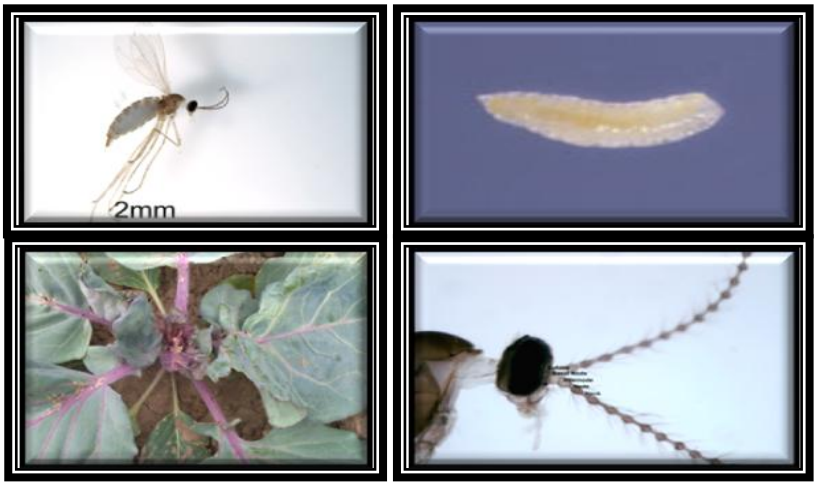
SWEDE MIDGE

NOT KNOWN TO OCCUR IN IDAHO



Common Name: Swede Midge

Scientific Name: *Contarinia nasturtii (Kieffer)*

Introduction

The swede midge (cabbage gall midge or cabbage crowngall fly),*Contarinia nasturtii* (Keiffer), a gall midge native to Europe and southwestern Asia. It was confirmed to be present in Ontario and Québec, Canada and has been detected in New York. In Europe, the swede midge is a common and endemic pest of cruciferous vegetable crops, such as: broccoli, cabbage, cauliflower, Brussels sprouts, kale, collards, rutabagas and radish. Other vegetable crops that could potentially be susceptible are: Asian radish, Chinese broccoli/kale, red and green leaf mustards, flowering edible rape, nappa cabbage and Chinese leaf cabbage. Weeds from the Cruciferae family including wild mustard, wild radish, shepherd's-purse, stinkweed, field peppergrass and yellow rocket could act as alternate hosts. The Swede midge was not known to occur anywhere in North America prior to its identification in Ontario in 2000. Damage from Swede midge was initially misdiagnosed as a nutritional deficiency.

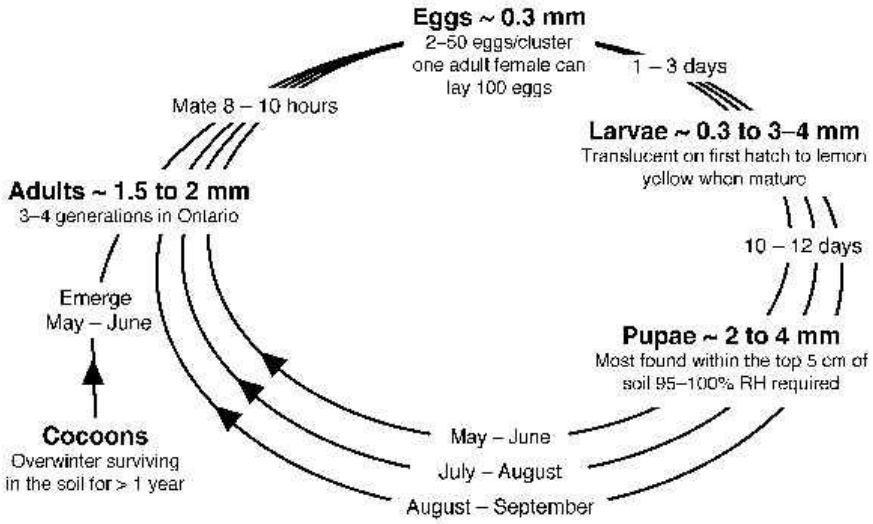
Description And Life Cycle

The Swede midge adult is a tiny light-brown fly (1.5–2 mm), indistinguishable from many other closely related midge species present in Ontario. Positive identification requires confirmation by a qualified taxonomist. First generation adults emerge in the spring from overwintering pupae. Emergence occurs from mid-May until the beginning of June, depending on climatic conditions. Adults mate soon thereafter. Once the female finds a suitable host, she lays 2–50 eggs in clusters on the youngest, actively growing vegetative tissue, commonly near the growth point (apical meristem). Each female will lay approximately 100 eggs during her short (1–4 day) lifetime. The eggs are very small (0.3 mm), transparent in color when they are first laid, becoming creamy white just prior to hatching. After 3 days, the larvae hatch and begin to feed on plant tissue. Larvae are gregarious, typically feeding in groups near the growing point. Larvae are small maggots, initially 0.3 mm and transparent. Depending on climatic conditions the larvae can complete their development in 7–21 days. At maturity, they are 3–4 mm in length and lemon yellow. Larvae are visible to the naked eye and require a moist environment. During periods of drought, the larvae may enter a period of dormancy, with growth resuming after a rain or an irrigation event. When mature, they drop or "jump" to the ground, tunneling below the soil surface to spin cocoons and pupate. Most cocoons are located within the top 5 cm of the soil surface. Adults will emerge from the soil in two weeks, again depending on climatic conditions. Preliminary studies in Ontario indicate that there are 3–4 overlapping generations. Pre-pupae of the last

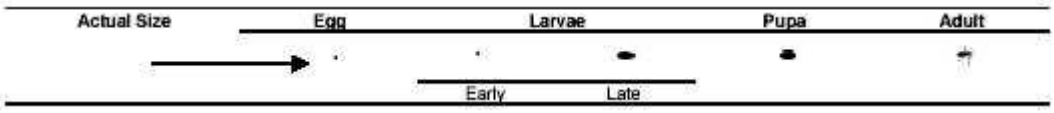
summer generation go into a state of diapause, overwintering in cocoons in the soil and pupating the following spring; however, a few individuals may overwinter a second season before becoming adults. Females are weak fliers, but are capable of natural spread from an old field into a new one.

