

# Some Thoughts on Pasture Species for New Zealand

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New Zealand was mostly ryegrass country until we discovered endophyte and its effects. Now we see a much more diverse range of pastures being used. This brief outline covers some of the grasses and clover available, and highlights some best bets. Environments throughout New Zealand are many and varied, so suggestions may not be specific or final.

Endophyte causes ryegrass staggers, to which some livestock are particularly susceptible. Other problems linked to endophyte have been identified. These include poor appetite and low growth, scouring in sheep, poor lactation and suppression of onset of lactation in dairy cows, and extended gestation periods in sheep. Retention of the winter coat has also been seen in elk.

Many chemicals are involved in these responses, with lolitrem causing staggers and ergovalines causing poor milking and prolonged gestation.

Other chemicals are also involved, especially in protecting the grass from insect attack, hence maintaining longevity.

Ryegrass, however, is the most productive, and, aside from endophyte problems, the highest quality grass generally available throughout the world. Hence its continued use throughout New Zealand. Many farmers continue to use ryegrass because these benefits outweigh the disadvantages.

Other farmers choose to use low or nil endophyte ryegrasses, taking the chance of insect attack while maintaining high quality pastures.

Some gains have also been made in providing ryegrass cultivars with endophytes that only produce toxins to deter insects with low animal toxicity. Examples of these are Greenstone and AriesHD.

In Otago and Southland Nil endophyte ryegrasses persist well because insect damage, especially Argentine stem weevil, is low. These are the preferred grasses in this region. Timothy may be considered as an alternative, though must be grazed no closer than 5cm in summer.

North Otago, while having major drought problems, can still use low endophyte ryegrasses because again Argentine stem weevil damage is relatively low. Other drought resistant grasses for use with deer in North Otago would be tall fescue. Care must be taken to choose a high palatability cultivar, to take time to establish it well, to fertilise it well and to graze it closely and often once established. All of these practises will ensure that high quality is maintained.

South Canterbury foothills properties are again relatively safe country for low endophyte ryegrasses. Summer rainfall is generally high enough to ensure persistence.

On the Canterbury Plains we see a different story. On unirrigated properties the best overall option is probably tall fescue, remembering that it does need good soil fertility and close grazing management. Grazing Brome is also an alternative with good winter production and good persistence under close grazing. On irrigated properties with good fertility low or nil endophyte ryegrasses have showed good performance under rotational grazing, and give high animal performance.

As we move further north the likelihood of insect damage reducing the life of perennial ryegrass pastures becomes increasingly more likely, and alternatives like tall fescue become more important. Many farmers, however, are willing to continue to use ryegrass, with or without endophyte, because of its high quality, good seasonal spread of production and ease of management.

When continuing to use ryegrass, consideration should be given to endophyte, with cultivars of low lolitrem and low ergovaline levels being preferred. Unfortunately these are in short supply at the moment, but should increase over the next five years.

White clover is the other cornerstone of New Zealand farming enterprise. A range of cultivars are now available which provide maximum yields and compatibility with grasses throughout New Zealand.

Dense and medium leafed types are best for relatively continuous grazing systems, where lactating hinds are set stocked. Cultivars such as Demand are the best in the cooler moist parts of the country, while Tahora is good in hill country and Prestige is good in North Island moist environments. Cultivars like Sustain and Prop have specific roles. The old Huia is now well superseded by other cultivars.

Other important pasture species which have shown improved animal performance include red clover, chicory and Lotus corniculatus (Birdsfoot Trefoil). These species provide large amounts of spring, summer and autumn feed of high quality. Unfortunately they have several drawbacks.

Their use must be a carefully considered choice to meet specific feeding objectives. Both red clover and chicory provide good animal performance, especially in summer and autumn, but come with a price of a relatively short life. In Otago and Southland they may only last two or three summers, and it is generally recommended that they are sown with a low rate (10 to 12 kg/ha) of ryegrass to avoid having to resow after two or three years.

The life of red clover and chicory tends to improve as we go north, but still three or four summers will be average. Sown together they can contribute significantly to improving weaner weights and post-weaning growth rates. Their use on 10% of a farm is generally needed to be effective, and to have an area worth managing.

Lotus corniculatus is a species with some potential but is very slow to establish, being particularly susceptible to weed invasion, and not competitive when sown with grass.

Many other grasses, clovers and some herbs are available. All can have some role in providing a balanced diet on a year round basis. The species and cultivars outlined here are the ones which are currently most promising to the deer industry.