



## The Status of Blueberry Gall Midge in the Southeastern United States <sup>1</sup>

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Florida blueberry growers have long known about blueberry gall midge, *Dasineura oxycoccana* Johnson, an insect pest that affects developing leaf buds of blueberry bushes in the southeastern United States (Figure 1). In the mid 1990s, Florida growers were re-alerted to blueberry gall midge, as researchers learned that midges also affected floral buds, a problem that was previously attributed to frost damage. Affected floral buds take on a dry, shriveled appearance and will often crumble when touched. Left untreated, midge populations are capable of destroying up to 80% of rabbiteye plantings in north-central Florida. Blueberry gall midge is not restricted to Florida; it is also a key pest of blueberries in Georgia, North Carolina, and Mississippi. Midges also occur in the north, including Maine, New Jersey, Michigan, Wisconsin, and Washington, where the official common name is “cranberry tipworm.” In the northern states, midges generally affect cranberry production, although blueberries may also be susceptible.

Blueberry growers should be aware of midge populations because the infestations by midges may limit the ability of bushes to produce and maintain a



**Figure 1.** Blueberry gall midge female. Credits: University of Florida

1. This document is ENY-825, one of a series of the Entomology and Nematology Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Published: September 2002. Please visit the EDIS Website at <http://edis.ifas.ufl.edu>. Additional information on these organisms, including many color photographs, is available at the Entomology and Nematology Department WWW site at <http://entnemdept.ifas.ufl.edu/>.
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heavy fruit set. Symptoms of infestation include premature floral bud abortion, leaf curl, stunted growth, and blackened tip (Figure 2). Preliminary research conducted at the University of Florida indicates that floral buds of rabbiteye cultivars are more heavily infested compared with floral buds of earlier blooming southern highbush cultivars. However, both types of blueberries are susceptible to vegetative bud infestation.



**Figure 2.** Symptoms of blueberry gall midge infestation. Credits: University of Florida

Blueberry gall midges are very small insects, approximately 3 mm in size, or smaller than the average mosquito. As a consequence, their larvae are also small and generally not easy to observe within the confines of infested buds. Females lay eggs in either floral or vegetative buds just after bud swell, when scales begin to separate and the tips of flowers become visible. A single female can lay up to 20 eggs in the mid to inner scales of the buds, which provide protection for the developing midges. Eggs hatch into larvae (maggots) within a few days and the larvae continue to develop inside the buds (Figure 3). The emerging maggots feed on plant juices within the

buds, remaining unseen to the naked eye. Ultimately it is the larvae, feeding on the nutritive plant juices, which cause the debilitating symptoms associated with blueberry gall midge infestation.



**Figure 3.** Maggots emerging from an infested leaf bud. Credits: University of Florida

Climatic factors (temperature and moisture) and cultural practices, including pruning and ground cover, appear to play a role in emergence dates and midge densities within blueberry plantings. In north-central Florida, milder temperatures appear to favor early emergence. Current research conducted at the University of Florida aims to develop reliable monitoring techniques for detecting blueberry gall midge infestations prior to the onset of symptoms. Techniques are being evaluated for their ability to detect the various lifestages of blueberry gall midge. Questions regarding the biology and management of blueberry gall midge should be directed to: Dr. Oscar Liburd, Fruit and Vegetable Entomologist, University of Florida, Gainesville, FL 32611, (352) 392-1901 ext. 108.