

Implanting beef calves and stocker cattle

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Of all the management practices available to cow/calf and stocker cattle producers, implanting suckling calves and stocker cattle offers one of the highest benefit-to-cost ratios. Many implants are available, but selection of an implant is less critical than the decision on whether to implant or not.

Implants for calves and stocker cattle

Table 1 lists implants available for use in suckling calves and pasture cattle. The active compounds in calf implants are zeranol, estradiol benzoate-progesterone, or estradiol 17-beta. Stocker cattle implants contain the same active compounds, plus a combination of estradiol and trenbolone acetate. Some stocker cattle implants are designated for use in heifers or steers; they generally are denoted by an "H" or "S" in the implant name. These implants have no withdrawal time before sale or slaughter.

Implant administration

To administer implants, designate one person to implant while processing or working cattle. To avoid infections and reduced implant performance, make sure the ear surface, the implant applicator needle and the hands of the person implanting the cattle are clean. Some companies distribute disinfectant trays along with the implant applicator. Use these trays at chuteside as a place to rest the implant applicator when not in use and to clean the applicator needle. Before administering the implant, use a sponge soaked in disinfectant to remove manure and other foreign material from the ear surface. You can also use the sponge to clean the applicator needle.

Protect implant cartridges and belts from dust and other contaminants during storage and at chuteside. Some implants must be refrigerated during storage.

Place the implant under the skin on the backside of the middle third of the ear (Figure 1). Implanting at any other location violates federal law.

Applicators vary for different implants. Become familiar with the mechanical operation of the applicator to ensure proper implant placement, and avoid crushing, bunching or wasting implant pellets. The needle on the implant applicator must be sharp and free of spurs to avoid unnecessary trauma to the ear and implant site.

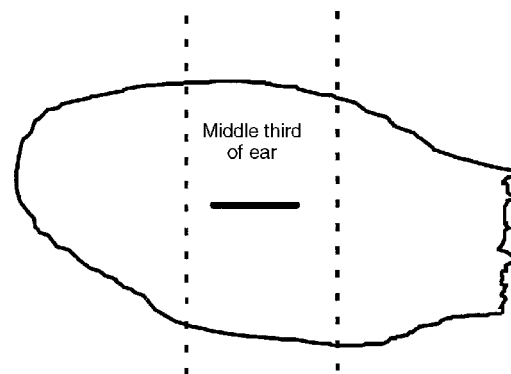


Figure 1. Proper implant placement on the backside of the ear.

Table 1. Guidelines for currently approved implants for suckling beef calves and stocker cattle.

Implant trade name	Marketing company	Active ingredient(s)	Target animal	Estimated payout period
Implus-C® or Calf-oid®	UpJohn Co.	100 mg progesterone 10 mg estradiol benzoate	Suckling beef calves up to 400 lbs.; not for use in calves less than 45 days old or calves intended for reproduction	100 - 140 days
Component-C®	VetLife, Inc.	100 mg progesterone 10 mg estradiol benzoate	Steer and heifer calves up to 400 lbs.; not for use in calves less than 45 days old or bull calves intended for reproduction	100 - 140 days
Synovex-C®	Ft. Dodge Animal Health	100 mg progesterone 10 mg estradiol benzoate	Steer and heifer calves up to 400 lbs.; not for use in calves less than 45 days old or bull calves intended for reproduction	100 - 140 days
Ralgro®	Schering-Plough Animal Health	36 mg zeranol	Steer and heifer calves; weaned steers and heifers; not for use in calves less than 30 days old or bull calves intended for reproduction	70 - 100 days
Compudose®	VetLife, Inc.	25.7 mg estradiol	Suckling steers; weaned steers and heifers; not for replacement heifers	170 - 200 days
Encore®	VetLife, Inc.	43.9 mg estradiol	Suckling steers; weaned steers and heifers; not for replacement heifers	400 days
Component-H®	VetLife, Inc.	200 mg testosterone 20 mg estradiol benzoate	Heifers over 400 lbs.; not for replacement heifers	100 - 140 days
Component-S®	Vetife, Inc.	200 mg progesterone 20 mg estradiol benzoate	Steers over 400 lbs.	100 - 140 days
Implus-H®	UpJohn Co.	200 mg testosterone 20 mg estradiol benzoate	Heifers over 400 lbs.; not for replacement heifers	100 - 140 days
Implus-S®	UpJohn Co.	200 mg progesterone 20 mg estradiol benzoate	Steers over 400 lbs.	100 - 140 days
Synovex-H®	Ft. Dodge Animal Health	200 mg testosterone 20 mg estradiol benzoate	Heifers over 400 lbs.; not for replacement heifers	100 - 140 days
Synovex-S®	Ft. Dodge Animal Health	200 mg progesterone 20 mg estradiol benzoate	Steers over 400 lbs.	100 - 140 days
Revalor-G®	Hoechst-Roussel Agri-Vet Co.	8 mg estradiol 40 mg trenbolone acetate	Weaned steers and heifers; not for replacement heifers	100 - 140 days

After placing the implant in the ear, palpate the site to ensure that the implant was properly placed. Apply pressure on the area punctured by the needle to help the wound close and prevent dirt and other foreign materials from entering the implant site.

