Developing a Systems Approach to Pest Management on Greenhouse Vegetable Crops: Mirid Predator Selection

LEAD RESEARCHER

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To find new integrated pest-management strategies to protect greenhouse vegetable crops, a research team is studying two native North American mirid species: *Dicyphus discrepans* and *Dicyphus famelicus*, and one adventive species: *Nesidiocoris tenuis*.

The researchers are raising the native *D. famelicus*, *D. discrepans* and *D. hesperus*. Current work is focusing on the selective breeding of *D. famelicus* as there is a large amount of genetic diversity available. *Nesidiocoris tenuis* has shown itself as an important adventive mirid species affecting many greenhouse producers globally. Researchers are now studying this species for its interactions with other native mirids and comparing their preferences and reproductive capacities on multiple host plants.

In greenhouse trials, researchers have found differences in host plant choices for mirid species. *D. discrepans* and *D. famelicus* will lay their eggs on mullein and tomato plants, while *Nesidiocoris tenuis* prefer tomatoes. This suggests there is likely a strong genetic difference between species that determines their host plant preferences. The researchers plan to study this through future genetic breeding efforts.

Mirid breeding is continuing this winter, along with starting interaction studies between mirid species in the lab. These will be adapted to greenhouse trials over the next year. The research team is also working through phytophagy and predation assessment of isofemale lines established for *D. famelicus* from different geographic and genetic sources.

KEY TAKEAWAYS:

- *Nesidiocoris tenuis* has shown itself as an important adventive mirid species affecting many greenhouse producers globally. Researchers are studying this species for its interactions with our native mirids and comparing their preferences and reproductive capacities on multiple host plants.
- Researchers have found differences in host plant choices for mirid species. *D. discrepans* and *D. famelicus* will lay their eggs on mullein and tomato plants, while *Nesidiocoris tenuis* prefer tomatoes. This suggests there is likely a strong genetic difference between species that determines their host plant preferences.
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A female *D. discrepans*. Photo: Carly Demers

A female *D. famelicus*. Photo: Carly Demers