FACT SHEET

L-1402

# IMPLANT GROWTH STIMULANTS FOR GROWING AND FINISHING CATTLE

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The technique of implanting growth-promoting compounds in the ears of cattle has become a common practice in recent years. When implants are properly administered, increased growth and improved feed efficiency will result over a period of from 90 to 120 days. At present, three growth-promoting compounds are available in implant form: Ralgro®, Synovex® and diethylstilbestrol (DES).

In addition to these implants, several oral compounds are available which produce similar results. DES and low levels of antibiotics may be fed to steers and heifers and melengestrol acetate (MGA®) may be fed to heifers only, according to the Food and Drug Administration (FDA) regulations.

## Commercial Products

The active compound in Ralgro is zeranol. Ralgro is manufactured in 12-milligram (mg.) pellets, and the amount implanted for each animal is three pellets or 36 mg.

Synovex implants may be obtained in two forms — Synovex-H® for heifers and Synovex-S® for steers. The active compounds in Synovex-H are testosterone and estradiol benzoate, and in Synovex-S are progesterone and estradiol benzoate.

Synovex-H and Synovex-S are manufactured in cartridges which contain eight pellets. The entire cartridge is implanted for all sizes of cattle. However, Synovex-S and H are not cleared for use in cattle weighing less than 400 pounds.

DES is a synthetic hormone. It is manufactured under several different trade names. DES is manufactured in 15-milligram pellets, and the number of pellets implanted depends on the size of the animal.

**Implant Recommendations for Ralgro, DES and Synovex**

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| Suckling calves[a] | Ralgro — 36 mg.<br>DES — 15 mg. |
| Growing heifers | Ralgro — 36 mg.<br>DES — 15 mg.<br>Synovex-H |
| Growing steers | Ralgro — 36 mg.<br>DES — 15 mg.<br>Synovex-S |
| Finishing heifers | Ralgro — 36 mg.<br>DES — 30 mg.<br>Synovex-H |
| Finishing steers | Ralgro — 36 mg.<br>DES — 30 mg.<br>Synovex-S |

[a]Synovex-H and Synovex-S are not cleared for use in cattle weighing less than 400 pounds.

## Cattle Performance

Data from studies with suckling calves indicate that implanting with Ralgro or DES results in increased weight gains from 10 to 25 pounds per calf during 100- to 200-day suckling periods. Previous studies (Melton and Riggs, 1965) with DES indicated that the response to implanting suckling calves was affected by milk production of the cow as related to grazing conditions, supplemental feeding, age of the cow and genetic potential of the cow. These factors would have similar effects upon calves implanted with Ralgro. Implanting heifers or bulls which are being retained for breeding purposes is not recommended.

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Research data with growing cattle (300 to 600 pounds) on pasture and in feedlots have indicated an 8 to 12 percent increase in growth rate with all products. The effect of Ralgro, Synovex or DES in recent studies with growing cattle gaining 1 pound per day or less was minimal. This lack of growth response from implanting was probably due to a shortage of available energy. The use of any implant is questionable under conditions of limited feedstuffs.

The use of Ralgro, Synovex or DES with feedlot steers and heifers results in an 8 to 12 percent increase in growth rate and an 8 to 10 percent reduction in the feed required per pound of gain. No detrimental effect upon carcass grade has been demonstrated. Research has demonstrated that whether or not cattle are implanted during the growing phase, implanting at the start of the finishing phase will result in increased growth rate and improved feed efficiency throughout this latter period.

The effectiveness of reimplanting cattle requiring 120 to 140 days in the feedlot has been demonstrated by Dr. Walter Koers, formerly with the Texas Agricultural Experiment Station, and Dr. Glen Lofgreen, University of California. Their data indicate that reimplanting cattle with Ralgro or Synovex 60 to 70 days after the start of the finishing phase results in a 5 to 8 percent increase in weight gain and a 3 to 6 percent improvement in feed efficiency compared to cattle implanted once at the start of the finishing phase. Cattle must be implanted with DES 120 days prior to slaughter. Consequently, it cannot be used as a second implant in most conditions. The benefits from reimplanting heavy cattle (800 to 950 pounds) must be weighed against possible management problems which may result. This question can only be answered by the feedlot manager, and a blanket recommendation is not warranted.

With three different products available, the question arises as to which will promote the most efficient performance. When data from many universities are combined, the effects of Ralgro, DES and Synovex are shown to be approximately equal. In determining which implant or sequence of implants to use during growing and finishing phases, such factors as withdrawal time, cost, ease of implanting and past experience should be considered.

### Regulations

According to FDA regulations, Ralgro, Synovex and DES must be implanted at least 65, 60 and 120 days, respectively, prior to slaughter. This regulation applies to heifers and steers alike.

The only site where implants may be legally administered is in the ear. Implants administered in any other location of the body are in violation of FDA regulations.

### Implanting Technique

For maximum response with Ralgro, Synovex or DES, the proper implanting technique must be employed. The response to these implants may be quite variable according to cattle industry personnel and several university research reports. Improper technique is a major factor contributing to this variation. Several *common errors* occur during implanting which may cause a less than optimum response. These include:

1. Crushing the pellets in the ear.
2. Pushing the needle completely through the ear so that pellets fall to the ground.
3. Depositing pellets between skin layers and not under the skin.
4. Depositing implants in the cartilage of the ear.
5. Severing a blood vessel in the ear, causing hemorrhaging.

