Swede Midge Management on Urban Farms

Swede midge is a tiny fly pest of brassica crops. The larvae feed hidden inside the growing point, where sprays and scouting are less effective. Feeding can cause twisted leaves, brown corky scarring, blind heads, and multi-headed plants.

This guide focuses on small farms and urban farms where brassicas are often planted close together throughout the season. The most effective management approach is to combine timing, sanitation, host choice, and physical exclusion — rather than relying solely on sprays.



Fig. 1. Swede midge larvae feeding in the growing point of Red Russian kale. Photo by Kacie Athey



Fig. 2. A visually distorted or damaged growth point could indicate swede midge damage. Photo by Zack Grant

Swede Midge Management Goals

- Prevent spring-emerging adults from finding brassica hosts.
- Protect the most valuable brassica plantings with exclusion netting when needed.
- Reduce next year's pressure by promptly destroying infested crop residue.
- Use lower-risk brassicas in hot spots and avoid planting highly preferred hosts where pressure is high.
- Use monitoring and simple field diagnosis to confirm the presence of swede midge.

How to Recognize and Confirm Swede Midge

Look for symptoms in the newest growth. Typical injuries include puckered or twisted young leaves, swollen leaf bases, brown corky scarring, distorted growing points, blind heads, or plants with many small heads or shoots.

STEP 1: Open the growing point.

Peel back the youngest leaves around the center of the plant. Larvae are small, yellowish maggots and may be tucked deep in the bud.

STEP 2: Use an alcohol shake if larvae are hard to see.

Clip the suspected growing tip, place it in a small vial or clear cup with rubbing alcohol, and shake gently. The tiny larvae will wash out of the plant tissue and become easier to see in the liquid.

STEP 3: Do not diagnose from symptoms alone.

Swede midge damage can look similar to herbicide injury, mechanical damage, nutrient issues, stress, or caterpillar feeding. Confirmation is strongest when larvae are found in the growing point.

Life Cycle and Timing

- Adults are very small, gnat-like flies. Females lay eggs in clusters at the growing point of brassica plants.
- Larvae feed for seven to 21 days, then drop to the soil to pupate. Most pupae are near the soil surface.
- In New York and similar regions, swede midge may have four or five overlapping generations per year. Spring emergence often peaks from mid-May to late June, but local timing can vary.
- Some overwintering pupae can remain in the soil for more than one year, so a single clean season may not fully eliminate risk.

Managing Fields with a History of Swede Midge

STEP 1: Map where brassicas were damaged last year.

Swede midge adults emerge in spring from soil near where infested brassicas grew the previous season. Mark those beds or fields before planning new brassica plantings.

STEP 2: Create a spring brassica-free window when possible.

Where swede midge emerged last year, avoid planting brassicas from May through mid-July if the farm layout allows it. This two-and-a-half- to three-month gap can starve spring-emerging adults and reduce population buildup.

STEP 3: Understand the limits of distance.

A 500-foot rotation can work only when fields are secluded and separated by a substantial barrier, such as woods. In open farm blocks, 500 feet is not sufficient on its own.

STEP 4: Destroy residue quickly after harvest.

After harvest, promptly chop, till, remove, or otherwise destroy infested brassica residue. Larvae can continue developing on side shoots after the main harvest, increasing the overwintering population. Do not compost the plant residue.

Physical Protection

STEP 1: Use exclusion netting on clean ground.

Fine insect netting over hoops can be very effective when the crop is planted on ground that has not recently produced infested brassicas. Seal the edges well. Do not place netting over known emergence sites, as adults can emerge under the netting and become trapped in the crop.

STEP 2: Use tarps or landscape fabric to suppress emergence from infested soil.

Covering infested beds with opaque tarps or landscape fabric, without planting holes, for 30 to 46 days has sharply reduced adult emergence in trials. Loose soil topdressing, also called soil mulch, has not yet been validated as a reliable substitute because cracks or gaps can still allow adults to escape.

STEP 3: Do not depend on fencing alone.

