



Agriculture & Horticulture
DEVELOPMENT BOARD



New Project

SF HNS 127

Characterising vine weevil
aggregation pheromone for use in
traps at soft fruit and nursery sites

Project Number: SF HNS 127

Title: Characterising vine weevil aggregation pheromone for use in traps at soft fruit and nursery sites

Start and end dates: 1st April 2011 to 31st March 2012

Project Leader: Dr Scott Johnson, Mylnefield Research Services, (James Hutton Institute)

Industry Representative(s): Richard Stanley (Soft Fruit panel), Stanley & Pickford
Malcolm Dick (Hardy Nursery Stock), John Woods Nurseries

Location: Main site: The James Hutton Institute, Dundee
Additional sites: NRI, University of Greenwich

HDC Cost: £ 22,190

SUBJECT TO CONTRACT

Project Summary:

Vine weevils continue to be a major pest of horticultural production and are likely to become worse with restrictions on pesticide use. In raspberry for example, yield losses from vine weevils can exceed 50% without remedial treatment. There is good evidence for the existence of a volatile aggregation pheromone, which could be incorporated into lure-and-kill traps (e.g. sticky traps). In particular, this control approach would be useful for controlling adult vine weevils before they could lay eggs and would not be subject to restrictions and regulations associated with crop protection products. This project aims to identify the chemical constituents of the pheromone and determine the range of its effects, its origin and whether all developmental stages of adult vine weevils are attracted to it. The project utilises a significant amount of co-funding from non-HDC sources. This additional funding will help to maximise the chance of identifying a suitable aggregation pheromone and developing a commercial product for use within the horticultural industry.

Aims & Objectives:

(i) Project aim:

To improve control of the vine weevil by identifying the aggregation pheromone, that could be incorporated into lure-and-kill traps.

(ii) Project objectives:

- O-1. Characterise aggregation signalling in weevils at different physiological stages and assess the likely range of the pheromone.
- O-2. Pinpoint the source of the pheromone (e.g. insect or excreta) and identify candidate volatile compounds from these sources using SPME- GC-MS

- O-3. Determine which of the volatile compounds from the source elicit an electrophysiological response in weevils (GC-EAG).
- O-4. Determine the attractiveness of candidate attractant(s) from O-2 and/or O-3 at different concentrations and determine potential ranges for detection by weevils.
- O-5. Disseminate information from project to growers and initiate plans to incorporate pheromone in traps.

Results from previous work indicate it is likely that the attractants are relatively common, plant-derived materials. However, if any of the candidate attractants are not commercially available and not readily synthesised it may not be possible to evaluate their biological activity within the scope of this project. Otherwise no substantive risks are envisaged in achieving these specific objectives.

Further information

Email the HDC office (hdc@hdc.ahdb.org.uk), quoting your HDC number, alternatively contact the HDC at the address below:

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