

Effect of Ralgro on Nursing Calves

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In 1976 and 1977 nursing steer and heifer calves were implanted with 36 mgs of Ralgro when they weighed approximately 138 lbs. Average daily gains were calculated for the summer grazing period and weaning weights were adjusted for age and sex of calf and age of dam. Implanted calves gained 6.8% faster during the growing season and were 22.2 lbs heavier at weaning than nonimplanted calves. Implanting heifer calves did not appear to have any effect on yearling breeding performance or in the number of heifers requiring assistance during their first calving.

Introduction

In the livestock industry today, extensive use is being made of a wide variety of growth stimulating materials. Several of these products are available for use in beef cattle. One such product, Ralgro (zeranol), is an anabolic agent that has been widely tested in growing and finishing experiments. Embry and Swan, (1974) reported an 11.0% improvement in gain and an 8.2% improvement in feed efficiency when weaned calves were implanted with Ralgro. Finishing steers implanted with Ralgro have had gains improved by 7.9 to 18.2% when compared to nonimplanted control animals (Embry and Swan, 1975; Embry and Gates, 1976). One explanation for Ralgro's ability to promote growth in cattle has been offered by Heath et al. (1978). These Iowa State University scientists have reported that intravenously infused zeranol increases the absolute rate of glucose utilization and/or synthesis. An experiment was conducted at the Carrington Irrigation Station to evaluate the effect of Ralgro on nursing calves.

Materials and Methods

In late May of 1976 and 1977, suckling calves, both steers and heifers, were allotted randomly on the basis of weight, breed and sex to two experimental groups. The first group served as a nonimplanted control and the second group was implanted with 36 mgs of Ralgro. Using the Ralgro pellet injector, the skin in the middle part on the back of one of the calf's ears was pierced. The needle on the injector gun was directed toward the base under the skin but not in the cartilage. When the point of the needle was approximately one inch from the base of the ear, the needle was withdrawn slightly and three 12-mg pellets were deposited by depressing the trigger on the injector.

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In 1976 all calves were of Hereford breeding and the average initial weight was 131 lbs. In 1977 approximately two-thirds of the calves were sired by one Red Angus bull and were from Hereford cows. The remainder of the calves were straightbred Hereford. The average initial weight of these calves was 145 lbs. At the time of implanting all calves were vaccinated for blackleg, malignant edema and *Clostridium chauvoei*, *septicum* and *novyi* bacterin.

During the grazing season of each year approximately one-fourth of the calves and their dams were retained in drylot and fed corn silage and alfalfa hay. In addition these calves had free access to chopped hay. The remainder of the cows and calves grazed irrigated pasture for approximately 108 days. All calves were weighed at the end of the grazing season and again at weaning time. Average daily gains were calculated for the grazing season. Weaning weights were adjusted for age and sex of calf and also age of dam. Replacement heifers were selected from the heifer calves after a winter backgrounding period. The heifers were bred the summer of their yearling year and pregnancy tested in the fall. They calved as two-year olds and records were kept of those heifers requiring assistance during calving.

Results and Discussion

Overall average daily gains for the grazing season and adjusted 205-day weaning weights for the experiment can be seen in Table 1. Calves implanted with 36 mgs of Ralgro gained 6.8% faster ($P < .01$) than calves not implanted. The 0.12 lbs per head per day faster gains for the implanted calves during the grazing season carried over to weaning. Implanted calves had 22.2 lbs heavier ($P < .01$) weaning weights than nonimplanted calves. Davis et al. (1977) reported similar results in an experiment with nursing calves. These Texas Extension workers found that implanting calves with Ralgro improved gain over a 200-day period by 22 lbs. Gray et al. (1977) reported variable results in four separate trials with Ralgro in nursing calves. At the end of the approximately 105-day trials, implanted calves were 2, 10, 15 and 18 lbs heavier than nonimplanted calves. Snyovex has produced gains in Nebraska trials (Ellington and Kinder, 1972) similar to those reported

herein. Ralston (1978) reports that Ralgro is as effective in stimulating growth in nursing steer calves as DES. In his experiments calves implanted with either 12 mgs DES, 24 mgs Ralgro or 36 mgs Ralgro made equal gains to weaning.

Table 1. Calf Average Daily Gain and Adjusted 205-Day Weaning Weights, Lbs.

	Control	Implant
No. of head	112	111
Avg. daily gain	1.76	1.88 ¹
Adj. weaning weight	460.0	482.2 ¹

¹Higher than (P .01)

Although the response to growth stimulants with nursing calves is usually very good, several reports suggest that environmental factors are important. Lesmeister and Ellington (1976b) and Williams et al. (1977) point out the degree of response may be related to climatic variations and their influence on nutritional conditions.

Nursing steer calves responded slightly better than heifer calves (Table 2). Ralgro improved (P < .05) average daily gain in steers by 7.9% and improved (P < .05) weaning weight by 5.7%. Heifer calf average daily gain was improved by 4.5% and weaning weight was improved (P < .10) by 3.7%. Generally, the response to growth stimulants for steer and heifer calves has been reported to be very similar (Davis et al. 1977; Ellington et al. 1978; Lesmeister and Ellington, 1976b; Williams et al. 1977).

Table 2. Heifer and Steer Performance, Lbs.

	Heifers		Steers	
	Control	Implant	Control	Implant
No. of head	57	56	55	55
Avg. daily gain	1.76	1.84	1.77	1.91 ²
Adj. weaning weight	459.3	476.2 ¹	461.3	487.5 ²

¹Higher than heifer control (P .10)

²Higher than steer control (P .05)

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Heifer calves were selected for herd replacements from both the implant and control groups. The yearling breeding performance and the number of heifers requiring assistance during the first calving are shown in Table 3. No significant differences were measured for either parameter.

Lesmeister and Ellington (1976a) and Staigmiller et al. (1978) have suggested that Synovex and Ralgro given to replacement heifers weighing approximately 400 lbs decreases their breeding performance as yearlings. However, the heifers in this experiment were implanted once at an early age, and it did not appear to have any effect of yearling breeding performance.

Several reports (Ellington et al. 1978; Lesmeister and Ellington, 1976b) have suggested that growth promoting implants in nursing heifer calves increases pelvic size. This would appear to be helpful in overcoming some of the problems which occur when calving two-year old heifers. However, Lesmeister and Ellington, (1976a) noticed that most of the pelvic size advantage is lost by the time bred heifers reach two years of age. This may explain why implanted heifer calves in this experiment showed no advantage over implanted heifer calves in terms of reduced calving problems as two-year olds.

Table 3. Heifer Breeding and Calving Performance, Treatment Totals

	Control	Implant
Yearling breeding, bred/exposed	22/24	22/25
Calving, assisted/calved	13/22	12/22

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