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Implants for cattle and sheep

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Quick Facts

- Use of growth-promoting implants is a very economical management practice for cattle producers.
- Ralgro is the only cleared implant for calves weighing under 400 pounds (181 kilogram); Ralgro and Synovex are cleared implants for calves weighing over 400 pounds.
- Ralgro cannot be used legally within 65 days of slaughter for cattle and 40 days of slaughter for lambs; Synovex has a 60-day withdrawal period.
- Implanting suckling calves twice with 36 milligrams Ralgro can result in an additional weight gain of between 43 and 53 pounds (20-24 kg) over non-implanted calves.
- Bulls should not be implanted nor heifers re-implanted after they have reached two months of age.

One of the most economical management practices available to cattle producers has been the use of growth promoting implants. Many cattle producers have effectively developed a program in which implants are utilized to their fullest extent. Yet on the other hand, a very large percentage of the cattle industry has not capitalized on this useful management tool.

What implants are currently available for use? As of Nov. 1, 1979, use of diethylstilbestrol (DES) by cattle producers was officially banned by the Food and Drug Administration (FDA). This left two implants for use by cattle producers—Ralgro and Synovex. Ralgro, an anabolic agent produced from corn mold, is the only cleared implant for calves weighing under 400 pounds (181 kilograms). A dosage of 36 milligrams can be used with calves regardless of age.

For calves weighing over 400 pounds (181 kg), Ralgro and Synovex (Synovex-S for steers and Synovex-H for heifers) are the cleared implants. Ralgro is used at 36 mg and Synovex at 220 mg.

The legal clearance for cattle indicates that Ralgro cannot be used within 65 days of slaughter and Synovex within 60 days of slaughter.

It is extremely important that cattle producers observe the cleared legal limits when using implants by following the clearance guidelines. It will allow producers to effectively use the implants and hopefully keep implants available for future use in the cattle industry.

Implanting Calves

Dr. Larry R. Corah, Kansas State University, has conducted a number of experiments to answer commonly asked questions about implants. His first trial with nursing calves showed an 8½-pound (4-kg) increase in weaning weight by using one Ralgro implant. The use of two Ralgro implants 70 days apart resulted in an improved weaning weight of 43 pounds (20 kg).

In a second study, a single implant improved weaning weight by 22 pounds (10 kg) while two Ralgro implants improved weaning weight by 53 pounds (24 kg). Another trial involved 77 suckling beef calves. Ralgro was implanted immediately at birth or at 4 months of age. Implanting at birth versus age 4 months gave the same results, while using two implants during the nursing period improved weight gain by 46.6 pounds (21 kg).

In another study, to answer whether calves will continue to respond to implants used every 100 days from birth to slaughter, calves produced an additional 83.7 pounds (38 kg) by the use of four implants from birth to slaughter.

Does implant location and crushing of the pellets effect response to Ralgro? Based on Corah's research, crushing had no effect on performance, but implanting at the base of the ear improved weight gain by 3 to 10 percent. Based on this and other work, we recommend that Ralgro implants be placed as close to the base of the ear as possible, rather than at the recommended location—one inch away from the base of the ear. In the use of Synovex, we currently are recommending that the implant be placed under the skin in the mid-part of the ear for best results.

Replacement Heifers

What effect does Ralgro have on the subsequent reproductive performance of replacement heifers? When many producers implant suckling calves, they are not sure which heifers will be kept as replacements. To test this concept, some heifer calves were left unimplanted and part were implanted once with 36 mg of Ralgro during the suckling period. After weaning, the heifer calves were run as a group until breeding. Implanting during the suckling period versus not implanting had no adverse affect on later conception rates (81 vs. 85 percent conception, respectively).

On occasion, a producer still is undecided at weaning time whether heifers will be kept as feeder

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heifers or replacement heifers for breeding purposes. If the heifers are implanted at weaning time, what effect would this have on later reproductive performance? A Kansas State University trial was conducted using four treatments in which heifers were 1) never implanted, 2) heifers received either 12 mg, 3) 24 mg, or 4) 36 mg of Ralgro at the time of weaning.

The heifers were maintained as one group throughout the trial period and bred artifically for 30 days and then by natural service for another 35 days. The use of 36 mg of Ralgro slightly reduced conception rates in the percent of heifers detected in heat the first 21 days of the breeding season. Implants of 12 and 24 mg, however, had no adverse effect on subsequent reproductive performance.

Evaluating the effect of implanting at weaning time on subsequent milk production showed that the implant had no adverse effect on later milk production in these heifers.

A study at Oklahoma State University with 75 heifers indicated that multiple implantation with 36 mg of Ralgro beginning at 42 days of age until 100 days before the start of the breeding season had a detrimental effect on pregnancy rate in heifers. A single implant prior to 2 months of age did not influence pregnancy rate.

