

# Cankerworms

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Elm tree defoliated in early June by the spring cankerworm.

Circular 214  
October 1960

The **CONNECTICUT**  
Agricultural  
Experiment Station  
NEW HAVEN

## Notice

The accompanying publication, printed some years ago, contains descriptions and biological information, and suggestions for control by spraying. It suggests the use of DDT.

Present regulations of the State Board of Pesticide Control restrict use of DDT by custom spray operators for this purpose.

Carbaryl (Sevin<sup>®</sup>) or lindane may be used to control these pests.

May 1, 1967

THE CONNECTICUT AGRICULTURAL EXPERIMENT STATION

## Foreword

Outbreaks of cankerworms have occurred since Connecticut was colonized. They were reported as "very destructive" in the New Haven Colony as early as 1750, and a major outbreak occurred on the Green in the early 1840's. In more modern times there were massive outbreaks in 1934, during the war years 1943-44, and to a lesser extent in the early 1950's.

Thus it is a characteristic of this pest to appear in very large numbers at irregular intervals. The appearances are not cyclic in that they can be forecast from the calendar. Neither do they always occur in the same area, although New Haven County is usually included in any outbreak. In spite of considerable study the reasons for the outbreaks are unknown, and no way has been found to forecast them. Perhaps the most dependable sign of impending infestation is observation of the male moths flying at night late in the fall.

Much of the information in this publication has been obtained from the publications of W. E. Britton. The drawing of the larvae, moths, and eggs was made by Elizabeth Kaston, and the illustrations of banding were made by the late B. H. Walden.

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Cankerworms are the caterpillars of moths and feed on unsprayed apple, elm, and oak trees. They may also feed on many other trees and shrubs, but tulip tree and Norway maple are not very susceptible. The caterpillars are green to black in color, and about an inch and a half long when fully grown. They have legs on the front and rear of the body, and crawl by "inching along," giving them their common name of inch worms or measuring worms.

Cankerworms hatch at about the time the buds of the trees break and leaves start growing in the spring. In severe outbreaks the leaves are consumed as fast as they grow, and the trees remain bare until the feeding is completed late in May or early in June. A single defoliation at this time

is not fatal to trees, but defoliation in successive years may kill many trees. Cankerworms can also be very annoying. When they are disturbed they spin down on silk threads and are picked up on clothing of people walking under the infested trees. Many of the worms fall to the ground and crawl to flowers and shrubbery where they continue feeding. Sometimes they crawl up the sides of buildings.

There are two distinct kinds of cankerworms in Connecticut. The most common is the fall cankerworm, which lays most of its eggs in the fall. The spring cankerworm occurs in smaller numbers. Both feed at the same time and produce the same kind of injury. Caterpillars of both drop to the ground and make a cocoon in the soil. Both have wingless females and a single generation each year.

### The Fall Cankerworm, *Alsophila pometaria* (Harris)

On warm foggy days of November and December the adult moths emerge from the ground, and mate. The females are wingless with a smooth gray body. The males are brownish gray with rather indistinct markings on the wings and a wingspread of a little over an inch. They are attracted to lights at night and rest in the daytime on the trunks of trees.

The wingless females crawl up the trunks of trees and deposit their eggs. The grayish-brown eggs are laid in compact clusters. The top of each egg resembles a jar fitted with a circular cover inside a protruding flange. When the eggs hatch, this cover comes off. The egg clusters vary in size and may contain from 50 to 300 eggs each.

The eggs usually hatch during the last few days of April or early in May. The tiny larvae feed on the tender unfolding leaves and may devour all the tissue but the veins. When the foliage becomes hardened, they eat only a small portion, leaving a skeletonized leaf.

The larvae finish their feeding late in May or early in June and pupate in earthen cells held together by silk threads. The adults emerge late in the fall.

The spring cankerworm, *Paleacrita vernata* (Peck), differs a little in appearance. The body of the female is more hairy than the fall cankerworm, and the wings of the male have no white spot.

### Natural Control

The usual large assortment of parasites and predators attack the cankerworms. Schaffner and Griswold (1934) reared nine species of Diptera and seven of Hymenoptera from cankerworm caterpillars. Britton (1909) mentions parasites of the eggs. Predators feeding on the caterpillars during an outbreak are very noticeable. Since the caterpillars are not hairy, a number of species of birds feed freely on them. Ground beetles consume many larvae, and ants have a feast. The potter wasp, *Eumenes fraternus*, will provision its nest with larvae. However, all of these enemies combined do not prevent outbreaks of cankerworms.

