



WILD BLUEBERRY FACT SHEET

BLUEBERRY GALL MIDGE

Also known as Cranberry Tipworm, Tip Midge

Introduction

Blueberry gall midge (*Dasineura oxycoccana* Johnson; Diptera: Cecidomyiidae), also known as cranberry tipworm or tip midge, was first detected in Maine in 2004, and was later discovered in Yarmouth County, Nova Scotia, and parts of New Brunswick in 2006. Its presence has since been confirmed in other regions of Nova Scotia and PEI. Its detection in Nova Scotia originally coincided with uncharacteristically low yields, but it is not yet clear if blueberry gall midge causes significant reductions in blueberry yields. Gall midge is however considered an important pest of cranberry, highbush blueberry and rabbiteye blueberry.

Description

Eggs (Fig 1a) are small, clear and oblong. **Maggots** (Fig 1b) grow approximately 2 mm long, transitioning in colour from clear, to white or whitish green, and finally to a peach-orange colour. **Pupae** reside in brown silk spun cocoons often hidden on the ground. **Adults** (Fig 1c) are small, delicate, long-legged flies, mosquito-like in appearance but only about 1/10 the size growing to a maximum length of 3 mm (1/16 inch).



Fig 1. Blueberry gall midge egg (a), third instar maggot (b), and adult female (left) and male (right)

Life Cycle

Much of the biology of blueberry gall midge is not well understood. Adult females emerge in spring, mate and deposit eggs in the terminal shoots of new growth. A single shoot tip may host several eggs. Eggs usually hatch within 3 days and maggots feed on plant terminal growth, progressing through 3 instars over a period of 10-12 days. Mature maggots drop to the ground and form silk-encased puparia. Depending on temperature, adults emerge within 5-10 days. Total development time from egg hatch to adult is usually only 2-3 weeks which enables blueberry gall midge to have multiple overlapping generations during the summer. Blueberry gall midge overwinters as pupae in soil or leaf litter.

Damage

Maggot feeding on young green shoot tips causes curling and deformation of foliage (Fig 2a). Tip foliage dies as feeding continues (Fig 2b). The plant responds to tip damage by increasing growth at other terminals (vegetative buds), resulting in excessive side-branching. In sprout fields this may delay the formation of flower buds, which may increase susceptibility to winterkill, reducing the number of viable flower buds in the crop year. Excessive side-branching may also increase susceptibility to disease and create difficulties during harvesting. Incidence of the pest is low in crop fields. In other *Vaccinium* species, blueberry gall midge attacks flower buds but this does not seem to be the case in wild blueberry. This pest is known to cause economic losses in highbush blueberry in south-eastern North America, but it has not yet been confirmed to be an economic threat in wild blueberries.

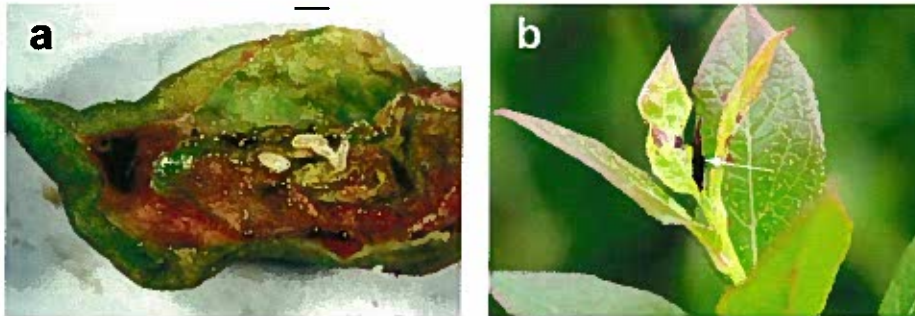


Fig 2. (a) Larvae feeding on a damaged tip; (b) dead tip

Monitoring and Management

Research is still needed to determine if or when control of blueberry gall midge is warranted. No insecticides are currently registered against blueberry gall midge on wild blueberry. Burning may suppress populations and fungicide applications to sprout fields in late July (e.g. to control leaf rust) will maintain healthy vegetative shoots, enabling late forming fruit buds to complete their development in the fall.

For now, it is recommended that growers monitor their fields for incidence of blueberry gall midge. Stems in sprout fields should be examined early (late April or early May) for symptoms of blackened tips, malformed (cupped) leaves around tips, and excessive side branches. A sample of stem tips should be carefully opened and examined with a hand lens or 10x microscope to confirm the presence of small eggs or maggots.

Alternatively, growing shoot tips can be folded in a damp paper towel and placed in a sealable sandwich bag. Held at room temperature, maggots will emerge within 2 days and adults will appear after 2 weeks.

Photo Credits

Fig 1a, 1c. Courtesy of Kenna MacKenzie, Agriculture and Agri-Foods Canada.

Fig 1b. Courtesy of the Food and Environment Research Agency (FERA), Crown Copyright.

Fig 2a, 2b. Courtesy of New Brunswick Department of Agriculture, Aquaculture and Fisheries.

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