

Pesticides must be registered with the U.S. Environmental Protection Agency and the Michigan Department of Agriculture before they can be legally used in Michigan. This bulletin suggests using pesticides in the management of crop pests. Purchase only those pesticide products that are labeled for, 1.) the crop you wish to use it on and 2.) the pest you wish to manage on the crop. Remember that **the pesticide label is the legal document on pesticide use.** The label must be read carefully and all instructions and limitations followed closely. The use of a pesticide in a manner not consistent with the label can lead to the injury of crops, humans, animals, and the environment, and also lead to civil fines and/or condemnation of the crop. Pesticides are good management tools for the control of pests on crops, but only when they are used in an effective, economical, and environmentally sound manner.

**Hosts:** Scotch and red pine; occasionally other pines.

**Importance:** The larvae of this European midge feed on the needles of Christmas trees, causing the needles to droop, die, and drop prematurely. The bare leaders and holes in the crown caused by heavy feeding degrade the tree. Injured trees may be unsalable in the year of attack, but they will outgrow the injury in 2 to 3 years if the insect is managed.

**Look For:**

- **Needles missing**, mostly on the leader or upper crown.

MAY-JULY

- **Needles bent over**, either green or brown.

- **One or more small yellow maggots**, 1/32 in. long, that form a brown lesion between the needles inside the needle sheath. You will have to remove the suspect needles

and pull them apart to see the larvae and lesion. A hand lens may be needed.

**Biology:** The larvae overwinter in cocoons in the leaf litter. After the insect pupates in the spring, the adults emerge and fly to the trees where they lay their eggs inside the needle fascicles. Emerging larvae feed in the fascicles upon the needles in early summer, causing them to bend over and die. Full-grown larvae drop to the ground in mid-summer and spin cocoons in the litter.

**Monitoring:** Verify this insect by locating the larvae or lesion between the needles so as not to confuse the injury with that of the pine chafer. Pine Chafer also causes needles to bend over and fall from the tree.

If more than 5 percent of the trees in a plantation show midge injury, consider treating the entire plantation the next spring after the adults emerge. Monitor for larvae in the needles from late May to late June, depending on latitude. For example, at the latitude of the bottom of Michigan's Lower Peninsula, the



**Damage from pine needle midge.**

**Upper whorl damage.**

1. *Contarinia baeri* (Prell)

larvae usually emerge in late May. At mid-state, the midge larvae emerge the first week of June; and at the upper tip of Michigan's Lower Peninsula, they emerge about the third week of June. Control the insect as soon as you locate the first midge.

**Control:**

THIS CROP

- Apply an appropriate pesticide when larvae emerge (late May to late June depending upon latitude) to kill the adults. (See Pesticide Table.)

**Pesticide Table**

fenvalerate  
(restricted-use  
pesticide)

oxydemetonmethyl

DORM.	APR	MAY	JUN	JUL	AUG	SEP	OCT

Dark bar indicates the most effective time to apply the pesticide.

*Note: Application time varies with weather, geographic location, chemical formulation, and insect development. Check with a local pest specialist for proper timing, and read the label carefully before using the pesticide.*

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Addendum 1 to the U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station, Christmas tree pest manual. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983. 108 p.



**Bent or drooping needles from midge larvae.**



**Needles pulled apart to see midge larvae and lesion.**



**Midge larvae on injured needle.**



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Issued in furtherance of Cooperative Extension work in agriculture and home economics, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, W. J. Moline, Director, Cooperative Extension Service, Michigan State University, E. Lansing, MI 48824.

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