

Parasitism and mating of *Diaeretiella rapae* (Hymenoptera: Aphidiidae) in an uncontrolled environment

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Parasitism and mating activities of *Diaeretiella rapae* were studied in a shadehouse under ambient environmental conditions during September (early spring) and November (late spring). Before collecting the data, the parasitoid and its aphid host colonies were left to develop undisturbed on cabbage seedlings for 3 months in about 25 m² area. The plants were highly infested with aphids (average 272±25 aphids/plant) and parasitism by *D. rapae* varied between 25% and 36% during the study period. There was no significant change in parasitism rate during the 10-week study period ($P=0.69$). Adult parasitoids emerged from aphid mummies at a rate of more than 90% with a higher number of females than males. The mean female/male parasitoid sex ratio was greater in the second 5-week (late spring) than the early 5-week period (early spring) ($P<0.05$). Mating activities of the parasitoids were observed at all times of the day. It was found that 49% of the mating pairs comprised a male mounted on a female and 45% were male mounted on another male. The male-female mating was more prevalent during midday compared to morning and evening ($P<0.05$).

Farmer response to mini-release strategy for the clover root weevil biocontrol agent

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The Irish wasp *Microctonus aethiopoidea*s was released in 2006 as a biocontrol agent for the clover root weevil, *Sitona lepidus*, a serious pest of white clover in New Zealand. Following the successful and very rapid establishment of the Irish wasp, there was high demand by farmers for the biocontrol. Around 2000 mini-release samples were distributed directly to farmers through pastoral industry networks and field days. These consisted of ten field-collected weevils exposed to the wasp in the laboratory at parasitism rates such that over 99% of samples contained parasitoids. A random subsample of 100 recipient dairy farmers was surveyed subsequently by post with 59 responses. The mini-releases were well received, most going to farmers that had previously experienced losses due to the weevil. The mini-releases were very effective in terms of getting the biocontrol to farms with 92% of insects arriving in good condition and 96% being released on the same day. The farmers appeared receptive of the information provided with the samples, indicating the project was successful in terms of technology transfer. There was good recognition of DairyNZ, with 79% showing awareness of the organisation's funding enabling the biocontrol research.