Use of *Lotus corniculatus* to increase lamb and wool production under dryland farming conditions

Birdsfoot trefoil, *Lotus corniculatus* Linn. is a forage adapted to a variety of soil types. There is considerable interest in New Zealand in the pastoral value of Birdsfoot trefoil (BFT) for dryland farming areas, where other legumes and grasses have reduced productivity in summer/autumn due to drought conditions and to reduced soil fertility in hill country. Birdsfoot trefoil contains a low concentration of condensed tannins (CT), 20–40g/kg DM, which bind leaf protein after mastication. In grazing sheep, the action of the CT in BFT has increased wool growth by up to (11%) during summer, milk yield (21%) during mid and late lactation and both ovulation rate (27%) during mating and lambing percentage (20%). Experimental evidence suggests that CT have the potential to control parasite infections and reduce dag formation (accumulation of faeces in the wool surrounding the anus), which could potentially lead to reduced use of anthelmintics to control parasites. Additionally, relative to perennial ryegrass, growth of sheep was higher (35%) when grazing BFT. However, there was no evidence to support CT making a positive contribution to this effect, as judged by the level of response to polyethylene glycol (PEG) supplementation. Thus, Rami’rez-Restrepo and others in New Zealand carried out studies to assess the effect of feeding *L. corniculatus* on sustainable productivity of lactating Ewes (female sheep) in the spring under commercial dryland farming conditions without the use of anthelmintic drenches, using a system approach, where effects on animal productivity and parasites were measured in the same experiment. Two grazing experiments were conducted for 12 and 13 weeks, respectively, over the spring periods of 2000 and 2001 at Massey University’s Riverside farm in the Wairarapa (New Zealand) to compare effects of grazing *L. corniculatus* (cv. ‘Grasslands Goldie’) or Perennial Ryegrass (*Lolium perenne* Linn.)/White clover (*Trifolium repens* Linn.) dominant pasture during lactation on Ewe and Lamb live weight (LW), wool production, faecal nematode egg counts (FEC) and dag score. Ewes and their lambs (mainly twins) were rotationally grazed on Lotus or pasture (*n* = 50) without any anthelmintic treatment at a herbage allowance of 6.5 and 8.0 kg green DM/Ewe/days for experiments 1 and 2, respectively.

The results indicate that under dryland farming conditions, the use of this herb as forage during the spring/early summer lactation period can be used to increase lamb growth and wool production, whilst eliminating the need for pre-lambing anthelmintic drenching and, probably, reducing the amount of insecticide needed to control flystrike. These effects are probably due to the CT in lotus reducing rumen protein degradability and controlling internal parasites, and to the higher digestibility and voluntary feed intake (VFI) of lotus compared to perennial ryegrass/white clover pasture. The absence of endophyte in Lotus may also have contributed to these effects [Rami’rez-Restrepo et al, *Anim Feed Sci Technol*, 2004, **117**(1-2), 85-105].