

## THE USE OF GROWTH PROMOTANTS

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There are several growth promotants that can be implanted in cattle to stimulate growth at various stages of production. Some can be used in all stages of growth; other are limited to specific phases of growth. Most of these materials have a similar mode of action: they promote growth by a hormonal action. Studies comparing the various growth promotants indicate little difference in response when compared under similar conditions. However, there is variation in growth response between years under the same management. Also, there has been variation in response under different management systems. The discussion of growth promotants in this paper will be limited to the suckling and growing phases of production.

DES (diethylstilbestrol), a synthetic female hormone, has been available for a number of years. It is cleared for use on suckling calves weighing more than 200 pounds and growing and finishing steers. DES has provided more satisfactory results in steers because of side effects in heifers. Some work has shown a reduction in reproduction of heifers implanted with DES. Also, implanted older heifers develop physical characteristics of pregnancy. DES appeared to lose effectiveness at 90 to 120 days and reimplanting is recommended during this time. Cattle should not be implanted within 120 days of slaughter.

Withdrawal time is very critical. The use of DES was banned once and it could be banned again if too many cattle are slaughtered with residue in the liver or meat. Research has shown that the liver does contain small amounts of DES 60 days after implanting. A 60-day safety time is not a bad trade-off for the use of DES.

Ralgro (Zeranol), another growth-promoting substance, is prepared synthetically from a mold that grows on corn. It is cleared for use in suckling, growing, and finishing beef cattle. However, there has been some question as to its effect on reproduction when replacement heifers are implanted with Ralgro. The effective period for Ralgro is 90 to 120 days and reimplanting is recommended after this time. Animals should not be implanted within 65 days of slaughter.

Synovex-S is a growth promotant cleared for use in steer calves weighing 400 to 1,000 pounds but cannot be implanted within 60 days of slaughter. The effective period is 100 to 120 days. Synovex-H is an implant for heifers with the same withdrawal restrictions as Synovex-S. It can be used for growing market heifers but is not recommended for replacement heifers.

A review of the many studies comparing growth promotants indicates one product performs as well as another. Some studies show a consistent advantage when calves are implanted at birth through slaughter. Other studies show a greater advantage during suckling than during the finishing period and still other studies show the greater advantage during growing and finishing periods. Overall, the studies indicate the use of growth promotants is an economically sound management practice.

The implanting technique is a possible explanation for some of the variation in response. The implant must be placed properly in the ear to get satisfactory responses. Most manufacturers recommend that the implant be deposited one inch away from the cartilage ring at the base of the ear between the skin and cartilage of the ear. If implants are placed in blood vessels, the resulting hemorrhage may soften the implant and cause too rapid absorption. Also, the implant may become encapsulated and not be absorbed. Crushed or damaged implants cause too rapid absorption. Placing the implant in the end of the ear or depositing the implant in the cartilage of the ear reduces absorption.

Data from many studies indicate that implanting suckling calves will increase rate of gain by about 8 percent. Data from the Union Station show that unimplanted calves have an average daily suckling gain of 1.8 pounds compared to 1.95 pounds a day for implanted calves. Implanted calves weaned at 200 days weigh 30 pounds more. The gross return per calf for implanting would be \$21 if calves were sold for 70 cents a pound.

During the post-weaning phase of production growth, promotants increase rate of gain by 10 percent and increase feed efficiency by about 6 percent. Implanted wintering calves gaining at about 1.5 pounds a day for 180 days weigh 27 pounds more than non-implanted. The additional return for implanting would be \$17.55 if the calves were sold at 65 cents a pound. The savings in hay would amount to \$3.89 if hay were selling at \$45 per ton. The gross return per calf during the wintering period would be about \$21.44. The expected increased return from calves implanted during the suckling and growing period versus non-implanted calves would be about \$42.44.

#### CONCLUSIONS

1. Implants must be properly placed in the ear.
2. There is some variation in response from growth promotants between year and management practice.
3. Use of growth promotants should not be evaluated on a one-time basis.
4. Improvement in gains is best measured with a scale and not by the eye.
5. It pays to use growth promotants.

Expected return per calf from use of growth promotants

Phase of production	Days in production phase	Additional lbs. of calf	Price per lb. for calves	Additional return
Suckling	200	30	\$ .70	\$ 21.00
Post-weaning growing	180	27	.65	17.55
	(Savings in hay cost with hay at \$45/ton)			<u>3.89</u>
			Total	\$ 42.44