Intensive grazing management systems for deer

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Introduction

Managing pastures for maximum production on a deer farm can be challenging. Pasture growth is often not well matched to animal demand and both hinds and stags must be set stocked at certain times of the year. A proliferation of mobs restricts the farmers' ability to establish proper grazing rotations. The making and feeding of supplements is a feature of many deer farming systems.

Common grazing management practice is to semi-set stock. Set stocking or slow rotations around a few paddocks lead to erosion, as fence lines and waterways suffer from constant wear and loss of vegetation. Electric fence use tends to be confined to allocating feed crops or strip grazing annual ryegrasses without back fences.

Feed pads are becoming a more common practise to avoid the problems of winter pasture damage. Problems of nutrient transfer to the pads from the paddocks and the subsequent runoff from those pads result.

There used to be a profitability comfort zone with deer farming. Deer farmers have been complacent due to this superior profitability whilst sheep and beef farmers have been getting smarter by necessity. Twelve months ago we sat down and re-assessed the role of deer on our farm. Two key issues became apparent. Firstly we had to reduce the amount of erosion they were causing and secondly we had to focus on growing and utilising grass more efficiently.

Solving these problems presents something of a quandary. On one hand we need more and smaller paddocks, thus more fences. On the other hand we want less fences. Fewer fences equals less erosion. The solution seemed to be large permanently fenced blocks subdivided with electric fencing that could be moved before erosion problems occurred. These fences needed to be laid out in a fashion which still enabled tasks such as fertiliser spreading, mowing, spraying etc to be done efficiently. Harry Weir, the developer of beef Techno-grazing and spider fencing, has provided the technology and hardware to make this possible.

This paper describes the progress we have made to date using electric subdivision for intensive rotational grazing of deer.

Coonoor – the farm

There have been deer on our property in South Canterbury since 1976. We currently farm 380 red hinds and 500 velveting stags and finish 130 home bred Wapiti x weaners. We also run 450 ewes, 110 Friesian bulls and grow a variable area of cash crop. The 240ha dryland property is now mostly deer fenced. The contour is gently rolling clay downs 100m above sea level with a 550mm rainfall. The provision of shelter has always been a priority and is definitely a requirement under intensive grazing.

Erosion of fence lines and gullies by deer is an on going problem that really only becomes apparent when you start carting soil to repair it. As an example, 250t of soil was used to repair one 200m fence line recently. This was the prime reason for trying to develop an intensive rotational grazing system. Secondary to this was a desire to grow more grass and spend less time feeding supplements.

Two dairy farmer maxims I find particularly relevant to this second aim are:

- Grass grows grass
  and
- You can do anything to grass as long as it is only for 24 hours.

Feeding hinds in winter

First attempts were made during the 2001 winter when feed was very short after another drought. Three hundred and twenty mixed age hinds were given 0.4 ha per day of cocksfoot (front and back fenced) with barley straw and some grain occasionally. They very quickly learnt to run over the pinned down electric fence (live) onto their new block. Four hinds were removed from the mob for being repeat escapees.

The hinds stayed on this sort of regime until late October. One hind died and four were taken out as dry in November, which had been pregnant in June. There were no out-breaks of Johnnes disease, MCF, internal parasites or any other diseases with the close confinement.

This winter the maiden hinds were also included in the mob of 400. After the stags were withdrawn the various hind mobs were combined on a 5 ha paddock and given a week to establish their social order. This provided a settled single herd to work with during the winter. Hinds were shifted daily in the late afternoon onto a 0.4 ha block and received silage on that block the following morning. Despite having no teeth the oldest hinds

maintained or gained weight. The maiden hinds lost a lot of hair and about one condition score though none died or were removed from the mob. Scanning in late September resulted in four dries out of 108 maidens mated, a result we were very happy with. This would indicate that foetal loss due to hierarchal stress is probably not an issue in deer.

Next year we intend to delay weaning until September and run all the hinds, fawns and maiden hinds in one mob. Hopefully the savings in time will offset the possibly delayed conception and inefficiencies of not being able to allocate the best feed to the weaners. We trialed this this year with the first calving hinds and achieved 100% conception, though the conception date is still to become apparent.

There was absolutely no weaning stress when it was eventually done. An added advantage would be the ability to shift a large portion of the deer stock units to a temporary feed pad during extended spells of wet weather.

Experiences to date suggest that the maximum stocking density is approximately 1000/ha. This type of management maximises pasture quality through reducing dead material and increasing clover content, especially in the early spring. Deer graze very uniformly and not quite to the same level as sheep. Post grazing residuals are probably around 600 kgDM/ha versus 400 kgDM/ha for ewes. This makes for significantly faster regrowth of the grazed pastures. The high stock density is also very effective at killing slugs and desiccating their eggs prior to direct drilling.