### Control by Spraying

As a rule, one application of spray made as soon as the leaves start growing is sufficient to control cankerworms. DDT is especially effective for this purpose. The usual dosage has been 2 pounds of 50 per cent spray

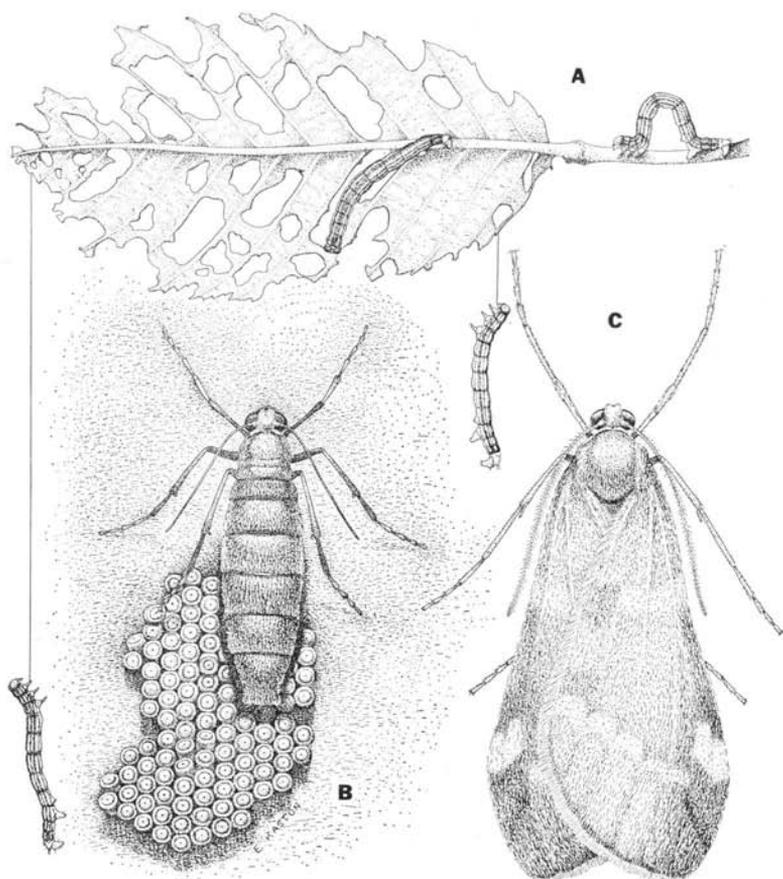


Figure 1. The fall cankerworm: A, elm leaf and full grown caterpillars; B, female moth and eggs; C, male moth. Wingspread of the male moth is slightly over one inch.

powder, or 1 gallon of 25 per cent emulsifiable DDT in 100 gallons of water in hydraulic sprayers. In mist blowers, 3 pints of 25 per cent emulsifiable DDT in 25 gallons of water has been an effective dosage.

#### Control by Banding

The practice of banding as a cankerworm control measure is based on the fact that the female moths are wingless and must crawl up the trunk of a tree to lay eggs. Isolated shade trees, or even rows of trees that stand by themselves, can be protected by banding. Some feeding on banded trees may occur when larvae drift in with the wind. Thus banding provides practical control although usually less effective than spraying.

The bands must be put in place before the moths emerge in the fall. In the vicinity of New Haven, bands may be placed late in October and kept sticky until late in December. The following April and May, additional material should be added so that the caterpillars hatching from eggs laid below the bands cannot climb the trees.

As the illustrations show, bands are made by first placing a two-inch strip of cotton batting around the trunk about six feet above the ground (Britton, 1935). A four-inch strip of tar paper is then wrapped firmly over the cotton, and held in place by tacking the ends to the tree. A quarter-inch layer of "Tree-Tanglefoot" is smeared over the upper half of the tar paper. The moths cannot crawl up under the tar paper because of the cotton, and cannot cross the Tanglefoot.

Once or twice during the egg-laying season it is necessary to freshen the Tanglefoot by scratching the dried surface. The same procedure is needed during April and May to stop the larvae.

