YEAR SUMMARY

Item	Menard County	Davis Mountain Area
	Averages in pounds per calf	
	1959 Las Moras Ranch	Merrill Ranch
Nonimplanted		
Number of calves	21	20
Weaning weight	508	496
Implanted–12 mg. diethylstilbestrol		
Number of calves	21	20
Weaning weight	528	514
Weight advantage for implants	20	18
	1960 Las Moras Ranch	Joe Lane Ranch
Nonimplanted		
Number of calves	19	16
Weight June 16 / May 31	360	183
Gain to Sept. 29 / Oct. 21	186	219
Implanted–12 mg. diethylstilbestrol		
Number of calves	20	17
Weight June 16 / May 31	377	188
Gain to Sept. 29 / Oct. 21	215	228
Weight advantage for implants	29	9
	1961 Las Moras Ranch	Joe Lane Ranch
Nonimplanted		
Number of calves	22	26
Weight June 9 / June 5	345	225
Gain to Sept. 21 / Oct. 16	182	253
Implanted–12 mg. diethylstilbestrol		
Number of calves	22	27
Weight June 9 / June 5	361	218
Gain to Sept. 21 / Oct. 16	207	262
Weight advantage for implants	25	9
	1962 Las Moras Ranch	Joe Lane Ranch
Nonimplanted		
Number of calves	23	28
Weight May 24 / May 29	296	203
Gain to Sept. 25 / Oct. 8	207	231
Implanted–12 mg. diethylstilbestrol		
Number of calves	22	30
Weight May 24 / May 29	272	190
Gain to Sept. 25 / Oct. 8	205	240
Weight advantage for implants	–2	9
4-year average		
Weight advantage for implants	18	11

and the weaning weight advantage for the implanted calves averaged 9 pounds per head for 1960-62. The calves were from 2-year-old heifers in 1960, from 2 and 3-year-old heifers in 1961 and from 3 and 4-year-old cows in 1962.

All calves were graded at weaning time in 1959 only. The implanted calves averaged one-sixth of a grade higher than the nonimplanted calves.

Influence of Diethylstilbestrol on Growth During a Wintering Period

The results of the wintering periods are shown in Table 4. Stalk fields and oats provided good grazing for approximately 5 months during 1959-60 and 1960-61, and gains of approximately 2 pounds per day were recorded during March and April of those 2 years. Pastures were less productive in 1961-62, and it became necessary to begin the feedlot period on March 19, 1962. No oat pasture was available in 1962-63, limiting the grazing period for wintering to 38 days on stalk fields (October 22 to November 29), after which the calves were placed in drylot on a fattening ration.

During all four wintering periods, calves implanted only during the suckling period gained slightly less than calves not implanted at all, but the difference was significant only during the winter of 1960-61. Calves implanted only at the start of the wintering period and those implanted during suckling and start of the wintering period did not make significantly different gains in any of the 4 years.

The average gain of those implanted for the first time during the wintering period was significantly greater each year, except in 1960-61, than of those implanted as suckling calves and those not implanted at all. Similarly, the average gain of those implanted as suckling calves and during wintering

TABLE 4. WEIGHTS AND GAINS OF IMPLANTED AND NON-IMPLANTED STEER CALVES DURING WINTERING, 4-YEAR SUMMARY

	Controls, not implanted	Implanted, suckling only	Implanted, wintering only	Implanted, suckling and wintering
	November 19, 1959 to April 28, 1960; 161 Days			
	Averages in pounds per steer			
Number of steers	19	20	20	20
Initial weight, 11/19/59	581	603	578	595
Final weight, 4/28/60	800	821	828	831
Daily gain	1.36[a]	1.35[a]	1.55[b]	1.47[a,b]
	December 2, 1960 to May 1, 1961; 150 Days			
Number of steers	17	18	18	18
Initial weight, 12/2/60	524	569	520	563
Final weight, 5/1/61	722	737	724	775
Daily gain	1.32[a]	1.12[b]	1.36[a]	1.41[a]
	November 8, 1961 to March 19, 1962; 131 Days			
Number of steers	20	20	20	20
Initial weight, 11/8/61	525	536	520	544
Final weight, 3/19/62	655	661	691	710
Daily gain	0.99[a]	0.95[a]	1.31[b]	1.27[b]
	October 22, 1962 to February 19, 1963; 120 Days			
Number of steers	20	20	20	20
Initial weight, 10/22/62	514	504	514	499
Weight 11/29/62	566	552	567	555
Final weight, 2/19/63	788	764	826	816
Daily gain, 10/22/62 to 11/29/62	1.39[a]	1.26[a]	1.39[a]	1.47[a]
Daily gain, 10/22/62 to 2/19/63	2.28[a]	2.17[a]	2.60[b]	2.64[b]
Daily gain, 11/29/62 to 2/19/63	2.71	2.59	3.16	3.80
Average daily gain for 4 years	1.49	1.49	1.71	1.70

