

Exploiting the sex/aggregation pheromone of the strawberry blossom weevil, *Anthonomus rubi*, for monitoring and control

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Components of the male-produced sex aggregation pheromone of *Anthonomus rubi*, which attracts both males and females, were identified in our previous research (Innocenzi et al., 2001) as Grandlure I, Grandlure II and lavandulol. Traces of Grandlures III and IV were also detected. The lavandulol was shown to be a single enantiomer but the absolute configuration was not determined. Germacrene-D, a known volatile from strawberry plants, was also collected in increased amounts in the presence of pheromone-producing weevils.

Subsequently, a three-year research programme has been undertaken at HRI East Malling to investigate further the pheromone and exploit it for pest monitoring and control. An attractive and economical pheromone blend has been produced that addresses composition and the relative concentrations and release rates of the components. The chirality of the lavandulol has been resolved and the importance of Germacrene-D studied. Polythene sachet dispensers have been developed with a satisfactory release rate and adequate field life of over 90 days. A wide range of trap designs has been investigated, and the most effective design established. Populations and crop damage have been monitored over three seasons in several strawberry crops in order to determine the relationship between trap catches and crop damage so that the pheromone traps can be used for pest monitoring purposes. Evidence that the pheromone attracts summer-emerged males and females that are in reproductive diapause is being obtained. Large-scale field trials were conducted in 2000 and 2001 to examine the range of attractiveness of the traps and the extent of trap interference. In further large-scale trials in 2002, the use of the pheromone for control of the pest by mass trapping and by a lure and kill strategy known as 'LASH' (Lure And Spray Headland) has been investigated. In this approach, lures are used to attract the weevils to a location where they can be controlled with a localised application of an approved insecticide, hopefully obviating the need for pesticide registration. The results of this work to date are outlined.

Reference: Innocenzi, P. J., Hall, D. R. & Cross, J. V. 2001. Components of the male aggregation pheromone of strawberry blossom weevil, *Anthonomus rubi* Herbst, (Coleoptera: Curculionidae). *Journal of Chemical Ecology* 27(6), 1203-1218.