Damage Symptoms

Swede midge infestations are difficult to diagnose because the damage symptoms look very similar to other common problems in crucifer fields, such as molybdenum deficiency, hormonal herbicide injury, genetic variability of seed, and heat stress (bolting) or frost damage (buttoning). In order to confirm the damage, one must dissect the larvae from the plant. Damage symptoms are a direct result of larval feeding. During feeding, larvae produce a secretion that breaks down the plant surface and liquefies the contents of the cell. This feeding changes the physiology of the plant and results in the formation of swollen, distorted and twisted leaf stalks. Death of the main shoot or growing point may result in the formation of a blind head.



Swede midge life cycle is 21–44 days per generation.



Heart leaves become crinkled and crumpled. Flower buds remain closed and become swollen. Heads are deformed, asymmetrical and disjointed. Brown scarring is typically observed along petioles and stems. Where the main stem has been destroyed, the development of secondary stems may be enhanced, resulting in a multi-stemmed or multi-head plant. Secondary bacterial infections are common. Severity of damage is directly related to crop development at the time of attack. If the plant is attacked at the seedling / transplant stage, a gall is evident at the growth point, resulting in no marketable yield. Newly or lightly-infested plants may be asymptomatic.

Other Resources

http://www.nysipm.cornell.edu/factsheets/vegetables/cruc/sm.pdf

http://www.aphis.usda.gov/plant_health/plant_pest_info/smidge/index.shtml

http://www.omafra.gov.on.ca/english/crops/facts/03-035.htm

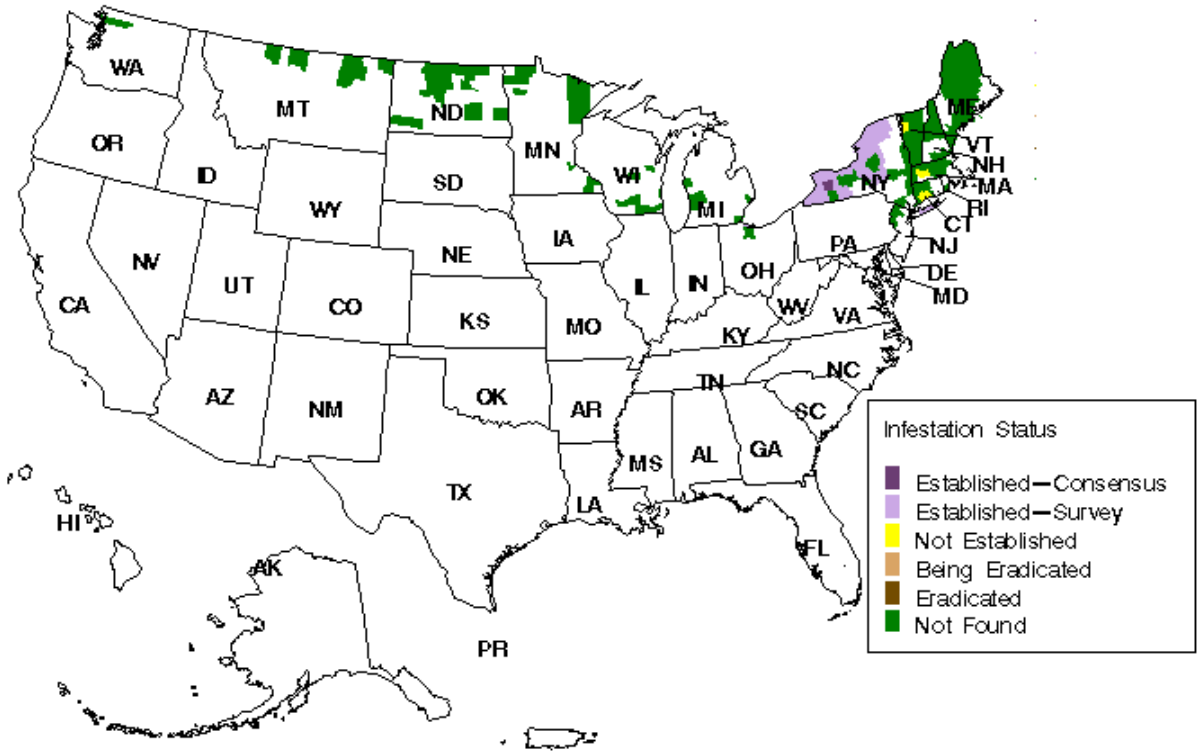
http://www.invasive.org/browse/subject.cfm?sub=11772

Reported Status of

Swede Midge , Contarinia nasturtii

in US and Puerto Rico

Data retrieved from National Agricultural Pest Information System on 01/17/2012



The Center for Environmental and Regulatory Information Systems does not certify the accuracy or completeness of the map.