

Dicyphus (*Dicyphus hesperus*) **Whitefly Predatory Bug**

Target Pests

Greenhouse whitefly (*Trialeurodes vaporariorum*), Tobacco whitefly (*Bemisia tabaci*). Dicyphus will feed on two-spotted spider mite (*Tetranychus urticae*), Thrips and Moth eggs but will not control these pests.

Plants

Note: Since Dicyphus is also a plant feeder it should not be used on crops such as Gerbra which can be damaged. Most of the work with Dicyphus has been on vegetable crops such as tomato, pepper and eggplant where it will not cause plant damage by plant feeding.

Description

The predatory bug, *Dicyphus hesperus* is similar to *Macrolophus caliginosus*, which is being used in Europe to control whitefly, spider mites, moth eggs and aphids. The use of Dicyphus is being studied by D. Gillespie (Agriculture and Agri-Foods Canada Research Station, Agassiz, BC). Dicyphus should not be used on its own to replace other biological control agents. It is best used along with other biological control agents in greenhouse tomato crops that have, or (because of past history) are expected to have, whitefly, spider mite, or thrips problems.

- Eggs are laid inside plant tissue and are not easily seen.
- Adults are slender (6mm), black and green with red eyes and can fly
- Nymphs are green with red eyes

Use in Biological Control

- Release Dicyphus as soon as whiteflies are found, early in the season at a rate of 0.25-0.5 bugs/m² (10 ft²) of infested area; repeat in 2-3 weeks.
- Release batches of 100 adults together in one area where whitefly is present or add supplementary food (frozen moth eggs: i.e. *Sitotroga* sp., *Ephestia* sp.) to these areas weekly.
- Dicyphus needs large numbers of prey (+100) to reproduce so releases should only be made in areas where pests have been detected or where supplementary food is being added.
- This predator obtains water from plant feeding and can survive for long periods without food but must have insect food to reproduce. Feeding damage to the plant or tomato fruit is superficial and not usually noticeable unless population levels exceed 100 Dicyphus/plant.
- The use of banker plants such as mullein (*Verbascum thapsus*) and eggplant is useful for increasing Dicyphus numbers as well as monitoring for pests.

Monitoring Tips

- Adults and nymphs move quickly and hide in plant material when approached.
- On mature tomato plants adults and nymphs are often found on the middle leaves

Life Cycle

- Development from egg to adult takes 5 weeks at 25°C and 8 weeks at 20°C.
- Adult females lay 3 eggs per day, for a total of 88 eggs over a 20-30 days.
Eggs are laid in the tissue of plant stems and leaf veins and hatch in 2 weeks.

Using Pesticides

- Spreader-stickers, insecticidal oils and soaps are harmful to predators contacted by the spray, but have little residual activity.
- Most pesticides used for whitefly including systemic pesticides are harmful to Dicyphus. Check with supplier or with a chemical effect list before using any pesticide. The pesticide effects on Dicyphus are similar to Orius spp.