EXPLOITING THE HOST-FINDING BEHAVIOUR OF THRIPS WITH COLOUR AND ODOUR ATTRACTANTS: UNDERLYING PRINCIPLES

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There is growing interest in utilising the cues that small insects use to find their hosts in applied pest management. However, the underlying behaviours involved in small insect host-finding are still not well understood. The primary focus of an ongoing PhD project is to investigate the fundamental host-finding behaviour of small pest insects using thrips as model organisms. It is hypothesised that colours and odours are used by flower-dwelling thrips as cues for detection of, and orientation to, hosts. Two species, *Frankliniella occidentalis* (western flower thrips (WFT)) and *Thrips tabaci* (onion thrips (OT)), will be studied in this project. Both are cosmopolitan polyphagous pests of many food and ornamental crops. Yellow, white and blue traps have all been shown to attract WFT and OT, and it has been demonstrated that these thrips respond to the odour methyl isonicotinate. This project links what is known about thrips' response to colour and odour cues with observed behavioural responses in the field from several novel experimental set-ups. These observations will be used to determine the role of colour and odour cues during host-finding and develop a model of thrips' host-finding behaviour.

PRIMARY PARASITOIDS OF APHIDS (HEMIPTERA: APHIDIDAE) REPORTED IN NEW ZEALAND

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Introduced aphids are well known plant pests in New Zealand. Additionally, there is a unique fauna of indigenous aphid species. Both introduced and native aphids are attacked by primary parasitoids. As a first step toward understanding the interrelationships between introduced and native aphids and the parasitoids that attack them, all the aphid primary parasitoid species found in New Zealand are being documented. The vast majority of parasitoid species are introduced including *Aphidius* (8 spp.), *Diaeretiella* (1 sp.), *Ephedrus* (1 sp.), *Lysiphlebus* (1 sp.) and *Trioxys* (1 sp.). There are records for additional parasitoid species but these have not been adequately verified. Some of the introduced species were purposefully introduced as biological control agents, whereas it is not clear how other species arrived in New Zealand. Some parasitoid species are relatively host-specific whereas others have a broad host range. A number of introduced parasitoid species have also been found to attack indigenous aphids. It seems likely that a number of indigenous aphid parasitoid species exist in New Zealand but only one has been well documented and this has not yet been described.