Beneficial bacteria for improving white clover establishment

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White clover (*Trifolium repens*) seedlings encounter the adverse impacts of root parasitic nematodes during plant establishment. Of these, root knot (*Meloidogyne trifoliophila*) and cyst (*Heterodera trifolii*) nematodes are well established in the North Island, while only the latter is encountered in South Island pastures. Once root damage is caused by the nematode, the resulting wound can facilitate the entry of root pathogenic fungi into the plant compounding the problem. Use of naturally occurring micro-organisms to counteract the adverse impacts of nematodes in white clover is an attractive option. Bacteria isolated from New Zealand pastures were screened for their beneficial effects on white clover seedling vigour in pot experiments and a field experiment. When applied as a drench at sowing several bacterial strains (mostly *Bacillus* and *Pseudomonas*) produced significant ($P < 0.05$) increases in seedling dry weights in pot experiments (up to 30%), with some also showing significant reductions (25%) in root cyst nematode populations. Data from the field experiment suggests that some of these bacteria, when used as a biopolymer seed coating, can enhance seedling vigour by around 25%, which shows promise for future field use of these strains.

Determining whether biosecurity incursions are worthy of eradication attempts: a case study of *Epithora dorsalis*

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The Australian longicorn beetle, *Epithora dorsalis* (Coleoptera: Cerambycidae), was detected in South Canterbury in December 2009. This insect attacks dead and dying *Eucalyptus* species, and had not previously been recorded in New Zealand (NZ). Surveys conducted to determine eradication feasibility found adult beetles at independent locations, 7 km apart. No imported goods or other entry pathways were identified at surveyed sites. Surveillance to detect *E. dorsalis* is difficult because available trapping methods are not very effective, larval feeding damage is hidden beneath bark, and adult seasonal flight duration is short. Insecticidal control of *E. dorsalis* is not considered feasible as effective delimitation of populations is difficult and the insect exhibits cryptic biology. An impact assessment concluded the economic significance of *E. dorsalis* to the NZ eucalypt timber industry would be low, and that post-harvest bark removal would reduce infestations to a minimum. Four other Australian longicorn beetles that produce similar sub-cortical feeding damage are already present in New Zealand. It is possible that *E. dorsalis* has gone undetected in NZ for some time. These and other considerations are presented to illustrate how MAF Biosecurity NZ determines whether biosecurity incursions merit eradication.