New Project

PO 009

Review of the development and use of trap plant systems for pest control in protected ornamental crops

Project Number:	PO 009
Project Title:	Review of the development and use of trap plant systems for pest control in protected ornamental crops
Project Leader:	Dr Luke Tilley
Contractor:	Stockbridge Technology Centre Research Foundation
Industry Representative:	Russ Woodcock, Bordonhill Nurseries Ltd Sarah Fairhurst, Arden Lea Nurseries
Start Date:	01 February 2012
End Date:	30 June 2012
Project Cost:	£7,760

SUBJECT TO CONTRACT

Project Summary:

A reduction in products approved for use against pests in protected ornamentals has led to a need to exploit a wider range of methods for maintaining low pest populations. Trap plants are species and varieties that are more attractive to the pest than the commercial crop itself; therefore, they can offer a means of manipulating pest behaviour to reduce pest populations. This project will serve to determine the most promising trap plants for use against four pest groups within ornamentals: whitefly, thrips, aphids and caterpillars. Once the most successful candidate trap plants have been identified using grower surveys and feedback, as well as a detailed scientific review; their use and management will be studied in depth, to infer commercially relevant conclusions. This project will bring together evidence on trap plants in protected ornamentals to ensure that growers are provided with research on the most appropriate additions to their ICM programmes.

Aims & Objectives:

(i) Project aim(s):

To gather and summarise information for growers and the HDC PO Panel on the development, use and potential of trap plants in protected ornamentals worldwide.

(ii) Project objective(s):

1) To consult UK growers (through an HDC survey and direct consultation, driven by suggestions from the PO Panel) about experience with, and use of, trap plants within the industry to date, for all protected ornamental crops. There will be particular focus on poinsettia, chrysanthemums and bedding plants.

2) To collect information on the use of trap plants in countries other than the UK and, where possible, consult growers overseas on current trap plant practices in protected horticulture (successes and failures). It is known that the use of trap plants in Spain, Canada and France is being developed, so focus will be drawn on to commercial practices in these countries in particular.

3) To perform a review of the scientific literature on trap plants within protected crops generally. This will include the identification of “dead-end” trap plants (those plants that pests have a preference for, but cannot fully develop on) and chemical/biopesticide treatments that may be used to simulate a dead-end effect on trap plants (i.e. killing pests before they can develop).

4) To perform a detailed review of the scientific literature relating to plant preferences for egg-laying and feeding of four pest groups, associated with three commercially important ornamental crops, as follows:

- Poinsettia and whitefly (Trialeurodes vaporariorum)
- Chrysanthemums and Western flower thrips (Frankliniella occidentalis)
- Primroses and aphids (various species)
- Primroses and caterpillars (various species)

5) To provide the HDC PO Panel with a detailed report of the findings from objectives 1 to 4, in order to review the results and discuss the most appropriate candidate pest/crop combinations to take forward for further trial work. This will allow the Panel to direct future experimental work and would offer an opportunity for the growers to decide not to proceed with such work should the desk study not provide sufficient evidence for further trials on trap plants.

Benefits to industry

This project will determine the full potential of trap plant systems for controlling key pests in a number of ornamental crops. The specific industry benefits of this project include:

A.Bringing together current research on, and commercial practices using, trap plants on various ornamental crops, with particular focus on species and varieties against four major pests in ornamentals (whitefly, thrips, aphids and caterpillars).

B.This work will develop a scientific evidence base for the use of trap plants on UK ornamentals and will avail growers with current information about which plants and varieties to use within their crops for maximum impact on pest populations. This information could then be used as a foundation for any future trial work, at the growers’ discretion.

C.Once trap plant options are established, the summary on current practices in the UK and other countries (particularly Spain, Canada and France) within commercial ornamental crops will allow the industry to assess how best to use trap plants.

D.The results of this project will better inform growers of the options available when putting together an ICM programme for their ornamental crops. Trap plants are currently being employed on various crops against different pest groups but there is a need for a collated and coordinated view of their benefits and use, this study will provide that.

Overall, this project will serve to answer the following specific questions for the ornamental sector:

- Which trap plant should I use against whitefly?
- Which trap plant should I use against WFT?
- Which trap plant should I use against thrips?
- Which trap plant should I use against caterpillar?
- How these trap plants are being used and managed in a commercial setting, both in the UK and elsewhere?
- Are there any measures I can take to improve the pest reduction achieved by the trap plants (i.e. chemical application, physical removal or ICM combinations)?

Disclaimer

Further information

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

HDC
AHDB
Stoneleigh Park
Kenilworth
Warwickshire
CV8 2TL

Tel – 0247 669 2051

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