Deluxe diet

Trialling a high quality pasture system for maximum venison production

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A NOVEL pasture system is under test by DSIR Grasslands and the South Waikato Deer Farmers Association (SWDFA). The two organisations have been working together to improve profitability of the pastoral farming of deer for three years now.

The new system aims to provide the best possible pasture feed for hinds during lactation, as well as the best possible winter feed in order to finish yearlings by the following spring.

The species tested in this research were selected from earlier trials by DSIR Grasslands and SWDFA on Joe and Anne Minkhorst's property in the Waikato. These trials showed 'Grasslands G27' red clover and 'Grasslands Puna' chicory to be highly acceptable to lactating Red hinds during the summer, and that ryegrass was poorly accepted. Grasses were far more acceptable to deer in winter and spring, but 'Grasslands Moata' Italian ryegrass and 'Grasslands Matua' prairie grass were preferred the most.

Research into deer pasture began because the SWDFA farmers had found the natural reproductive cycle and feed demand of their deer was out of synchronisation with the seasonal growth rhythm of ryegrass pastures.

In particular, they are unable to sufficiently finish the stag fawns to the required killing weight in time to get the premium price. This means they have to carry these stags on the farm through a second summer at a time when the next crop of fawns is born and feed is getting scarce. Many SWDFA deer farmers have lower than optimum stocking rates, are forced to supplement pasture with grain, and must conserve large quantities of surplus feed in the spring when pasture growth is rapid, but demand from deer is low.

The species selected for a deer pasture had to meet the following requirements: They had to produce plenty of feed at the time of the year when it was needed; the feed produced had to be of very high quality; and the feed had to be highly acceptable to the deer in order to maximise intakes and utilisation.

Young bulls sample establishing chicory at Aroha Hills, Taihape.

South Waikato deer farmers Ian Scott, Kevin Earland, Gary Fowler prepare chicory for sowing at Tirau.

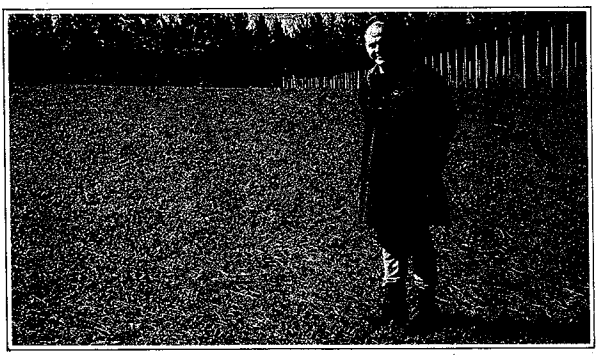
'Grasslands Puna' chicory, and 'Grasslands Colenso' red clover, were included in the trial because they produce well in summer. 'Grasslands Tama' westerwolds ryegrass will be used for the winter phase.

'Grasslands Tama' is similar to the highly palatable (in winter) 'Grasslands Moata', but is better suited to our purpose in that it dies out very quickly after spring leaving room for the summer growers. 'Grasslands Tama' is the best producer of high quality winter forage of the Italian type ryegrasses, but is used less often than 'Grasslands Moata' because it is less persistent.

High quality species improve animal growth rates because they are highly digestible. This has two major benefits: A greater proportion of what is eaten is available for conversion into animal products and, because the gut empties more quickly, the animal is back eating again sooner. As a result, total food intake increases.

The high quality of 'Grasslands Puna' chicory, 'Grasslands Colenso' red clover, and 'Grasslands Tama' westerwolds ryegrass and its ability to produce high growth rates has been demonstrated many times with lambs. Those attending the Massey deer field day last year saw the quality of red clover confirmed with lactating Red hinds. 'Grasslands Pawera' red clover gave an 8 kg liveweight advantage to weaners

▷ *Gordon Fraser, Woodbury Farm, inspects the progress of Colenso' Red clover.*



compared to those on ryegrass pasture.

Having selected the desired species, the next problem is how to introduce and maintain them in a sustainable system on commercial farms.

