

## NEW ATTRACTANTS FOR *VESPULA VULGARIS* FROM HONEYDEW

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The common wasp (*Vespa vulgaris*) is a major pest species in New Zealand's forests and urban areas. Attractants for wasps could enable new environmentally-friendly management techniques against this invasive species. Beech forest honeydew, known to be attractive to vespine wasps, was analysed using Solid Phase Micro Extraction. Several volatile compounds were identified and two compounds (I and II) were tested for attraction in a Canterbury beech forest. Four different lures (manuka honey; compound I; compound II; and a blend of compounds I and II) were placed in delta traps, and the number of *V. vulgaris* trapped recorded. Compound II trapped significantly more *V. vulgaris* than manuka honey and compound I, and had significantly less honey bee (*Apis mellifera*) by-catch than the other three lures. A controlled release experiment was carried out by placing 0.5 ml of compound II in vials with a 2, 4 or 6 mm diameter hole, or no hole, in the lid. The 4 mm treatment caught significantly more *V. vulgaris* than the control, no hole and 2 mm treatments. A gravimetric release rate experiment on compound II in the laboratory showed a significant difference in weight loss between treatments. These results suggest that compound II deserves further research as a wasp attractant.

## SEX PHEROMONE OF THE PINK GRASS WORM, *TMETOLOPHOTA ATRISTRIGA* (WALKER)

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The New Zealand native moth, *Tmetolophota atristriga* (Walker) (Lepidoptera: Noctuidae), is a background pest, defoliating pasture. This project identified the pheromone components of the female pink grass worm that could be used to trap male moths in a control or monitoring programme. Extraction of the sex pheromone gland of virgin female moths and GC-MS analysis has identified several compounds in the sex pheromone gland, two monounsaturated compounds, cis-11-hexadecenal (Z11-16Ald) and cis-11-hexadecyl acetate (Z11-16Ac) and three saturated compounds, hexadecan-1-ol (16-OH), hexadecyl acetate (16Ac) and octadecan-1-ol (18-OH) and triene hydrocarbon (Z,Z,Z)-3,6,9-tricosatriene (Z3Z6Z9-23Hy). A field trapping experiment was conducted using binary blends of the two main compounds, Z11-16Ald and Z11-16Ac, at five different ratios (i.e. 100:0, 75:25, 50:50, 25:75 and 0:100). The highest catch was obtained at ratio 25:75 of Z11-16Ald:Z11-16Ac; males were also caught at the 50:50 ratio. No catches were recorded with any other ratio tested. A dose response experiment was conducted testing five loadings of the optimum binary (25:75 ratio) mixture (0.1, 1, 10, 100 and 1000 mg loading), and males were caught only at 0.1 and 1 mg loadings. In a field trapping experiment conducted late in the season (2008) using the three additional minor compounds, only the addition of Z3Z6Z9-23Hy to the binary mixture significantly enhanced male attraction.