New Project

FV 406

Brassicas: Integrated management of Whitefly, *Aleyrodes proletella*

Project Number:	FV 406
Project Title:	Brassicas: Integrated management of Whitefly, *Aleyrodes proletella*
Project Leader:	Professor John Colvin
Contractor:	University of Greenwich
Industry Representative:	Simon Jackson The Allium and Brassica Centre
Start Date:	1st April 2012
End Date:	31st March 2013
Project Cost:	£44,731.00

SUBJECT TO CONTRACT

Project Summary:

The Brassica Growers Association (BGA) Research and Development Committee have included the Brassica whitefly, *Aleyrodes proletella*, as a research priority for several years (Research Strategy 2006/07). This is an increasing problem on curly kale and Brussels sprout, because *A. proletella* nymphs (immature stages) produce waxy white residues and honeydew, on which black sooty moulds grow. These substances are very difficult to remove from leaves by washing, which also adds to production costs. As leaves are the saleable part of the crop for kale growers, whitefly have a negative effect on product quality and business profitability. This problem was becoming sufficiently serious that an emergency 1-yr project (FV399) was commissioned in 2011, in response to the BGA's expectation that 2011 would be a 'bad' whitefly year.

Recent work carried out by the Natural Resources Institute, University of Greenwich, showed that insecticide-resistance development contributed to the recent control failures of whitefly populations (Springate & Colvin, 2011). The capacity of whitefly species to develop resistance to plant protection chemistry is well documented in the international scientific literature. A genuine and significant risk exists therefore, that insecticide resistance to the newer chemistry will also develop, leaving growers with no effective defences against this pest.

Elsewhere in the world where insecticide resistance has developed in whitefly species, the sustainable and environmentally-friendly solution has been to develop an Integrated Pest

Management (IPM) response. Key components of this are the adoption of technologies that use different modes of action to insecticides. Two potentially valuable possibilities in this case are beneficial insect augmentation and physical barriers (mesh covers), employed at appropriate times. This proposal was developed through discussion with growers and crop consultants, to help safeguard the long-term future of profitable kale and Brussels sprout production in the UK. As part of the HDC's strategic portfolio of whitefly research that aims to bring together a wide range of expertise to tackle this intractable problem, we propose to carry out a one-year, 'proof-of-concept', field-based research project, to investigate the potential of an IPM approach to achieving improved whitefly control.

Aims & Objectives:

(i) Project aim(s): To carry out proof-of-concept experimental research for improved and sustainable whitefly control on Brassica crops.

(ii) Project objective(s):

(ii.a) Utilise the entomological whitefly expertise present at the Natural Resources Institute (NRI) to mass produce the whitefly, *Aleyrodes proletella* and one of its parasitoids, *Encarsia tricolor*.

(ii.b) Conduct a proof-of-concept field trial on curly kale, to assess the integration of beneficial-insect augmentation, meshes and a systemic insecticide, to achieve improved whitefly control.

(iii.c) Monitor background whitefly and parasitoid population numbers around the field-trial site to provide a base-line data set for comparison to the field-trial data.

Benefits to industry

- The results of the proposed research will arm Brassica growers with new information on pest management technologies that can be used to control this damaging pest.
- Brassica growers will not be dependent on a single active ingredient to control *A. proletella*, a risky situation that will lead inevitably to rapid resistance development.
- One of the proposed technologies has the potential to control a range of other important pests, such as aphids.
- The new information and control options generated by the project will improve crop quality in a sustainable manner and capitalise on the expanding market for chopped kale leaves.
- An integrated approach to the problem will reduce the need and dependence on insecticides and so be beneficial to growers, consumers and the environment.

Disclaimer

Further information

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HDC is a division of the Agriculture and Horticulture Development Board.