

## Blueberry Gall Midge: A Major Insect Pest of Blueberries in the Southeastern United States <sup>1</sup>

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The blueberry gall midge, *Dasineura oxycoccana* Johnson, feeds on developing leaf and floral 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 affected vegetative and floral buds, a problem that was previously attributed to frost damage. Affected 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. Blueberry gall midge is a major pest of blueberries in several southeastern states including Georgia, North Carolina, and Mississippi. It is also becoming an increasing problem in blueberries in Nova Scotia, New Jersey, Michigan, and Oregon.

A high population of blueberry gall midge may limit the ability of bushes to produce and maintain a heavy fruit set. Symptoms of infestation include premature floral bud abortion, leaf curl, stunted growth, and blackened leaf tip (Figure 2). Both rabbiteye, *Vaccinium ashei* Reade and southern highbush blueberries *V. corymbosum* L. X *V. darrowi* Camp are susceptible to blueberry gall midge.



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

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However, floral buds of the earlier blooming southern highbush cultivars appear to escape the damage.



**Figure 2.** Symptoms of blueberry gall midge infestation.  
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Blueberry gall midges are very small insects, approximately 3 mm in size, or smaller than the average mosquito. They have long slender legs, globular cylindrical antennae, transparent wings with long black hairlike structures and reduced venation (Figure 1). The larvae are small (2 mm) 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.  
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Climatic factors including temperature and moisture plays a role in emergence dates and midge densities within blueberry plantings. In north-central Florida, milder temperatures appear to favor early emergence. Reliable monitoring techniques for detecting blueberry gall midge infestations prior to the onset of symptoms include collecting young buds and placing them into a bag at room temperature. If buds are infested, larvae will begin to emerge after 3-4 days. Several species of endoparasitoids that can kill up to 40% of the blueberry gall midge larvae have been identified. These species include platygastriids in the genera, *Synopeas*, *Platygaster* and *Inostemma*. In addition, a prepupal parasite, *Aprostocetus* sp. (Eulophidae Tetrastichinae) have been found associated with blueberry gall midge in rabbiteye blueberries.

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, Liburd@ufl.edu.

## References

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