The importance of exotic forage germplasm in feeding New Zealand's livestock

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Introduction A number of recent reports in New Zealand have expressed the view that restricted access to new plant genetic material from overseas is a major risk to the future growth of the primary sector (MAF, 2002; Douglas, 2003). The restrictions outlined in this paper are the result of the Hazardous Substances and New Organisms (HSNO) Act and regulations administered by MAF and the Environmental Risk Management Authority (ERMA) since July 1998. This paper reviews the historical role of exotic forage germplasm in plant improvement in New Zealand, and quantifies the current contribution of recently imported plant material to exports from the pastoral sector.

Discussion In the past 30 years there has been a large increase in the number of improved forage cultivars available to farmers (Lancashire,1985; Stewart & Charlton, 2003) . There are now 115 forage cultivars, 65% of which contain exotic germplasm, covering 26 species on the market, compared with 20 cultivars and 12 species in the early 1970's.

The current annual (2002) contribution of cultivars containing exotic forage germplasm to New Zealand pastoral exports of $14 billion is $735 million. This includes $74 million attributed to the perennial ryegrass endophyte (Bluett *et al*., 2003) . This represents an almost 6 fold increase over the figure of $128 million in 1992, which is significantly faster than the 75% increase in pastoral exports over the same period.

There is potential loss of future opportunities which will result from the continuation of restricted access to novel plant material from overseas. These include responses to climate change (Campbell et.al., 1996), biosecurity breaches (Eerens *et al*., 2001), developments in biotechnology (Bryan, 2001) and improvements in food type and quality (Lancashire, 2003).

Conclusions A return to the system of accredited institutions carrying out field evaluations under supervision is proposed .This procedure which operated successfully for most of the second half of the 20th century in New Zealand led to the recent very rapid increase in the successful utilisation of exotic germplasm .There is no record of serious biosecurity breaches as a result of this policy .It is suggested that in the case of exotic forage germplasm, the costs of mitigating or avoiding risk now far outweigh the consequences of avoiding risk (Sherwin, 2004).

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