[a,b]Daily gains showing different superscripts in the same year were significantly different at the 5 percent level of probability.

was greater than for those implanted as suckling calves and those not implanted, but the increase was not significantly greater in 1959-60 or in 1960-61.

Under the conditions of this experiment, the average results for 4 years show that from half to all the advantage gained by implanting suckling calves was lost during wintering if the calves were not re-implanted at the start of the wintering period. The advantage gained by implanting as suckling calves was maintained during the wintering period if they were re-implanted at that time, and they showed the same advantage during wintering as those calves receiving their first implant during the period. Therefore, it seems clear that some response in weaning weight may be expected from implanting suckling calves, but this effect does not extend beyond weaning time of 7 to 8 months. Implanting weaned calves at the start of wintering also gave some response in gains which appear independent of the previous implant during suckling.

Influence of Diethylstilbestrol on Performance During the Finishing Period

Table 5 summarizes the finishing data for 4 years. Separate statistical analyses were made for each year.

Steers implanted with 36 mg. at the start of the finishing period (lots 5, 6, 7 and 8) gained 20.7 percent more on 12.5 percent less feed than the average of those not implanted at that time (lots 1, 2, 3 and 4). However, the steers implanted at all three stages of development (lot 8) gained only 13.5 percent more on 5.4 percent less feed than the average of those not implanted. Average daily gains for the steers not implanted at the start of finishing were similar in all 4 years with no significant difference in any year. This indicated that one or two implants prior to the start of finishing did not increase or decrease feedlot gains when the cattle were not implanted at the beginning of the finishing period.

Although daily gains for the steers implanted at start of finishing (lots 5, 6, 7 and 8) were more variable in all 4 years than for those not so implanted (lots 1, 2, 3 and 4), the 4-year average for those receiving no previous implant or getting one previous implant (lots 5, 6 and 7) was almost the same, while the gain for those receiving all three implants (lot 8) was considerably lower. During 1960, the steers implanted previously as suckling calves (lot 6) gained significantly more than the other three groups (lots 5, 7 and 8), and those not previously implanted (lot 5) were the low gaining group. After 1960, however, the lot 5 cattle, previously unimplanted, gained the most. The gains for these four groups of steers followed the same pattern each year thereafter, with the steers first implanted at start of finishing ranking highest, those previously implanted at start of wintering ranking second, those previously implanted during suckling ranking third and those previously implanted during both suckling and wintering ranked lowest in gain. The gain of the steers implanted at the start of all three periods (lot 8) was not significantly lower than that of the other three groups implanted at start of finishing (lots 5, 6 and 7). However, it was not significantly above the highest gaining group not implanted at start of finishing (lots 1, 2, 3 and 4), except in 1960.

The results indicated that a 12-mg. implant of diethylstilbestrol during the suckling period followed by a 24-mg. implant during the wintering period depressed feedlot gains when the cattle were given a 36-mg. implant at the start of the finishing period, as compared with steers receiving their first or second implants during the finishing period. One implant, during either the suckling or the wintering period, did not significantly depress subsequent feedlot gains.

Shipping Shrink, Cooler Shrink and Dressing Percent

During 3 of the 4 years there were significant differences in shrink to market but no definite pattern was shown, except that the average shrink for cattle implanted at finishing (lots 5, 6, 7 and 8) was 0.74 percent greater than for cattle not implanted at finishing (lots 1, 2, 3 and 4).

