



Horticultural
Development
Council

New Project

SF 74

Integrated pest and disease
management for high quality
protected raspberry production
([LINK](#))

Project Number: SF 74

Title: Integrated pest and disease management for high quality protected raspberry production (LINK)

Start and end dates: 1 April 2005 to 31 March 2010 (5 years)

Project Leader: Mr John Place (Proposer)
Dr Colin Gutteridge (Science Leader)

Project Co-ordinator: Mrs Harriet Duncalfe

Location: East Malling Research
ADAS, Arthur Rickwood
Central Science Laboratory

Background and project objectives

Dependence on pesticides in fresh raspberry production, especially close to harvest, needs to be reduced. There is an opportunity to develop alternative, non-pesticidal approaches for the key pests and diseases of raspberries grown under protection and then combine them in an integrated management programme. Raspberries are very susceptible to *Botrytis*, mildew, raspberry beetle, cane midge and aphids. Currently, pesticides are relied on for control and are applied close to harvest. Intensive use of pesticides, including the organo-phosphorus (OP) chlorpyrifos, which is used to control raspberry beetle and cane midge, is undesirable and unsustainable. Raspberry aphids, and the viruses they spread, are becoming more important with the increase in aphids able to overcome the natural plant resistance. *Botrytis* is the major cause of post-harvest fruit rotting and has caused serious yield losses. Poor shelf-life reduces repeat buying. Retail surveillance has shown that >50% of UK produced fruit has fungicide and 22% have chlorpyrifos residues. The future registration of chlorpyrifos on raspberry beyond 2008 is in doubt. Screening trials by East Malling Research have so far failed to identify any alternative insecticide with significant activity for cane midge control, though many different materials of a wide range of types have been tested. Loss of chlorpyrifos would have serious adverse consequences for the UK raspberry industry as there is no alternative control measure for the midge. Raspberries are susceptible to rain and, to meet the requirements of major multiple retailers, the crop has to be grown under protection. Initial observations indicate increased risk of mildew in protected crops. Plant protection methods have not been adapted for this new growing environment, which provides opportunities to reduce reliance on pesticides. There is strong market demand, led by consumer expectations, to reduce, or ideally to eliminate, the occurrence of residues.

Botrytis and mildew development in raspberries are highly dependent on initial inoculum and specific environment conditions. Other research has shown that these diseases can be managed effectively by targeting these two factors. The change to protected cropping provides important new opportunities to develop improved management strategies. In the absence of soundly based guidance, growers still use the same pesticide programmes as in

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open cropping. Aspects of the epidemiology of these two diseases on raspberries are not fully understood, particularly the overwintering inoculum. This hinders the development of sustainable management strategies. Two powerful semiochemical attractants of raspberry beetle adults have been discovered by SCRI, but ways of exploiting them need to be developed. Work is currently in progress to identify the sex pheromone of cane midge. There is also an opportunity to identify the host plant volatiles that attract females to splits in canes for oviposition. These semiochemical attractants need to be developed for monitoring and control. The developed practices for effective, sustainable control of all the key pests and diseases then need to be integrated into a programme

The aim of the project is to develop sustainable methods of integrated management of *Botrytis*, mildew, raspberry beetle, cane midge (with associated disorder 'midge blight') and aphids on protected raspberry crops that do not rely on sprays of fungicides and insecticides during flowering or fruit development so that quality fruit can be produced with minimal risk of occurrence of detectable pesticide residues at harvest.

Further information

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

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