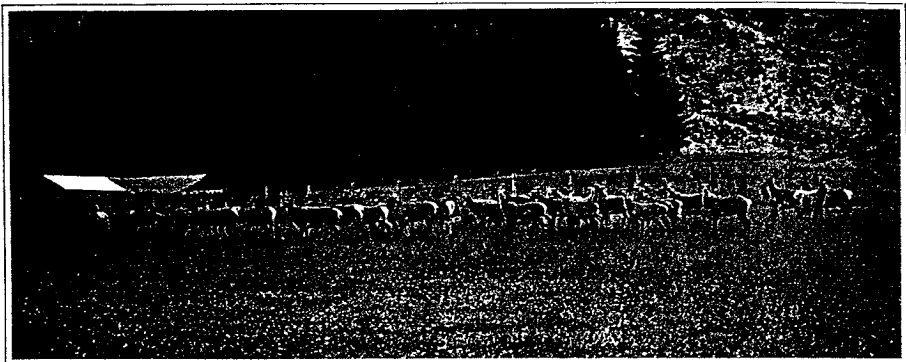


This article, by Jimmy Suttie, Ian Corson and Peter Fennessy of Invermay Agricultural Research Centre, Mosgiel, has been written in response to numerous enquiries from the deer farming industry, farmers and scientists. It is intended to provide information and stimulate discussion and in no way endorses or recommends any product.



# FASTGRO

## The implantation way

BODY GROWTH in deer, even under optimal conditions, is highly seasonal and it may be appropriate to consider ways of altering or manipulating this, in order to make better use of pasture or to spread the kill through the DSP's.

An obvious way involves the use of growth promotion implants. But before discussing them, a distinction must be made between natural hormones such as testosterone and Compudose (oestradiol) and the xenobiotics such as Ralgro (zeranol).

Currently in New Zealand, only Ralgro is fully licensed for use with cattle; Compudose is provisionally registered for research purposes. None are licensed for deer.

In the EEC, there is a debate concerning the use of growth promotants in food animals. Any EEC regulations can be expected to have widespread repercussions throughout the livestock world.

The questions we will address here concern the technical possibilities for growth promotion in deer using anabolic drugs. We do not address the question of marketing products from animals treated in this way and believe

rather that this is a question that the industry must answer.

A growing stag has little or no male hormone (testosterone) in his blood when growing his antlers. So it is of interest to learn the effect of treating a stag with testosterone, a hormone, or Ralgro, a non-hormone.

### Ralgro

These questions were first addressed by Peter Fennessy and Geoff Moore eight years ago. They implanted rising 2-year old stags with 12 mg zeranol (Ralgro) in the spring and measured liveweight gain. Implanted stags grew at nearly 400 g/day whereas control stags grew at 330 g/day — a clear response in favour of implanting!

However, the treatment reduced antler development in some stags, and abolished it altogether in others. In 1977, velvet antler — even from 2-year olds — had considerable value, so they abandoned the Ralgro trials despite the undoubted success of the product in relation to body growth.

In 1985, with less certainty about velvet prices or markets especially for 2-year old velvet and with established

DSP's paying high prices for prime meat, the question again rises — could growth promotants be used successfully in stags for slaughter? At Invermay we are currently addressing this problem.

### Testosterone

For our first year's work we decided to use testosterone rather than Ralgro. We chose to work with rising 2-year old stags, as these seemed to be appropriate slaughter animals and because we wished to see whether commercial velvet yields were lowered.

At Invermay we implanted groups of stags with varying levels of testosterone from October-December as shown in the table. The groups of stags given high levels of testosterone grew about 60 g/day faster than either controls (empty implant) or stags given low levels of testosterone. Testosterone treatment before antler casting either prevented it or resulted in smaller antlers.

Testosterone treatment after antler casting slightly reduced antler size. We conclude that steroid treatment was effective in promoting body

## GROWTH PROMOTION

▷ growth, but had a deleterious effect on antler growth.

### Conclusion

In conclusion then, it appears that 12 mg Ralgro or a high level of testosterone can successfully promote body growth in rising 2-year old stags – but at the expense of their antlers. However there are several, much wider issues here to be considered.

First, do we want growth promotants of any kind in deer at all? If we do, do we wish to restrict these to natural hormones and decide not to use Ralgro? We believe that the industry may well prefer to continue to promote New Zealand venison as a game product – and this may mitigate against any anabolic treatment despite any USDA or EEC regulation.

It has been shown overseas that velvety calves treated with Ralgro or the natural hormones have lower levels of steroids in the meat than intact untreated bulls or cows, so residue problems are unimportant. But customer perceptions of what constitutes 'natural' game meat may be.

Second, growth implants will prevent or decrease antler growth. Has the antler industry fallen to such a level that increased carcase gains offset

### The effect of testosterone implants on stag body weight gain and antler weights

	Liveweight gain <sup>1</sup> g/day	Antler weight (g) <sup>2</sup>	
		Cast before implant	Not cast before implant
No testosterone implant	203	1624	1277
Small testosterone implant	205	1849	0
Medium testosterone implant	264	1545	508
Large testosterone implant	264	1423	0

1 8 weeks from October 26 to December 17.

2 All antler was removed on February 7. "Cast before implant" means that the stag had begun to grow his 2 year old antlers before the trial had started. "Not cast before implant" means that the stag had retained his previous hard spike antlers before the trial started.

loss of revenue from velvet? Clearly it has for spikers, but 2-year old stags are a different story – but can the farmer plan effectively with the level of uncertainty that exists over 2-year old velvet prices?

The third question the industry should consider is that anabolic treatment before puberty, leads to diminished fertility or sterility. Thus selection of potential sire stags would have to take place early, before any treatment.

Many deer farmers do not select stags until much older – but what assurance can they have that the huge stag in the auction pen did not receive a growth promotant as a calf?

We believe that experiments on growth promotants and deer are valid because they allow us to evaluate management options. Clearly only treating cull stags for three months in the spring is one option: Others exist.

Older stags used for velvetting could be treated with Ralgro to keep some of the fat off prior to slaughter in March; weaners could be treated to enhance liveweight gain prior to early slaughter at nine months of age; Ralgro could be used as a rut suppressing tool in young stags; ultimately cull hinds could also be treated.

Over the next year we are to conduct trials at Invermay and on farms in the South Island to bring to the attention of New Zealand deer farmers the possibilities and options, the problems and consequences of this mode of husbandry on our prime product. We do not advocate any treatment but believe that informed discussion best serves the deer farming industry.