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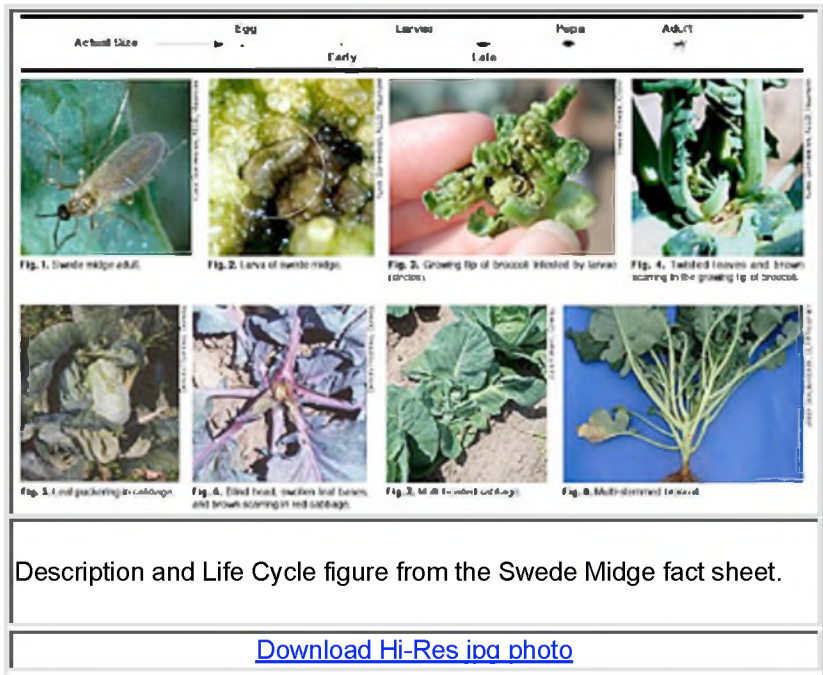
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New York farmers brace for an invasion of the swede midge, a little fly that could cause extensive crop damage

by Blaine Friedlander Jr.

ITHACA, N.Y. -- A tiny, voracious fly called the swede midge, which already has eaten its way across eastern Canada's cabbage and broccoli fields, now is threatening to descend on crops in states along the northern U.S. border.

On Feb. 11 an educational session on the swede midge will be held for registered growers at the 2003 New York State Vegetable Conference in Liverpool, N.Y. It will be presented by Julie Kikkert, senior extension educator with Cornell Cooperative Extension (CCE), Christy Hoepfing, an educator with CCE, and Kristen Callow, of the Ontario Ministry of Agriculture and Food, Canada.



Cornell University agricultural scientists and extension educators are working to keep New York state brassica vegetable crops, including cabbages, Brussels sprouts and cauliflower, free from the midge. They are trying to fend off an invasion by scouting for the insect and educating farmers to recognize damage.

Although the fly is hardly detectable to the naked eye, it could decimate vegetable fields in New York state, which leads the country in cabbage production with an \$87 million crop annually. The state also has a \$6 million annual production of broccoli, Brussels sprouts, cauliflower, Chinese cabbage and related crops.

"Because of the growth in international commerce, insects and diseases move around more freely than ever before. The midge has been a major pest in Europe, it has been found in Canada, and most likely over time we'll find it in the United States, if it is not already present," says Anthony Shelton, professor of entomology at Cornell's New York State Agricultural Experiment Station in Geneva, N.Y.

Larvae of the swede midge (*Contarinia nasturtii*) feed on and destroy the growing tips of cruciferous plants, which include brassica vegetables. The fly had not been detected in North America before 2001, although Ontario farmers began noticing heavy losses -- as much as 85 percent of their broccoli crop -- as far back as 1994. Mistakenly, the losses were blamed on deficiencies in soil nutrients. In 2001, University of Guelph researchers surveyed a large number of crucifer fields in Ontario and Quebec by mailing yellow sticky cards to growers. When growers returned the cards, university scientists were able to confirm the presence of the midge.

The Canadian Food Inspection Agency says the presence of swede midge in Canada could have a significant impact on exports of brassica vegetables. In Canada brassica vegetable exports were worth \$22.7 million Canadian (\$14.98 million U.S.) in 2001, and the commercial value was estimated at \$118.2 million Canadian (\$78.02 million U.S.).

While the broccoli, cabbage and cauliflower crop damage could be significant in Ontario and Quebec, according to agency, the economic loss could be far greater if the midge spreads to the prairie provinces. Production losses for the canola crop alone could be as high as \$2.2 billion Canadian (\$1.45 billion U.S.)

Hoepting, Kikkert and Shelton have presented nine informational sessions in New York state to more than 200 growers, research faculty, industry representatives and inspectors from the U.S. Department of Agriculture-Animal and Plant Health Inspection Service. In addition, the educators' articles have been published in trade newsletters, and they are sending a fact sheet to all crucifer growers in New York.

