Introduction and evaluation of pasture legumes in high rainfall north-western Tasmania

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The dairy industry in north-west Tasmania currently relies on white clover and ryegrass for long term pastures. White clover lacks persistence on Krasnozem soils, where the dry period in summer is exacerbated by the low water holding capacity of these soils. As part of the strategy to overcome this problem, a programme of Introduction and evaluation of perennial legumes (other than white clover) has been supported by the Dairy Research Council.

Methods

The legumes were grown on replicated plots on a Krasnozem soil at the Elliott Research Station near Burnie for observations of persistence and vigour, and also seed increase. In vitro digestibility and a diagnostic test for tannins (which reduce the risk bloat) were performed on the most promising material.

Results and discussion

The most promising of the 125 Introductions were two Introductions of Trifolium pannonicum. This species is regarded as the most useful pasture legume in the USSR. These two accessions are robust and produce high dry matter yields. They are very competitive and suppressed the flat weeds which are a problem on these soils more than any of the other Introductions of white clover. When the plots were grazed the animals preferentially sought the T pannonicum. Digestibility ranged from 75% in winter to 61% in early summer. There was no evidence of tannins in the diagnostic test. The plots have persisted for three years under a management of intermittent heavy grazing. The large white flowers have a deep tube which makes pollination by honey bees difficult, and it appears that bumble bees are better adapted. Although bumble bees are not present in Tasmania, some see increase was obtained.

Another productive legume was Coronilla varia. This plant has a high level of digestibility but a low tannin content. It has been used in the USA and also New Zealand.

Several accessions of Trifolium ambiguum have been grown but these do not produce any growth in the winter and are susceptible to weed competition in the spring. This species appears to be best adapted to an alpine environment; its low level of production makes it unsuitable for intensive dairy production.

Lotus corniculatus grows and persists well in this environment. It was the only accession of those tested with a positive tannin content, but digestibility in the summer declined to 46% making it unsuitable for dairying.