Beef Bulls

What effect would a Ralgro implant have on the sexual development of beef bulls? As the use of Ralgro with suckling steer calves increased tremendously, some of the purebred producers started asking what effect would an implant have on the sexual development of bulls. A study at Kansas State University was conducted in which one group of bull calves were not implanted at all from birth until they were slaughtered at approximately 15 months of age.

The second group of bulls was implanted with 36 mg of Ralgro starting at birth and subsequently implanted every 100 days until they were slaughtered at 15 months of age. The Ralgro implants reduced testicular size to approximately half that of the control group. Likewise, semen quality on the implanted bulls was greatly impaired and sex drive was virtually eliminated in the implanted bulls. It is obvious from this data that Ralgro implants should not be used on bulls intended for herd sires.

However, for bulls intended for slaughter there was a slight increase in average daily gain for the implanted bulls with a marked improvement in the eating quality of the meat. Another beneficial attribute of the implants was a completely reduced incidence of bulling while the bulls were in the feedlot.

If the cattle industry ever moves in the direction of feeding bulls for slaughter, the use of implants at very early ages and then sequentially until they are slaughtered may have very beneficial effects.

Grazing Cull Beef Cows

What effect would Ralgro have on the gain of grazing cull beef cows? On occasion, producers will buy cull cows with the intent of putting on some weight and flesh and then reselling them after 50 to 100 days. To answer the question of whether implants would be of benefit, a trial was conducted with 110 head of cull beef cows split into two groups. Part were left unimplanted and part received a 36 mg Ralgro implant.

The cows were grazed on pasture for 59 days. The use of the implants improved gains by 11.2 percent, which amounts to 12.8 pounds (6 kg) increase. Average daily gain for the control was 1.9 pounds (.9 kg) and 2.2 pounds (1 kg) for the implanted group.

Ralgro has a duration of response between 90 and 120 days. In the feedlot, an improvement in gain of between 5 and 15 percent can be expected. Synovex, on the other hand, has the duration of response between 60 and 90 days with a 10 to 20 percent improvement in gain. Both Synovex and Ralgro produced about 6 to 8 percent improvement in feed efficiency when compared to unimplanted steers.

If implanted steers are fed to the same weights as non-implanted steers, they show a little less marbling, probably because they are younger when sold as a result of the increased rate of gain. Therefore, feeding the cattle the same length of time as if they were not implanted should produce a satisfactory grade, while selling weight will average about 40 pounds (18 kg) heavier.

More bullers are noted with Synovex implanted steers. This phenomena used to be more prevalent during certain periods of the year, especially with cattle that have just been implanted. Therefore, feeder cattle going into the feedlot in the spring and fall months usually create more buller problems.

Finishing Cattle

Reimplants for finishing. When feedlot cattle are to be fed for more than 100 days, it may be advantageous to reimplant them. Based on published data, second implants appear to increase weight gain from 3 to 11.3 percent (15-46 pounds or 7-21 kilograms) over the single implant.

Some data shows that Ralgro implanted steers have outgained Synovex implanted steers; some have been reversed with Synovex steers outgaining Ralgro steers. Still in other tests the results have been nearly equal and no advantage to either implant.

Although the numbers of reports in these comparisons are limited, it appears that if the response from one implant is superior to the other implant in the growing phase, the opposite prevails in the finishing phase. If the total gain for the two phases are combined, the differences are not very great.

Finishing Lambs

Implants for finishing lambs. Implanting Ralgro at 12 mg per head in finishing lambs has proven effective in increasing rate of gain and improving feed utilization. Increases in gain have averaged 11.9 percent, and improvement in feed efficiency has averaged 11.1 percent.

A limited amount of data on ewe lambs has been compiled, but it appears that females do not respond to Ralgro to as great a degree as do males. The average gain response, for ewe lambs under commercial feedlot conditions, has been 8 percent. Wether lambs have shown a 15 percent response under the same conditions.

Since Ralgro has a 40-day withdrawal period for lambs, and most lamb finishing periods are less than 60 days, the withdrawal time probably discourages the use of implants somewhat.

Until more information is available, Ralgro should not be used on ewe lambs that may be kept in the breeding herd.

Future Implants

A removable implant is currently being tested for FDA clearance. The advantage of this type implant would be leaving it intact in the ear until the required period of withdrawal. In an Iowa study, the removable implant significantly increased gain by 44 pounds (20 kg) in large cattle and 70 pounds (32 kg) in small cattle. Feed efficiency was improved 13 percent in small cattle, but there was no improvement in large cattle during the finishing phase.