

A3178

# Deciduous tree disorder: Cankerworms

P. J. PELLITTERI, D. L. MAHR, and D. J. HALL

Severe, early season defoliation of several hardwood tree species may be caused by cankerworms. There are two important species throughout Wisconsin: the spring cankerworm (*Paleacrita vernata*) and the fall cankerworm (*Alsophila pometaria*), named for the times of the year that the adults appear. Usually natural factors such as weather, predators and parasitic insects keep cankerworms in check. However, at certain times the environment becomes very favorable for one or both species of cankerworms, and an outbreak occurs. Outbreaks usually last from a few to several years before natural controls again become effective.

Preferred host plants include apple, crabapple, and elm. However, many other deciduous trees, including ash, cherry, hickory, maple, and oak, among others, are also attacked.



Cankerworm larva and feeding damage to oak leaf.

## Symptoms and effects

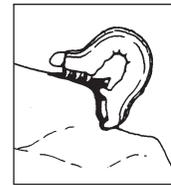
When the larvae are small, they feed only on the softer tissues of the leaves, leaving the main veins and leaf membrane intact. This type of feeding, called "skeletonizing," occurs in late April and early May, and is the first indication of damage. As the larvae grow they begin to consume all leaf tissue except the major veins. When a population is large, partial or complete tree defoliation results. The larvae finish feeding in early June. Because most trees still are growing actively at this time, they continue to produce new foliage. Even after complete defoliation, trees usually re-leaf within 2–3 weeks. However, foliage is more sparse than if defoliation had not occurred.

Maple trees may die after 2–3 years of severe defoliation. Most other species of trees will not die but may be weakened enough to be attacked by disease organisms or other insects. The growth of young trees may be retarded due to cankerworm attack. The larvae can also become a nuisance because of their large numbers and the abundant waste material and silk they produce.

## Life cycle

Although the spring and fall cankerworms do the same type of damage, at about the same time of year, their appearance and life cycles differ somewhat.

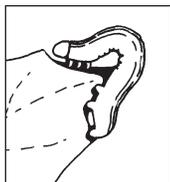
### Spring cankerworm



Spring cankerworms overwinter in the larval stage in cells in the soil at the tree base. They pupate in the soil in very early spring, and the adults emerge shortly after the frost leaves the soil. Eggs are laid in March and April in loose clusters of 100 or more eggs. These clusters are deposited under loose bark or in bark crevices. Hatching occurs in early May and larvae are fully grown by early June. After they finish feeding they drop to the ground and enter the soil, remaining inactive until the following spring.

When larvae hatch, they are slightly less than ¼ inch in length. When fully grown, they are about 1 inch long. The larvae are typical "inchworms," walking in a looping fashion. Besides the three pairs of true legs just behind the head, there is a pair of "prolegs" on the sixth abdominal segment and another on the last segment. They vary greatly in color, from yellowish green, to reddish, brown or even almost black. The adult stage is a moth. The male is brownish-gray, with a wingspan of 7/8–1¼ inch. The females are mottled, whitish and brown or black, and do not have wings.

**Fall cankerworm**



The fall cankerworm overwinters in the egg stage. The eggs are laid in compact clusters of uniform rows. Clusters con-

taining about 100 eggs are usually located on the smaller twigs and branches. Larvae hatch in late April to early May, and are fully grown by mid-June. When finished feeding, they drop to the ground and enter the soil to pupate. Adults emerge in November, usually following some freezing weather, and mate, lay eggs and die.

The larvae are about 1/4 inch long at hatching, but grow to slightly over 1 inch. Fully grown larvae vary in color from pale green to dark brownish green. There is a darker stripe down the middle of the back. Unlike the spring cankerworm, which has two pairs of prolegs, the fall cankerworm has three pairs. The adult male is brownish gray with a wingspan of 1-1 3/8 inch. The female is a dark, shiny gray and wingless.

**Control**

**Natural**

Populations are generally checked by various natural factors including adverse weather; bird, rodent, and insect predators; and parasitic insects. Outbreaks occur only

when these natural controls are ineffective and the environment favors the cankerworms.

**Cultural**

To lay eggs, the flightless females must crawl from the soil up into the tree. By placing a sticky band low on the tree trunk, females will be unable to crawl into the tree to lay eggs. Several brands of sticky materials designed for this purpose are available from garden centers and hardware stores. However, these materials may injure thin barked trees. Wrap such trees with a band of fabric, and then apply the sticky material to the fabric. Leave no gaps in the band of sticky material.

Maintain sticky bands on the tree from mid-March to mid-May for spring cankerworm, and from mid-October to mid-December for fall cankerworm.

Sticky bands do not always eliminate cankerworms from banded trees. The very young cankerworm larvae can be blown from adjacent trees or woodlots. However, in some situations these sticky bands may provide sufficient control so that chemical controls are not necessary.

**Chemical**

Microbial insecticides containing *Bacillus thuringiensis* effectively reduce cankerworm populations. Apply them

as soon as possible after the eggs have hatched in spring. These materials contain a bacterium which causes the caterpillars to die from a disease. They are safe to use and have activity only against caterpillars, thereby protecting most of the beneficial insect species. Brand names include Dipel, Thuricide, Sok-Bt, and Bactur.

Several chemical insecticides are registered for cankerworm control. These include acephate (Orthene), carbaryl (Sevin), methoxychlor, and phosmet (Imidan). Apply chemical insecticides as soon as possible after spring egg hatch. Specialized spray equipment is usually necessary for thorough coverage of large trees, and it may be necessary to consult a commercial tree care specialist. Remember, the health of many mature trees usually will not be affected permanently by one or two defoliations. In such cases, chemical control is suggested only if the insects are creating a nuisance.

References to products in this publication are for your convenience and are not an endorsement or criticism of one product over other similar products. You are responsible for using chemicals according to the manufacturer's current label directions. Follow directions exactly to protect the environment and people from chemical exposure.



©1997 University of Wisconsin-System Board of Regents and University of Wisconsin-Extension, Cooperative Extension

**Authors:** P.J. Pellitteri is distinguished outreach specialist of entomology and D.L. Mahr is professor of entomology, College of Agricultural and Life Sciences, University of Wisconsin-Madison and University of Wisconsin-Extension, Cooperative Extension. D.J. Hall is forest entomologist, Forest Pest Control Unit, Wisconsin Department of Natural Resources. Produced by Cooperative Extension Publications, University of Wisconsin-Extension.

**University of Wisconsin-Extension, Cooperative Extension,** in cooperation with the U.S. Department of Agriculture and Wisconsin counties, publishes this information to further the purpose of the May 8 and June 30, 1914 Acts of Congress; and provides equal opportunities and affirmative action in employment and programming. If you need this material in an alternative format, contact the Office of Equal Opportunity and Diversity Programs or call Cooperative Extension Publications at 608-262-8076.

**This publication is available** from your Wisconsin county Extension office or from Cooperative Extension Publications. To order, call toll free 877-WIS-PUBS (947-7827) or visit [ecommerce.uwex.edu](http://ecommerce.uwex.edu).