

EFFECT OF AGE ON SUCCESSFUL PARASITISM OF *SITONA LEPIDUS* BY *MICROCTONUS AETHIOPOIDES*

T.M.EDEN and P.J.GERARD

AgResearch, Ruakura Research Centre, Private Bag 3123, Hamilton

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

An Irish strain of the Braconid parasitoid *Microctonus aethiopoides* Loan has been released in the North Island of New Zealand in January 2006 to control clover root weevil (*Sitona lepidus* Gyllenhal) populations. A laboratory assay was conducted to determine the ovipositional activity of adult *M. aethiopoides* over the first 7 days following eclosion. The parasitoid is thelytokous parthenogenetic and able to commence ovipositional activity almost immediately after emergence from the cocoon. Eight newly emerged parasitoids were individually caged with 10 weevil adults for 24 h with access to a 20% sucrose solution. This process was repeated at 24 and 48 h after emergence in which the parasitoids were removed and caged with 10 unexposed clover root weevil adults. At 72 h post emergence the individual parasitoids were contained with a further 10 weevils for 96 h. The parasitoid-exposed weevils were maintained on white clover and the number of parasitoid prepupae that emerged from each exposure period (0-24, 24-48, 48-72 and 72-168 h) was recorded. The mean number of pupae that emerged from weevils was significantly higher in the first 24 h exposure ($P < 0.01$) than each of the following three exposures.

RECONCILING THE MAINTENANCE OF QUARANTINE CULTURES OF *MICROCTONUS AETHIOPOIDES* (LOAN) WITH PREMATURE MORTALITY IN THE HOST, CLOVER ROOT WEEVIL, *SITONA LEPIDUS* GYLLENHAL

M.R. MCNEILL

AgResearch, Biocontrol and Biosecurity Group, PO Box 60, Lincoln, New Zealand

Corresponding author: mark.mcneill@agresearch.co.nz

The Braconid parasitoid *Microctonus aethiopoides* Loan has been maintained in quarantine at Lincoln since 2001, with cultures established from parasitoids originally reared from the host *Sitona lepidus* Gyllenhal collected from several European locations. Subsequently, strains of the parasitoid have been maintained on *S. lepidus* collected from the North Island. High rates of premature mortality of parasitoid-exposed weevils has been an ongoing problem particularly over winter and necessitated the maintenance of triplicate lines to minimise the loss of parasitoid genetic diversity. In winter 2005, the cause of premature weevil mortality was investigated further in a series of tests. Premature mortality of parasitoid-exposed and unexposed weevils was found to be almost identical. Dissection of weevils that died prematurely did not show any parasitism and examination of the haemolymph of weevil cadavers did not detect the presence of significant pathogens. Topical treatment of weevils with antibiotic prior to exposure to parasitoids failed to improve survival. These results precluded any parasitoid-induced mortality that may have been attributed to superparasitism or injection of pathogenic bacteria during oviposition attempts. A general conclusion was that the overwintering populations of older *S. lepidus* were simply less vigorous compared to younger late spring–autumn collected populations of the weevil.