Cattle performance

Suckling calves: Implanting suckling calves once with zeranol or estradiol-progesterone type implants will increase daily weight gains an average of 0.10 pound per day for steer calves and 0.12 pound per day for heifer calves (Selk, 1997). Implus-C® (Calf-oid®), Component-C®, Compudose®, Encore®,

Ralgro®, and Synovex-C® are labeled for suckling steers and heifers. Component-S®, Component-H®, Implus-S®, Implus-H®, Synovex-S®, and Synovex-H® can also be used in sucking calves but are recommended for calves weighing over 400 pounds. Table 1 lists specific information and restrictions.

Potential replacement heifers: Concerns about reproductive performance have limited the use of growth implants in heifer calves that are potential herd placements. Currently, Synovex-C®, Component-C® and Ralgro® are the only implants labeled for use in replacement heifer calves (see Table 1). Use is restricted to heifers older than

30 days for Ralgro® and 45 days for Synovex-C® and Component-C®.

Implanting heifers at or near birth can reduce future reproductive performance. However, research has shown that one implant administered between 2 months of age and weaning has little effect on subsequent reproductive performance. The impacts on future reproductive performance are less predictable and can be severe in some cases when implants are administered after weaning. The probability and severity of reduced reproductive performance increases when heifers are implanted more than once between birth and puberty. Heifer calves that have been implanted have a larger pelvic area at 1 year of age. However, by calving time at 2 years of age, these differences are small and calving ease is not improved.

If replacement heifers are identified at a young age, do not implant them, as it provides no benefits; implants do not improve age at puberty nor calving ease. However, if replacement heifers cannot be identified at an early age, implanting all the heifer calves once between 2 months of age and weaning does not significantly affect reproduction in heifer calves eventually selected for replacements. The remaining heifer calves will be heavier at weaning.

Potential herd bulls: No implants are labeled for use in bull calves intended for future use as herd sires. Implants can suppress testicular development and reduce libido and semen quality.

Stocker cattle: A single implant will increase weight gain 8 to 18 percent, or 15 to 40 pounds, during the grazing season (Kuhl, 1997). If the grazing season is more than 100 to 120 days and the plane of nutrition is adequate, reimplanting or using an implant with a longer release period stimulates additional weight gain. All the implants listed in Table 1 can be used in stocker cattle. Implus-C® (Calf-oid®), Component-C®, and Synovex-C® are recommended for calves weighing less than 400 pounds and can be used with light-weight stocker cattle.

Reimplanting cattle: Reimplanting, or administering a second implant at

some interval after the first implant, improves performance if the plane of nutrition is adequate. An implant releases (or “pays out”) compound for 70 to 400 days depending on the implant (Table 1).

Although the implant releases active compound over an extended period, at some point the quantity of active ingredient released declines to a level that does not stimulate performance adequately. Therefore, the recommended reimplanting interval for each implant is shorter than the estimated payout.

As a rule of thumb, the window to reimplant cattle is about 30 days less than the estimated payout. So, if an implant has a 100- to 140-day payout, then administer another implant between 70 and 100 days if you want to maintain circulating levels of the active compounds.

Food safety concerns

The Food and Drug Administration requires no withdrawal period before slaughter of implanted cattle. Beef from implanted cattle has a very low level of estrogen activity compared to other common foods. Table 2 lists the estrogenic activity of several common foods. Likewise, the potential amount of estrogen consumed in beef from implanted cattle is extremely low compared to that produced daily by the

Table 2. Estrogenic activity of several common foods (adapted from Preston, 1997).

Food	Estrogenic activity (nanograms/lb. of food)
Soybean oil	908,000
Cabbage	10,896
Wheat germ	1,816
Peas	1,816
Eggs	15,890
Ice cream	2,724
Milk	59
Beef from a pregnant cow	636
Beef from implanted cattle	10
Beef from non-implanted cattle	7

human body. If a person consumed 1 pound of beef per day from implanted cattle, the potential estrogen intake would be about 10 nanograms. In comparison, the daily estrogen production by the human body is about 100,000 nanograms for adult men, about 5,000,000 nanograms for non-pregnant women, and about 40,000 nanograms for a prepuberal child.

References

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