Tall exclusion fencing has delayed infestation in some trials, but wind can move adults over barriers. Fencing is not reliable enough to replace rotation, netting, sanitation, or host choice.

Choose Brassicas Strategically

Swede midge does not damage all brassicas equally. Broccoli and Red Russian kale are among the most preferred hosts. Collards are also high-risk. Lacinato and curly kales are generally lower risk than Red Russian, while bok choy, Chinese cabbage, and savoy cabbage are among the lower-risk options.

- Avoid planting broccoli or Red Russian kale in known hot spots unless the crop is protected or intentionally used as a monitored trap crop.
- Use lower-risk brassicas in high-pressure areas, when possible, especially if market goals allow substitution.
- Once cabbage begins heading, the growing point is less accessible, and susceptibility drops.

Relative Swede Midge Preference Among Brassica Crops

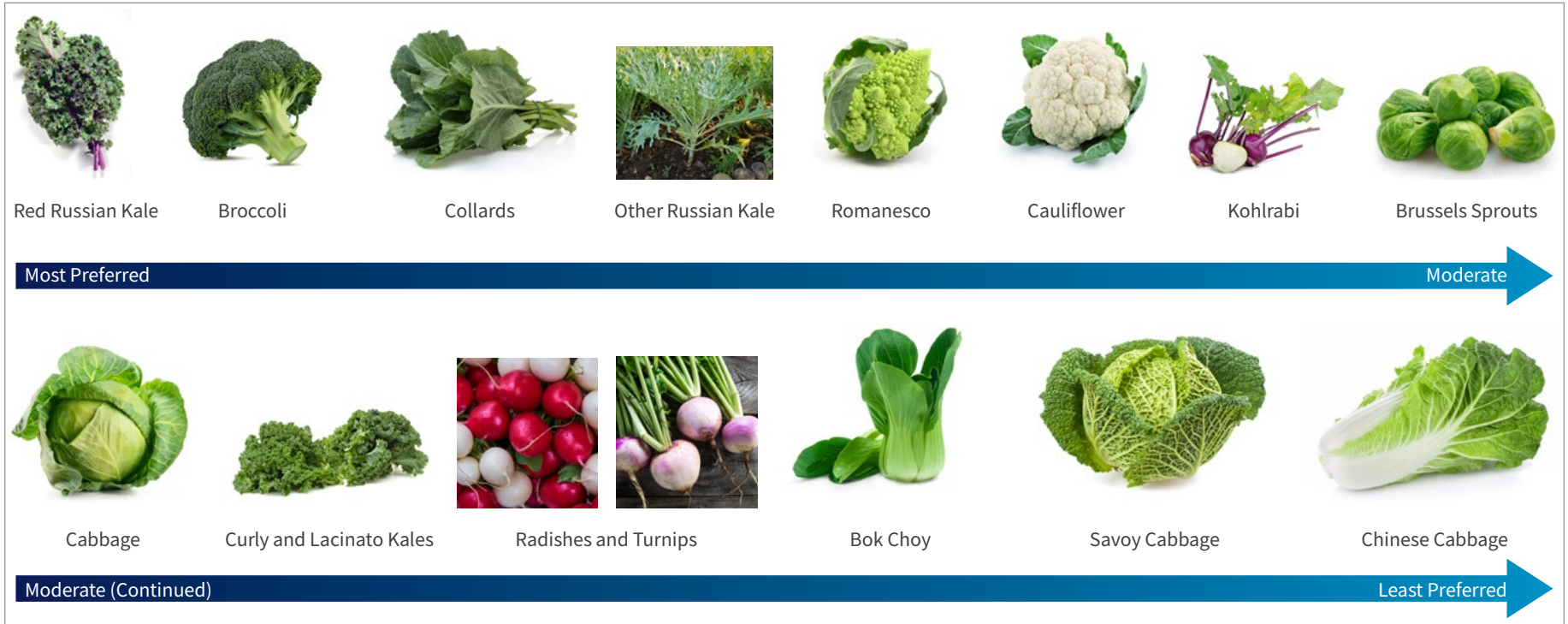


Fig. 3. Cultivar selection modified from Cornell Cooperative Extension Crop Rotation chart.