In only 1 of 3 years was there a significant difference in cooler shrink of carcasses, but again no definite pattern was shown except that the average shrink for implanted cattle was less than for those not implanted. These two shrinks tended to be offsetting so that there was no significant difference in dressing percent among lots during any year.

Carcass Grades and Price Per Pound

Although carcass grade and price per pound differed significantly among some of the groups each year, the only consistent pattern was that carcasses from steers which had never been implanted and those implanted only as suckling calves graded higher and therefore brought a higher price per pound. Implanting after the suckling period tended to depress carcass grade, and implanting during the feedlot period had the greatest depressing effect on both grade and price. Heavier carcasses and lower grades from those implanted at start of the finishing period combined to depress price. Carcasses weighing over 700 pounds did not bring as much as did those under 700 pounds.

Financial Statement

Considerable controversy frequently has arisen concerning the price of implanted and unimplanted feeder calves at weaning time. Buyers sometimes

TABLE 5. INFLUENCE OF REPEATED IMPLANTATION WITH DIETHYLSTILBESTROL UPON FEEDLOT PERFORMANCE OF FATTENING STEERS, 4-YEAR SUMMARY

Lot Number	1	2	3	4	5	6	7	8
Number of steers								
1960	9	10	10	10	10	10	10	10
1961	8	8	8	8	8	8	8	8
1962	10	10	10	10	10	10	10	10
1963	10	10	10	10	10	10	10	10
Diethylstilbestrol Treatment								
Suckling, 12 mg.	None	Implanted	None	Implanted	None	Implanted	None	Implanted
Wintering, 24 mg.	None	None	Implanted	Implanted	None	None	Implanted	Implanted
Fattening, 36 mg.	None	None	None	None	Implanted	Implanted	Implanted	Implanted
Average initial weight, pounds								
1960	800	826	833	829	800	827	823	830
1961	709	713	728	748	709	713	727	747
1962	655	661	691	710	655	661	691	711
1963	789	762	828	804	788	770	824	827
Average, 4 years	738	741	770	773	738	743	766	779
Average final weight, pounds								
1960	1120	1140	1173	1146	1169	1263	1205	1218
1961	1039	1033	1085	1071	1159	1130	1160	1130
1962	1034	1018	1054	1084	1085	1066	1104	1098
1963	1017	1018	1076	1050	1108	1079	1135	1108
Average, 4 years	1053	1052	1097	1088	1130	1135	1151	1139
Average daily gain, pounds								
1960–134 days	2.39	2.34	2.54	2.36	2.76	3.26	2.85	2.89
1961–144 days	2.29	2.22	2.48	2.25	3.13	2.90	3.00	2.66
1962–144 days	2.64	2.48	2.52	2.60	2.99	2.81	2.86	2.69
1963–112 days	2.04	2.28	2.22	2.19	2.85	2.76	2.77	2.50
Average, 4 years	2.34	2.33	2.44	2.35	2.93	2.93	2.87	2.69
Average daily ration, pounds								
1960	28.72	28.47	29.82	28.74	28.03	30.12	31.78	30.90
1961	25.56	25.30	26.71	27.68	30.42	29.12	26.68	29.89
1962	29.65	26.39	28.50	29.72	29.00	28.57	30.57	29.44
1963	22.93	24.67	27.12	28.15	26.87	25.09	25.51	27.67
Average, 4 years	26.72	26.21	28.04	28.57	28.58	28.23	29.14	29.48
Feed/100 pounds gain, pounds								
1960	1202	1216	1175	1216	1017	924	1117	1069
1961	1114	1140	1075	1233	973	1007	956	1125
1962	1125	1063	1129	1144	992	1015	1067	1095
1963	1125	1083	1223	1284	941	909	921	1106
Average, 4 years	1142	1126	1151	1219	981	964	1015	1099
Average shrink to market, percent								
1960	6.32	5.76	6.56	4.73	6.47	7.12	5.92	6.83
1961	5.74	5.51	7.79	4.99	6.64	6.60	6.84	4.91
1962	8.53	6.58	7.42	6.94	8.60	7.90	7.99	7.92
1963	3.05	4.31	3.31	4.22	4.36	4.94	4.61	4.68
Average, 4 years	5.91	5.54	6.27	5.22	6.52	6.64	6.34	6.09
Dressing, percent								
1960	64.79	65.03	64.25	64.17	64.67	65.02	65.83	64.80
1961	62.69	62.49	63.50	62.60	62.53	63.30	63.46	62.98
1963	63.94	64.32	63.71	64.16	63.43	63.80	64.24	64.15
Average, 3 years	63.81	63.95	63.82	63.64	63.54	64.04	64.51	63.98
Cooler shrink, percent warm to chilled carcass								
1960	2.09	1.68	1.69	1.51	1.44	1.38	1.42	1.54
1961	0.75	0.81	1.13	0.96	0.86	0.94	0.85	0.93
1963	1.38	1.41	1.42	1.35	1.21	1.39	1.41	1.54
Average, 3 years	1.41	1.30	1.41	1.27	1.17	1.24	1.23	1.20
Carcass grade*								
1960	12.00	12.22	14.67	15.11	14.89	15.78	16.44	15.78
1961	12.50	13.50	13.50	14.25	15.00	13.50	14.50	16.25
1963	12.40	12.40	15.00	11.00	15.20	15.00	16.00	14.60
Average, 3 years	12.30	12.71	14.39	13.45	15.03	14.76	15.65	15.54
Return in dollars per steer, less initial, feed and marketing costs								
1960	3.83	0.79	—8.78	—7.85	1.57	6.47	—2.54	—2.15
1961	22.76	18.37	22.70	16.46	26.48	29.24	29.92	22.62
1963	—16.67	—17.11	—30.37	—24.24	—16.77	—12.31	—15.84	—22.82
Average, 3 years	3.31	0.68	—5.48	—5.21	3.76	7.80	3.85	—0.78

