

The Hakataramea Valley: 10 years of experimenting with pasture species

K. HANNING

Hakataramea Valley, RD, Kurow

The climate and farming

The Hakataramea Valley is located north of Kurow midway between the east coast and the Mackenzie Basin. It is bounded on the east by the Hunter Hills and the west by the Kirkliston Range, which rises to 1800 metres. The catchment is 56 km long with an average width of 21 km, and drains 800 km². Almost half the area is in terraces and fans, 20% hills and 30% high country. The dry eastern parts of the valley have less than 500 mm of rain, but rainfall increases rapidly with altitude to about 1000 mm on the mountains in the west. Summers are normally hot and dry with about 80 days of moisture deficit. Winters can be long with heavy frosts. Because of these great variations in climate and topography every farm has its own possibilities and problems.

Moa hunters were the first inhabitants of the area. European settlement saw the valley split into a few large runs. Subdivision followed and there are now 55 properties with an average size of around 600 ha. Cropping was widespread on some of the rich farms on the lower west side but sheep, followed by cattle, are now the major source of farmers' income. The exceptions are the two or three cropping–grain and grass seed and/or two large-scale deer properties.

The last ten years

During the mid 1980s when prices were depressed and the drought was severe, the valley suffered from unfair media publicity. One paddock of soil blowing on TV was interpreted as the whole valley blowing away. Pictures of some thin sheep were poor representations for the majority of farmers who struggled to keep their stock in good order.

Most farmers became dissatisfied with the performance of their white clover–ryegrass pastures. Droughts and grass grub and barley grass and nodding thistle seem to have a symbiotic relationship. In areas under cropping a pasture which lasts 3–4 years may not be a problem. But for stock grazing and now with the enormous cost of pasture establishment, farmers need permanent species.

Obviously, the ideal species grows 365 days a year, produces 20 000 kg of DM per ha, withstands grass grub, competes with barley grass and nodders, lasts 50

years, needs no fertiliser and seed is cheap.

Lucerne has always been an important pasture species. Particularly for hay and silage production. In a pure stand, the costs of weed control and the dangers of frostlift and then windblow have led me to search for companion grasses. In 1982 I planted a 6 ha paddock with lucerne mixed with:

- (a) Prairie grass – excellent early-spring, late-autumn feed; has survived severe grass grub by reseeding.
- (b) Maru phalaris – still there, but not showing up too strongly.
- (c) Wana cocksfoot – has become dominant owing perhaps to lax grazing; eaten last.
- (d) Sheep's burnet – disappeared after 2 years.

Since 1985 lucerne stands drilled with S170 fescue have produced excellent hay and silage plus early-spring and late-autumn grazing. Now stands are being drilled with Cajun fescue and probably Advance to provide better overall palatability.

Kara cocksfoot with red clover has proved to be too dominant under irrigation but is very good for silage.

A farmer committee was set up in the mid 1980s to look at new pasture species for shelter planning, direct drilling and sustainable farming. There was considerable development of the use of cocksfoots – Wana, and Porto with its ability to grow later in the autumn and be less dominant. Fescues, starting with S170, then Triumph, and now Cajun and Advance, have all been trialled.

Later, with the help of AgResearch, a large trial was set up on John and Carol McKenzie's "Belfield" property. Most grass and clover species were trialled. After 8 years Kara cocksfoot has shown up very well under dryland conditions, with Porto cocksfoot giving better winter growth. Hakari and Tiki bromes have not lasted. An American brome called Lincoln that has been established for 4 years is performing well. Obviously S170 was the only fescue available when the trial was put down – Cajun and Advance will have to be tried over a number of years, although Advance is in the top three of an American trial after 2 years. For tougher country Madan wheatgrass is proving persistent, palatable and legume friendly. Tall oat grass, as long as it is controlled, is also proving very good.

These comments include observations on palatability and lamb fattening ability.

The lotuses have not persisted except for Goldie. Caucasian clover is looking promising. Tahora has not persisted as well as Huia.

Runner and some of the newer creeping lucernes look as though they have a place.

In 1984 the NZ Agricultural Engineering Institute completed a study entitled "Irrigation in the Hill Country" and estimated that close to 10 000 ha of the valley could be irrigated. A number of farmers have utilised this study, and have built dams and put in considerable areas of irrigation. This has led to further cropping, and development of deer farming. Irrigation provides guaranteed lamb fattening and winter feed on the sheep properties.

Lucerne is the main species in these areas for hay. For grazing, ryegrasses, cocksfoots and fescues are all being used.

On an average 600 ha property, with pastures lasting 10 years at most, 60 ha will need to be regrassed annually. On current sheep prices this is an overbearing cost.

We have found that a number of factors are critical to the development and maintenance of good pastures.

Soil testing and occasional foliage testing are critical tools for establishing fertility requirements. Weed control prior to sowing, particularly for the slower-establishing species, is critical. This may mean turnips or other crops in the rotation. Lack of ability to suppress weeds may have been a reason for direct drilling falling out of favour.

Fertiliser is the key to establishment and maintenance, and bank managers have become very aware of this in recent times.

Pasture utilisation, controlling enormous variables in production through stock, hay, silage topping where possible or shutting up rough blocks for standing hay, are critical. Mob stocking and electric fencing play their part.

So, after 12 years, what are farmers sowing for further pastures? A considerable number are sowing a fescue (12–14 kg), cocksfoot (4 kg), red clover (2–3 kg), white clover (2–3 kg) mix. Some add 1 + kg of chicory. The fescues would be Cajun or Advance, the cocksfoot Porto or Kara. In tougher areas Wana cocksfoot plays its part. Smaller trial paddocks of wheatgrass, tall oat grass and other species are being assessed.

Lucerne is still a significant species, particularly for hay and lamb fattening. There are 20-year-old stands in the valley. Pawera clover is also being grown for hay, lamb fattening and seed.

Ryegrass still has an advantage over most grasses owing to its fast and vigorous growth after sowing, and low seed cost. With the downturn in wool prices some farmers are putting in two to three paddocks of cash crops under a 5- to 6-year rotation. With the high cost and slow establishment of the fescues, ryegrass fits this well and can be taken as a seed crop.

The future

With genetic engineering, grass species that can grow at lower temperatures will be developed, just as maizes and wheats have been produced to grow much further north in Canada. And perhaps ryegrasses can be bred to be more drought and grass grub resistant.

Scientists have recently discovered a perennial maize species in the Andes. What about a permanent maize patch for silage? How far are scientists from transferring nitrogen fixing bacteria to grasses? Where are we going with dryland legumes? Soon we may be planting pastures to provide meat with flavours that could suit Japanese or Chinese palates, or natural anthelmintics for worm control.

Many challenges are in front of us and I'm sure Hakataramea Valley farmers will be in the forefront of meeting them.

