Grower Summary

CP 124

Managing ornamental plants sustainably (MOPS): Efficacy of plant protection products against sucking insects - peach-potato aphid / protected ornamental

Annual 2015

Disclaimer

While the Agriculture and Horticulture Development Board seeks to ensure that the information contained within this document is accurate at the time of printing, no warranty is given in respect thereof and, to the maximum extent permitted by law the Agriculture and Horticulture Development Board accepts no liability for loss, damage or injury howsoever caused (including that caused by negligence) or suffered directly or indirectly in relation to information and opinions contained in or omitted from this document.

The results and conclusions in this report may be based on an investigation conducted over one year. Therefore, care must be taken with the interpretation of the results.

Use of pesticides

Only officially approved pesticides may be used in the UK. Approvals are normally granted only in relation to individual products and for specified uses. It is an offence to use non-approved products or to use approved products in a manner that does not comply with the statutory conditions of use, except where the crop or situation is the subject of an off-label extension of use.

Before using all pesticides check the approval status and conditions of use.

Read the label before use: use pesticides safely.

Further information

If you would like a copy of this report, please email the AHDB Horticulture office (hort.info.@ahdb.org.uk), quoting your AHDB Horticulture number, alternatively contact AHDB Horticulture at the address below.

AHDB Horticulture,
AHDB
Stoneleigh Park
Kenilworth
Warwickshire
CV8 2TL

Tel – 0247 669 2051

AHDB Horticulture is a Division of the Agriculture and Horticulture Development Board.

Project Number:	CP 124
Project Title:	Managing ornamental plants sustainably (MOPS)
Work package title:	Efficacy of plant protection products against sucking insects - peach-potato aphid / protected ornamental
Work package leader:	Dr Tom Pope, Harper Adams University
Report:	Annual report 2015
Publication Date:	28 July 2015
Previous report/(s):	None
Start Date:	01 December 2013
End Date:	31 January 2016
Project Cost:	£241,833

GROWER SUMMARY

Headline

- The conventional insecticide spirotetramat (Movento) gave good control (97% reduction) of peach-potato aphid on pansy plants.
- Flonicamid (Teppeki) and the coded product 179 gave some control of aphids just three days after the first spray application. Teppeki is not authorised for ornamental plant production but similar product flonicamid (Mainman) is authorised and can be expected to give similar results.
- Plants sprayed with Teppeki or the coded product 59 were free of aphids three weeks after the first spray application.

Background and expected deliverables

The peach-potato aphid (*Myzus persicae*) is one of the most serious pests of ornamentals due to the wide range of plants it attacks. Damage caused by aphid feeding may distort leaves, buds and flowers, while the presence of the aphid themselves as well as cast skins and honeydew may make plants unmarketable. The peach-potato aphid has developed resistance to several groups of pesticides, including carbamates such as pirimicarb (e.g. Aphox) and pyrethroids such as deltamethrin (e.g. Decis).

The purpose of Objective 2 was to test the efficacy of plant protection products against sucking insects. Specifically, Objective 2.3 was to test the efficacy of products against the peach-potato aphid on a selected susceptible protected ornamental species.

Summary of the work and main conclusions

Seven plant protection products (Table 1) were tested against peach-potato aphid (*Myzus persicae*) on pansy (*Viola* x *wittrockiana*) plants grown under glasshouse conditions between August and October 2014 at Harper Adams University. The glasshouse compartment was fitted with insect- proof screens in order to minimise the risk of plants becoming infested with other insect pests. Temperature within the compartment was regulated by venting the compartment at 12°C and using additional heating if required to avoid the temperature dropping below 5°C.

Table 1. Products tested

MOPS code number	Biopesticide or conventional pesticide
Water control	-
Movento (spirotetramat)	conventional
130	biopesticide
62	biopesticide
200	conventional
59	conventional
179	biopesticide
Teppeki (flonicamid)	conventional

Plants were purchased as plugs and potted into Levington M3 Pot/Bedding Compost in 9 cm diameter pots on 8 August. Nine plants were arranged in three rows of three in each of 48 plots. Each plot was 0.5 m x 0.75 m in size and screened on three sides with horticultural fleece in order to physically separate each plot. Plants were watered from beneath using the capillary matting.

The population of aphids used was established from a population of aphids supplied by Rothamsted Research resistant to both carbamate and pyrethroid insecticides. This resistance is typical of peach-potato aphid populations found on commercial nurseries. All nine plants in each plot were artificially infested with a single adult peach-potato aphid on 17 or 18 September and three plants in each plot were infested with an additional aphid on 23 September.

All plant protection products were applied using an Oxford Precision Sprayer fitted with an HC/1.74/3 nozzle, in 600 litres of water per hectare using 3 bar pressure. A water control was applied using the same water volume and pressure. No adjuvants were used for any products tested. Each plant protection product and the water control was applied at weekly intervals for four weeks. Aphid numbers were recorded one day before the first spray application was applied on 3 October and then three and six days after this application. Aphid numbers were then recorded six days after the second (10 October), third (17 October) and fourth (24 October) spray applications. In addition, assessments of phytotoxicity were completed after each spray application.