*Carcass grade code: 8, 10, 12—High, middle and low choice; 14, 16, 18—high, middle and low good, respectively.

have maintained that implanted calves were worth less than those not implanted because they were heavier and because their future response to diethylstilbestrol might be lessened as a result of the treatment administered during the preweaning period. These factors tended to complicate evaluation of the overall results of these experiments.

The producer of the steer calves used priced them the same despite any weight differences resulting from early implanting. This would be the expected reaction of sellers, probably justified in this case because the weight increase resulting from the suckling implant did not exceed 30 pounds per head in any year. Should the weight increase from implanting result in average weaning weights over 500 pounds as contrasted with weights under 500 pounds for unimplanted calves, common practice by contract buyers in the trade would be to discount the heavier calves a dollar per hundredweight. This practice also would apply to heavier as opposed to lighter yearlings at the end of the wintering period.

Cost into the feedlot was determined in this study by adding wintering cost to purchase cost and dividing by the total weight of the cattle at the end of the wintering period. Price per hundredweight therefore was the same for all groups each year and cost per head varied only because of variation in weight. Marketing cost and feed cost during finishing were added to initial cost in the feedlot to give total cost. The cattle were sold on the basis of carcass weight and grade in order to get a true reflection of their market value resulting from hormone influences on carcass development.

Returns per steer from the four groups implanted at the start of the finishing period were greater every year than were returns from the four groups not implanted at that time. However, steers not implanted at all and those implanted only as suckling calves produced slightly greater returns than those which received three implants; at suckling, wintering and finishing stages. Those implanted only during the wintering period and those implanted during both suckling and wintering periods showed a loss as an average of 3 years.

CONCLUSIONS

It is apparent that the response of suckling calves to implantation with diethylstilbestrol varies from ranch to ranch and from 1 year to another on the same ranch. The evidence suggests that milk production of the dams as influenced by grazing conditions, supplemental feeding, age of dam and genetic potential of dam as determined by breeding and selection pressure for milk production or weaning weight, in different herds, may be a factor in calf response to implantation. Creep-fed calves, with comparatively high energy intake during the suckling period, might show greater response than was recorded here.

Calves which were not re-implanted during the wintering period after weaning seemed to lose much of the weight advantage they gained from being implanted during suckling, but if re-implanted at weaning they gained as well during the winter as calves which received their first implant at that time. One or two implants prior to the start of the finishing period had no depressing effects on feedlot gains of cattle not implanted for finishing, but two implants definitely depressed gain when the cattle were implanted with 36 mg. for finishing.

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