INVESTIGATION INTO THE DELAYED ESTABLISHMENT OF *MICROCTONUS AETHIOPOIDES* IN NORTHLAND

T.M. EDEN, P.J. GERARD, J.J. DYMOCK and N. AHMAD

AgResearch, Ruakura Research Centre, Private Bag 3123, Hamilton, New Zealand

Corresponding author: tina.eden@agresearch.co.nz

The Irish strain of *Microctonus aethiopoides* was released in New Zealand in 2006 to help control clover root weevil (*Sitona lepidus*). Establishment was rapid at all release sites except in Northland where multiple releases appeared to fail until low numbers were recovered in 2008. It was hypothesised that because Northland at 35°S is at sufficiently different latitude to the original collection sites near Belfast, Ireland (54°37'N), there is a crossing of the critical photoperiod for diapause induction in the wasp larvae. Replicated cage trials were undertaken to compare the prevalence of premature diapause in Northland with Waikato under natural daylength, and simulated Far North midsummer photoperiod (14:10 h light: dark) with a 16 h photoperiod. Results indicated that larval diapause inside the weevil may be initiated by the parent wasp as significantly more 1st instar larvae were present in weevils where wasps had been subjected to reducing daylength (16 h down to 14 h light). High mortality amongst singly-laid wasp larvae in the Northland summer and the absence of teratocytes usually associated with larvae indicates clover root weevil adults can defeat a singly-laid parasitoid. These results may explain the reduced efficacy of the Irish wasp in Northland.

WOULD ST. JOHN'S WORT BEETLES HAVE BEEN INTRODUCED TO NEW ZEALAND NOWADAYS?

R. GROENTEMAN¹, S.V. FOWLER¹ and J.J. SULLIVAN²

¹Landcare Research, Gerald Street, PO Box 40, Lincoln

²Bio-Protection Research Centre, PO Box 84, Lincoln University, Lincoln

Corresponding author: GroentemanR@landcareresearch.co.nz

The classical biological control programme against St. John's wort (hereafter SJW), *Hypericum perforatum*, is considered one of the greatest success stories in New Zealand's history of weed biocontrol. The first biocontrol agent, the lesser SJW beetle *Chrysolina hyperici* (Coleoptera: Chrysomelidae) was introduced to New Zealand in 1943, following host-range testing in Australia which, as an acceptable standard at the time, did not include indigenous plant species. No further host-range testing was carried out in New Zealand. Introduction of the greater SJW beetle, *C. quadrigemina*, and the gall midge, *Zeuxidiplosis giardi* followed in the 1960s. The introduction of SJW beetles was re-examined in the light of current host-range testing standards. In host specificity testing, SJW beetle larval feeding and adult oviposition took place on indigenous *Hypericum* spp. in both no-choice and choice tests, clearly suggesting that these highly effective agents would have been considered unsafe for introduction to New Zealand under current standards. Preliminary field observations suggest, however, that the risk to indigenous *Hypericum* spp. is minimal, raising an inevitable dilemma: while safety in current host-range testing is extremely high, are we more likely to reject potentially effective agents through false-positives expressed in our artificial testing arenas?