Proper implanting is a simple process which can be completed in a short period of time. The following directions for implanting apply to all three implants.

The point of the needle of the implant device should be inserted under the skin 1½ to 2½ inches from the base of the backside of the ear. The skin is relatively loose in this area and allows for easy insertion of the needle under the skin. The skin is held much tighter to the ear further away from the base of the ear, and insertion of the needle at this point is more difficult.

The needle must not be inserted too close to the head. This may result in the pellets being deposited in the head, which is in violation of FDA regulations.

The full length of the needle should be inserted under the skin. As the process of expelling the pellets is begun (by pulling the trigger or depressing the plunger), the needle should be pulled approximately halfway out. This process allows the pellets to be deposited in the path of the needle. Failure to pull the needle partially out prior to expelling the pellets is probably the most common error in implanting, and may result in crushed pellets.

Broken or crushed pellets are absorbed at a more rapid rate than intact pellets, and the effect of the implant is reduced. Severing a blood vessel during implanting also may result in rapid absorption of the active compound. Depositing the pellet within the cartilage or between layers of skin may result in little absorption and less than optimum response.

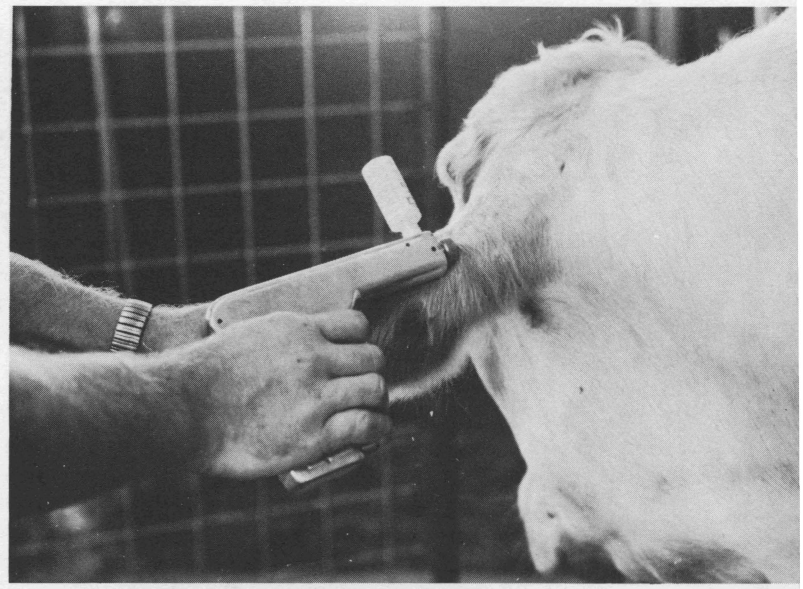

*Figure 1. The full length of the needle should be inserted under the skin 1½ to 2½ inches from the head.*

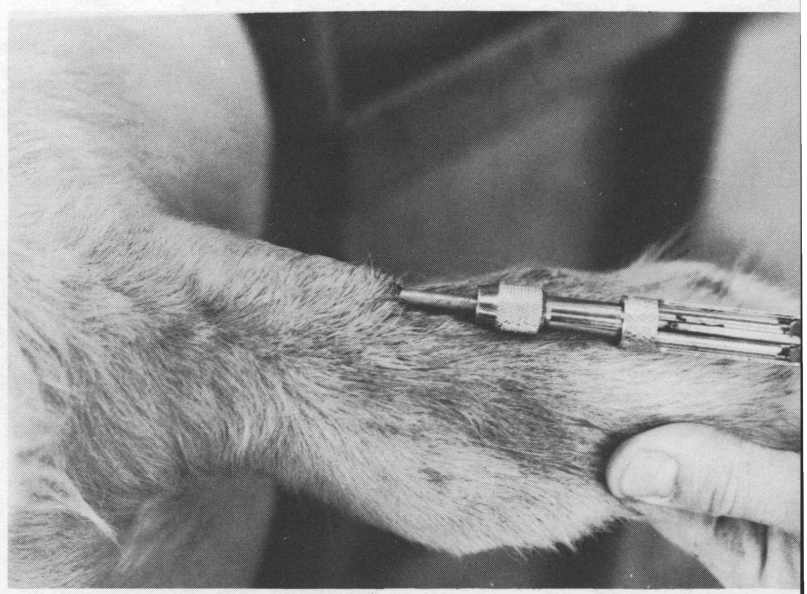

*Figure 2. The needle should be pulled halfway out prior to expelling the pellets into the ear.*

## Conclusions

1. Current recommendations are to implant cattle with Ralgro, Synovex or DES.

2. Proper implanting technique must be employed to obtain a maximum response.

3. The response lasts approximately 100 days.

4. The use of Synovex, Ralgro or DES is not recommended for breeding cattle.

5. These products should be used in accordance with Food and Drug Administration regulations.

## References


Koers, Walter C., Cal Parrott, R. H. Klett and L. B. Sherrod. *Implant systems for growing-finishing steers.* Texas Beef Conference Proceedings, 1974.

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