

## Foxglove aphid biology and management in ornamental greenhouse production systems

Aphids are one of the most important pest problems in ornamental greenhouse production, second only to thrips.

Foxglove aphids are particularly problematic because existing recommended biocontrol agents don't seem to be effective in controlling the pest.

A research team at Vineland Research and Innovation Centre (Vineland) led by Dr. Rose Buitenhuis is working on a project to help growers find alternative control measures to manage foxglove aphids that are compatible with existing greenhouse biological control systems.

During the project's first year, scientists have been gathering information in order to get a better understanding of the pest's behaviour by looking for answers to questions

like where the pest goes in the warm summer months and why existing biocontrol agents aren't effective. They're also evaluating different biocontrol agents for efficacy against foxglove aphid.

The pest shows a preference for cooler places in the summer, such as plant leaves close to the ground that aren't scouted for aphids. *Aphidius ervi*, the biological currently used in aphid control, attacks aphids on the entire plant. Also, foxglove aphids drop off plants or scatter when they are disturbed by the parasitoid.



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*Aphidius ervi* is the biological currently used in aphid control.



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Foxglove aphids prefer cooler places in the summer, such as plant leaves close to the ground.



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*Dalotia coriaria* showed no predation of foxglove aphids even after three days



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Foxglove aphids infected  
with *Lecanicillium lecanii*



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Foxglove aphids infected with Met52<sup>®</sup> EC



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Foxglove aphids killed by Grandevo<sup>®</sup>

To that end, the team investigated the biocontrol agent, *Dalotia coriaria*, which is a soil-based predator, in hopes that it could predate aphids that had jumped off the plant, but without success.

The testing of several biopesticides – Grandevo<sup>®</sup>, Met 52<sup>®</sup> EC, and *Lecanicillium lecanii* - has met with some positive results, with Met 52 EC reducing aphid population growth most significantly over two weeks following a single application. A generalist predatory mite also greatly

reduced the number of nymphs and number of total aphids on the plants.

In the remaining project years, researchers will scout commercial greenhouses for aphid infestation phenology to determine optimal intervention points, investigate other biocontrol agents and predators, evaluate if they are compatible with pest management strategies currently being used in ornamental greenhouses and test the developed strategies in commercial greenhouse trials.

## Why is this project important to the ornamental horticulture industry?

Being able to control a significant ornamental greenhouse pest will benefit growers by allowing them to produce more and healthier plants for their markets.



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