Swede midge adult flies are about 1.5 to 2 millimeters long. In the spring, flies emerge from the pupae, mate and typically lay their eggs in clusters on the growing point of the plant. After a few days, the larvae hatch from the eggs and begin to feed near the growing point. Full-grown larvae fall to the ground and burrow into the soil to pupate. Kikkert says that some over-wintering pupae can survive in the soil for more than a year. Canadian scientists have found that there are three or four overlapping generations throughout the summer months.

Kikkert is gearing up for an entomological war. "We want to protect the \$93 million worth of state crops from the swede midge. We're lucky to have had a heads-up on this pest from our Canadian colleagues," she says. "Our survey and farmer-education program will help ensure

that it won't go undetected or unknowingly spread throughout the state. At the same time, it is critical that we develop strategies through research to manage this pest when it does arrive."

NOTE TO CCE EDUCATORS:

A 2-page, 4-color fact sheet written by Hoepting, Kikkert and Shelton on the swede midge will be available from IPM and CCE next week. It includes photographs identifying the pest and the damage. Contact Julie R Kikkert at jrk2@cornell.edu or call 315-787-2221 or 585-394-3977. Copies will also be available from the Cornell University Resource Center at 255-2080, resctr@cornell.edu.

EDITORS: You are welcome to cover the swede midge discussion at the New York State Vegetable Conference. For media credentials, please call [Blaine Friedlander](mailto:Blaine.Friedlander@cornell.edu), Cornell News Service, at (607) 255-3290.

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Actual Size



Egg

Early

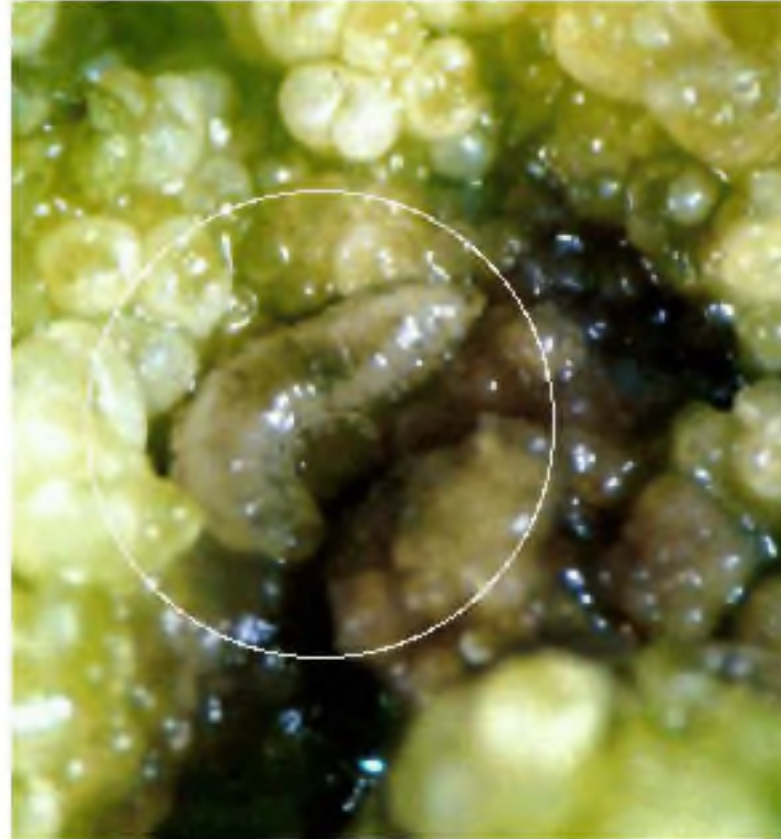
Larvae

Late

Pupa

Adult

KLAUS SCHRAMEYER, ALLB, HEILBRONN



KLAUS SCHRAMEYER, ALLB, HEILBRONN

HANNAH FRASER, OMAF



KLAUS SCHRAMEYER, ALLB, HEILBRONN



Fig. 1. Swede midge adult.

Fig. 2. Larva of swede midge.

Fig. 3. Growing tip of broccoli infested by larvae (circles).

Fig. 4. Twisted leaves and brown scarring in the growing tip of broccoli.

CHRISTY HOEPTING, CORNELL

CHRISTY HOEPTING, CORNELL

JULIE KIKKERT, CORNELL

JOSEF SCHLAFER, SUFA NEUSTADT



Fig. 5. Leaf puckering in cabbage.

Fig. 6. Blind head, swollen leaf bases, and brown scarring in red cabbage.

Fig. 7. Multi-headed cabbage.

Fig. 8. Multi-stemmed broccoli.