The benefits of having an even spread of fertility across the paddock are, I believe, under estimated, and a major advantage of the system. Like fence line erosion, fertility transfer is an insidious and ongoing process that is too easily ignored.

Feeding lactating hinds and weaners

A 14 ha block was direct drilled in red clover (4 kg/ha) and chicory (2 kg/ha) in spring 2001. This was then fenced into 6 lanes (65m wide) using four 1.25mm high tensile wires and 1.5m fibreglass standards. Water lines were installed in every second fence line. Cross fences were erected to create eighteen 0.8 ha blocks. One hundred hinds and their fawns were grazed on the paddock from mid January being shifted daily. Another 100 hinds and their fawns were added in February.

Heavy rainfall during January delayed the start, and combined with a new sowing meant that the feed offered was too long. Despite using different sowing dates the weather added to the problems of getting a rotation established. The conditions meant that the utilisation of the feed offered was only approximately 50%. To get higher utilisation gave an unacceptable level of fence pacing. The chicory/red clover pasture was easily trampled and the damage reduced the palatability, and therefore the utilisation.

Approximately 200 fawns were weaned back onto this block in late February. There were a continual number of fence breakers that became uncontrollable and so the group were removed. They have since been re-disciplined following the purchase of a new energiser. A powerful and reliable mains system is absolutely essential.

This spring grazing commenced on the block on 15 September with 160 wapiti and Hungarian cross weaners. Block size was increased to 1.2ha and shifts every second day. (24 day rotation). Utilisation has been good with the dry weather and weight gains over the first two weeks appear to have been 400 g/day. There has been less pacing with the larger block size. When the deer are slaughtered at the end of October a high quality worm free pasture will be available to rapidly finish lambs before hinds and fawns start again in mid January. I believe there are big productivity gains to be made by alternating species of stock and so reducing parasite burdens.

Soil Damage

This type of grazing system really highlights how the contentedness of deer changes with different feeding environments and weather. A wet night by the road with no shelter will mean a big mess. Away from the road on a sunny facing paddock and in dry frosty weather more contented animals would be hard to find. Shelter is essential in wet windy weather to avoid major fence pacing episodes. Sheltered blocks are saved for these conditions. From an animal welfare viewpoint this makes good sense.

Fences are designed with shifting annually in mind to avoid continual wear on a single fence line. Clips on the ends of the lane fences mean they can easily be pushed sideways several meters.

The deer still try to wallow if there is running or standing water present. These areas are either fenced out or grazed when dry. Any leaks in the watering system are quickly exploited, and need to be fixed immediately. Wallowing damage is a lot less with daily shifting than longer term grazing.

Fencing and Labour

Making the electric fencing system efficient is vital. Kiwitech International, the developers of beef Techno-grazing systems, were approached for ideas on adapting their system for deer. Their products and innovative thinking have been a big help. How many of us use electric fence standards that serve as wonderful earths as soon as a wire is knocked out of a clip? These are cheap

but absolutely worthless.

Kiwitechs 1.25mm high tensile wire has been used for the lane fences with tensioning springs at each end. It is possible to wind this wire on a spool, making a cheap and very durable temporary fence. With further development I hope that a four wire high tensile fence can be erected or dismantled with one pass on a four-wheeler. Deer seem to respect the HT wire more than polywire, possibly because of its better conductivity, or because it is harder to see. We have thrown most of our poly tape away with the metal standards, finding it a poor conductor and no good in the wind.

Hinds seemed to be quick to take advantage if the bottom wire is more than 20cm off the ground. Three or even two wires may suffice with good training. Currently the multi wire requirements of the system mean that the running of smaller mobs in separate lanes can't be readily achieved.

Training is critical and probably best achieved with a high specification fence at a young age. Inclusion of an earth wire in this fence could be advantageous. Weaning indoors with a week or so quietening and disciplining to electrics is something we would like to try.

Water Systems

Water use to date has been minimal, though we have yet to go through a dry summer with lactating hinds. Kiwitechs technology makes for efficient temporary watering systems. Alkathene pipe can be towed around with a four-wheeler as in K- line irrigation, so not every paddock has to have fixed water lines.

Conclusions

There is no doubt other deer farmers are adopting similar grazing systems, or have already tried to. There is still much to learn and some technological advances to make. The biggest draw back with any intensive grazing system is the commitment to be constantly shifting stock. No matter how fast it is someone still has to go out and do it. This is complicated with deer in that you need to have one ear on the weather forecast so that shifts to shelter can be made in advance. We have achieved the aims of reducing erosion and growing more grass though don't have many hard facts yet to support these claims. In another twelve months time we will be in a better position to comment on the practicality of these systems to mainstream deer farmers.