Trap Cropping: Use with Caution

Red Russian kale can attract swede midge and may be useful as a demonstration or exploratory trap crop, but open-field trap-cropping results have been inconsistent. A trap crop should never be allowed to become a nursery for the pest.

- If using Red Russian kale as a trap crop, place it near the crop section being compared and scout it weekly.
- If the trap crop becomes heavily infested, mow, remove, or tarp it promptly.
- Treat trap cropping as a learning tool, not a stand-alone management plan. Pair it with sanitation, timing, and monitoring.

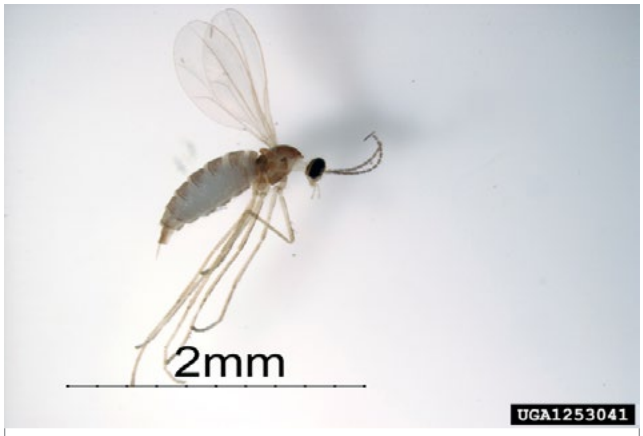


Fig. 4. Swede midge adult. Photo by Susan Ellis, USDA APHIS PPQ, Bugwood.org



Fig. 5. Jackson trap in collards. Photo by Kacie Athey

Monitoring Tools

Pheromone traps, often Jackson traps, attract male swede midges. They are useful for watching activity and timing management, but they do not remove enough insects to protect a crop. Trap identification requires training or confirmation.

What About Sprays?

Organic insecticides such as kaolin clay, spinosad, and azadirachtin-based products have shown inconsistent results. Larvae are protected inside the plant's growing point, so foliar sprays are hard to rely on. Use sprays only as a supplement to timing, exclusion, sanitation, and host choice, and always follow the label.

Quick Field Checklist

- Scout young brassicas and sheltered field edges first.
- Confirm suspicious plants by opening the growing point; use an alcohol shake if needed.
- Map last year's infested beds before planting new brassicas.
- Keep brassicas out of infested fields during spring emergence when possible.
- Use exclusion netting only on clean ground, not over emergence sites.
- Destroy crop residue immediately after harvest.
- Choose lower-risk brassicas when pressure is high.

References

Hodgdon, E.A. et al. (2017). Organic Management of Swede Midge. NYS IPM. hdl.handle.net/1813/55087

Hodgdon, E.A. et al. (2024). Organic management of the invasive swede midge on Brassica vegetables. Journal of Integrated Pest Management 15(1):17.

Hoepting, C.A. & Vande Brake, S. (2020). NEW Crop Rotation Recommendations for Swede Midge. Cornell Cooperative Extension / NYS IPM.

NYS IPM (2009). Swede midge — Contarinia nasturtii (Kieffer). hdl.handle.net/1813/43303

Tong, C. et al. (2025). Swede Midge Phenology & Management in Minnesota Community Gardens. HortScience 60(3):273–277.

Authors

Zachary Grant, local food systems and small farms educator, University of Illinois Extension

Kacie Athey, assistant professor and faculty Extension specialist, crop sciences, University of Illinois Urbana-Champaign

Modified October 2026

Illinois Extension
UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

extension.illinois.edu

College of Agricultural, Consumer and Environmental Sciences. University of Illinois, U.S. Department of Agriculture, Local Extension Councils Cooperating. University of Illinois Extension provides equal opportunities in programs and employment. ©2026 University of Illinois Board of Trustees. For permission to reprint, revise, or otherwise use, contact extension@illinois.edu.