



BIOLOGICAL CONTROL: Minute Pirate Bug, *Orius insidiosus*

Biology and Lifecycle: Individual eggs are laid in plant tissues. Females lay over 75 eggs when consuming adequate numbers of insect prey. Eggs hatch in 6 to 10 days. Development of the nymphal instars requires at least 10 days, depending on temperature. The adults live three to four weeks.

Environmental Factors: The species overwinters as mated females in reproductive diapause. They are active from March to November in northern Florida, and year-round in southern Florida. A combination of day-length and temperature influences the onset and duration of reproductive diapause.

Adult: Elliptical with a triangular head. The head and thorax are shiny and black. The forewing has a small dark area at the base of the first pair of legs, then a whitish yellow area, then a triangular dark area. The rest of the forewing is membranous and pale.

Immatures: The five nymphal instars are ovoid. The first instar is slightly yellow. Later instars get progressively darker in color. The last instar is mahogany in color.

Host Species: Abundant on many crop and wild plant species. Very abundant on species of peppers (*Capsicum* spp.), but not on tomato (*Lycopersicon esculentum*).

Habitat/Nutritional Requirements: Minute pirate bugs have co-evolved with plants including pepper, okra, and cotton that have special structures called domatia that produce food and shelter for predators. The domatia allow predator populations to survive and successfully reproduce in the absence of prey. Minute pirate bugs persist in peppers after suppressing prey to low population levels, by feeding on pollen and plant juices without doing damage. Adults and nymphs are highly aggregated in the flowers of pepper.

Effectiveness: Integrated pest management programs are designed to conserve minute pirate bug populations through the use of cultural tactics and reduced-risk insecticides. Minute pirate bugs provide control of thrips when there is at least one predator per 180 prey. The predator also feeds on aphids, mites, whiteflies, and the eggs of numerous species of pests.

References:

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Reitz, S. R., E.L. Yearby, J.E. Funderburk, J. Stavisky, M.T. Momol and S. M. Olson. 2003. Integrated management tactics for *Frankliniella* thrips (Thysanoptera: Thripidae) in field-grown pepper. Journal of Economic Entomology 96: 1201-1214.



Figure 1. Adult minute pirate bug. Photograph by: James Castner.

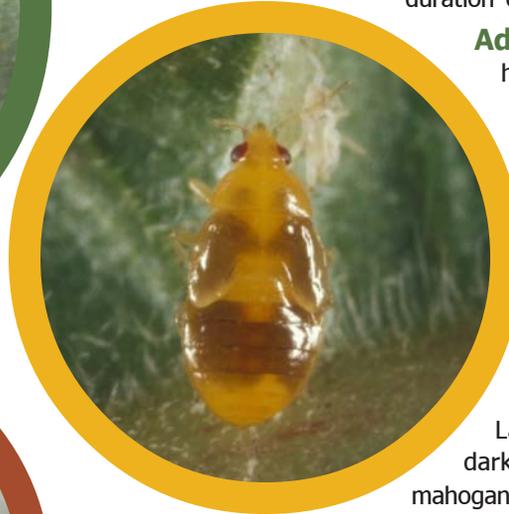


Figure 2. Nymphal minute pirate bug. Photograph by: Lyle Buss.



Figure 3. Adult *Orius insidiosus* preying on an adult thrips. Photograph by: Stuart Reitz.

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