The bands may be removed about June 15 each year and replaced late in October.

#### Bibliography

1. BRITTON, W. E. 1909. Canker Worms. In 8th Rept. Conn. State Entomologist. 777-96.
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3. SCHAFFNER, J. V., JR. and C. L. GRISWOLD. 1934. Macrolepidoptera and their parasites reared from field collections in the northeastern part of the United States. U. S. D. A. Misc. Pub. 188.



Figure 2. A sticky band around this tree trunk has trapped male and female moths. Bands may be applied in late fall and renewed in the spring.

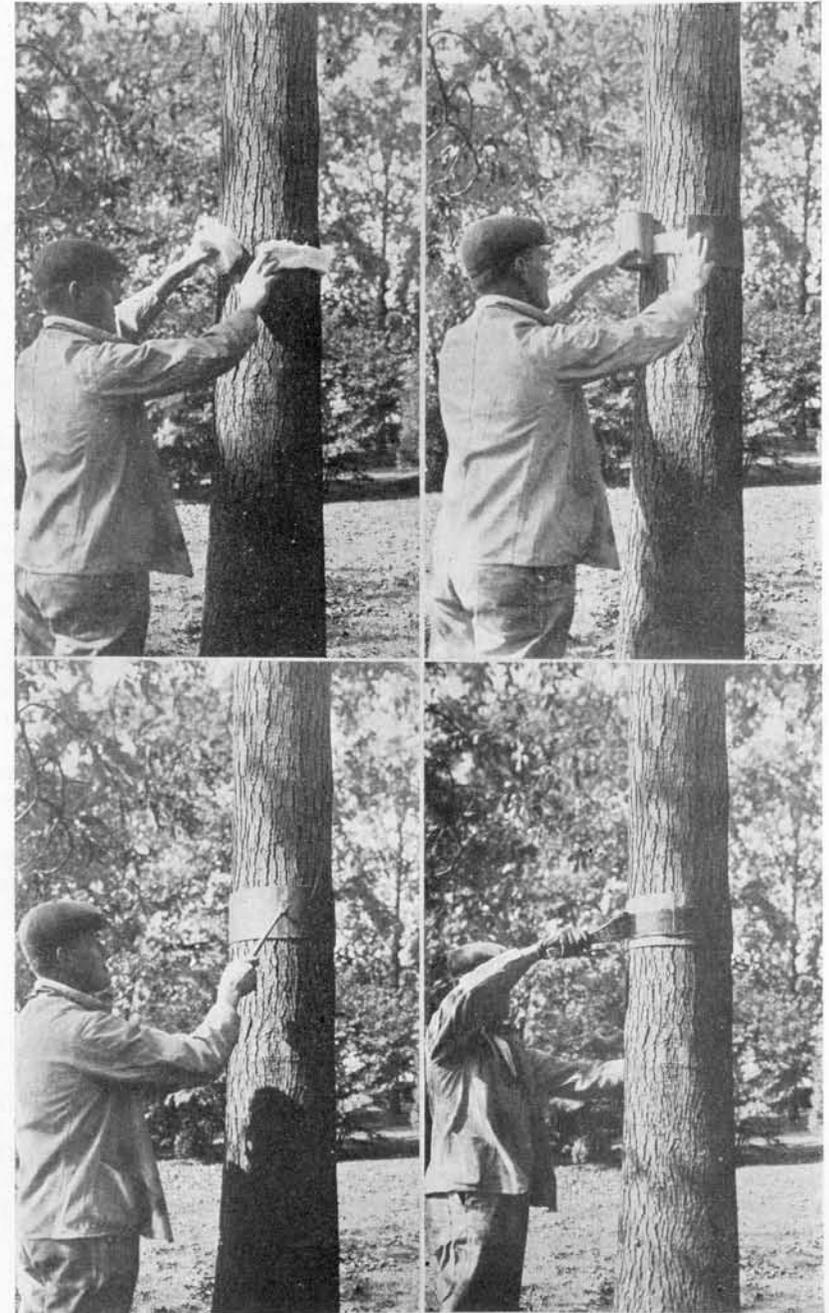


Figure 3. Method of applying sticky bands. Tar paper is wrapped firmly around a cotton batting strip and tacked in place. Tree Tanglefoot or similar material is then applied to the tar paper.