Aphid numbers recorded one day before the first spray application were relatively low at 2-3 aphids per plant. However, aphid numbers increased more quickly over the next few weeks in the water control and 14 aphids per plant were recorded in the water control plots by 24 October.

The conventional insecticide spirotetramat (Movento) gave good control of peach-potato aphid from six days after the first spray application. The conventional insecticide flonicamid (used here as Teppeki, but an identical product, Mainman, has an EAMU (0045 of 2013) on ornamentals for the control of tobacco whitefly) gave good control from three days after the first spray application and no aphids were recorded in plots treated with this insecticide after three spray applications. All of the coded products tested, with the exception of product 200, also gave good control of peach-potato aphid (see Figure 1). The coded product 179 had reduced aphid numbers to very low levels just three days after the first spray application, while no aphids were recorded in plots treated with coded product 59 after three spray applications.

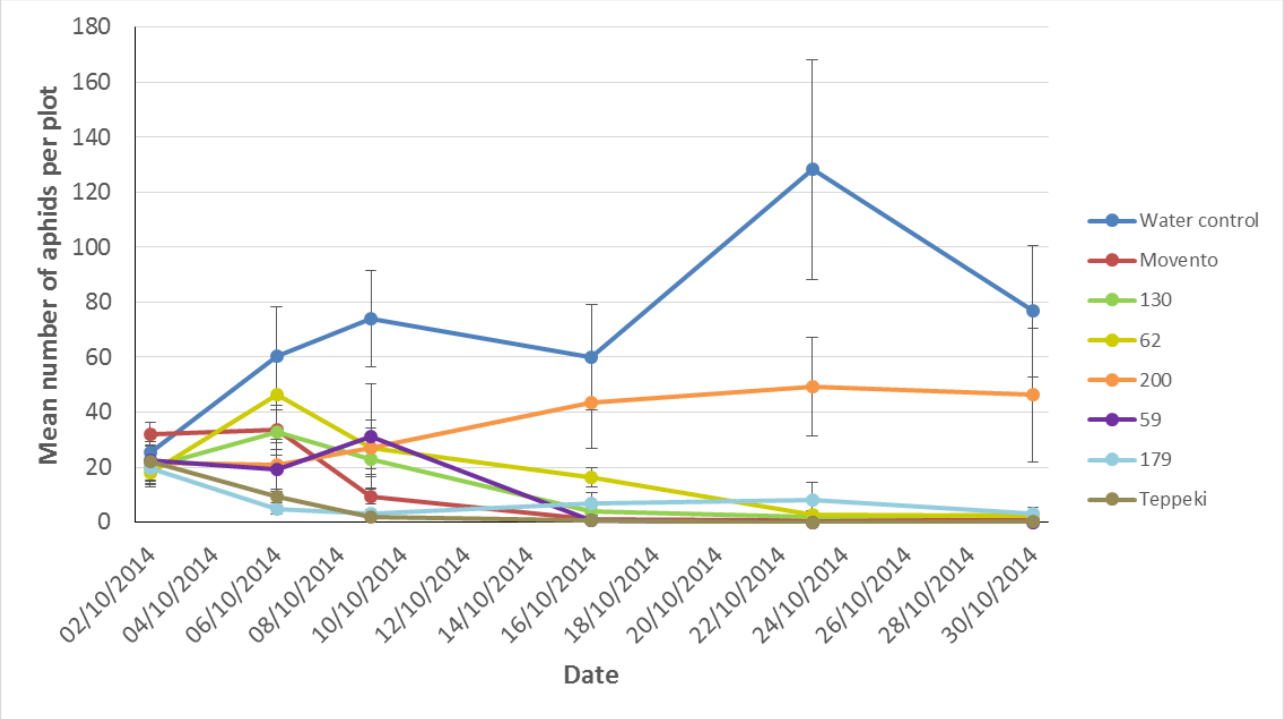

Figure 1. Mean numbers of aphids per plot on each assessment date (9 plants sampled in each plot), with standard errors.

There was little evidence of any phytotoxicity caused by any of the plant protection products tested. No effects on plant health were recorded, however, some slight colour changes in

leaves or flowers were noted. These colour changes were noted for all products tested but were most apparent for product 179 and to a lesser extent 62.

Action Points

- Spirotetramat, applied as Movento, is an effective option for the control of peach-potato aphid.
- Flonicamid (here applied as Teppeki, which is used for the control of aphids on wheat and potato) also effectively controlled peach-potato aphid and therefore Mainman, an identical product which has an EAMU (0045 of 2013) for use on ornamentals, should also be effective.
- If coded product 59, a conventional insecticide, gains approval in the future, consider its use against peach-potato aphid as it showed similar levels of efficacy as Movento and Mainman. Coded product 59 works both on contact and through ingestion and displays translaminar movement (moves to the opposite leaf surface) when applied to foliage and is xylem-mobile.
- If coded product 179, a biopesticide, gains approval in the future, consider its use against peach-potato aphid as it showed similar levels of efficacy as Movento and Mainman. Coded product 179 works through contact with the pest and so good coverage will required for this product to work most effectively.