Simply introducing chicory and red clover into ryegrass or other grass mixtures is unlikely to succeed, for two reasons:

First, part of the mixture will be of lower quality grasses and hence the objective of providing a high quality forage to boost growth rates is partially defeated from the outset.

Second, deer are selective feeders. When feeding, they move over the whole area available to them, picking out the most palatable high quality species, eating proportionally less of the less palatable grasses. This gives a continual competitive disadvantage to the high quality species which are eventually lost. Pastures revert to those species which are grazed the least, completely defeating the objective of providing a high quality forage.

To avoid this problem, we are testing a system where only the high quality species are sown in monoculture or simple mixtures. In this way they will not be disadvantaged by competition from less palatable grasses.

At present we are growing red clover and chicory separately so that we can measure the benefits of each, but eventually they will be sown together to provide a legume base for the system.

Red clover and chicory are dormant during winter, but that is where the 'Grasslands Tama' westerwolds ryegrass comes in: Tama is oversown on the red clover or chicory crop during March when hinds are removed at weaning. The weaners are able to continue feeding on the summer crop until the Tama is trodden in, germinates and begins to take over, and hence suffer no feed check to growth because the changeover from the summer crop to the Tama ryegrass is gradual.

The vigorous winter growth of the Tama provides more high quality feed than would a traditional ryegrass based pasture. This allows the winter growth of the weaners to be maximised.

By the next spring, a large surplus of Tama and the chicory (which has begun to grow again) is available to make high quality conserved feed (balage or silage) after which the growth of Tama stops. The perennial summer species are then free from competition to continue growth for the next lactation period.

Another feature of the species selected for this trial is their ability to germinate well from broadcast sowings, enabling low cost zero-till methods of establishment and maintenance to be used: Old pasture can be sprayed out and seed spun on with fertiliser with a spreader for establishment and the same technique can be used to maintain high densities of the summer crop if much damage is sustained during winter.

Our research includes testing the use of pelleted seed coated with fungicide, nitrogen and plant growth hormone to give the new seedlings a boost to cope with competition from resident plants and weeds. Regular topdressing in the spring will include some pelleted seed in with the fertiliser if needed, or seed can be broadcasted by hand in areas the deer have bared out.

The above description outlines the basic characteristics of the proposed system once it is operating, but the research needs also to address how to introduce such a system into an established commercial farm, to test how profitable it may be, and to see whether it will work in different climatic locations. To achieve these goals, the system is being tested in three North Island locations; at a Tirau deer farm (Mr and Mrs Ray Stevenson); Aroha Hills, Taihape (Piers and Jacqui Hunt); and Woodbury Farm, Waimauku (Gordon Fraser).

Funding such a large project in the modern era of 'user pays' is of course a major hurdle, but the forward-looking and proactive deer farmers of south Waikato are getting research dollars from trusts and government funding bodies to supplement their own efforts and contributions.

Help has also been forthcoming from servicing companies such as Nufarm (Phil Gillon, Otahuhu) who are assisting with the provision of agrichemicals. This help has been much appreciated at Woodbury Farm where establishment of chicory and red clover was hampered by infestations of black beetle and clover flea, as well as the usual weeds.

Experience so far has shown that summer growing species are best sown in spring so they get established well before they go dormant in winter. But spring is a difficult time to take pasture out of production as the spring surplus is required for conserved feed. Spring sowings also risk early droughts which can severely affect even drought-resistant species like chicory, if they occur before the deep root system is well established.

Thus, early autumn sowings will also be tested, in the expectation that the summer crop can be well established before the winter Tama crop is sown. Weed competition is less severe with autumn sowings as many weeds are spring/summer growers. The rapid growth of Tama during spring will do much to suppress weeds until the chicory and red clover are growing well again, so that once the system is operating, weeds should not be a big problem.

Early indications of the benefits of the system are coming from Aroha Hills where stags are utilising establishing chicory. A five year old Wapiti bull cut 4.6 kg of velvet — one kilogram more than recent years — and now weighs 380 kg in response to a change to high quality pasture, after years of poor performance on traditional pasture. □