



## CANKERWORMS (*Inchworms*)



**Figure 1.** A male fall cankerworm moth. (Jerald E. Dewey, USDA Forest Service, [www.insectimages.com](http://www.insectimages.com))



**Figure 2.** A female fall cankerworm laying her eggs. (Note that the female is wingless) (John H. Gent, USDA Forest Service, [www.insectimages.com](http://www.insectimages.com))

The spring and fall cankerworms are common native pests of deciduous forest, shade and orchard trees. These insects periodically cause serious defoliation in the Northeast and range over most of the United States and southern Canada. There is a close resemblance between the two species in all stages. The female moths are wingless; the caterpillars are often called inchworms, measuring worms or loopers. There is only one generation a year.

**Damage:** The caterpillars of both species appear on trees in early spring. They destroy the young leaves and buds of a wide range of common deciduous trees, but prefer elm and apple. Cankerworms are also abundant on oak in southeastern New York and Long Island. By the time the larvae finish feeding, only the major veins and midribs of the older leaves remain. Trees may be completely defoliated. If this happens 2 or 3 years in succession, trees may die or be seriously weakened. This is an important leaf-feeding pest in areas where Dutch elm disease is present, because defoliation renders an elm very susceptible to attack by the bark beetles that spread the fungus causing the disease.

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

**Description:** The adult male (**Figure 1.**) of this species has a wing expanse of about 1 inch. The forewings are a mottled, brownish gray with hind wings lighter in color. The wingless female (**Figure 2.**) is about 1/2 inch long and an ash-gray color. There are no red spines on the abdomen of either sex as in the spring cankerworm. The full-grown caterpillar (**Figure 3.**) has a pale to dark green head capsule, which is frequently mottled with black. Its body is about an inch long and varies in color from pale

green to brown, black, or reddish-green. Usually there are pale lines running the length of the body and a dark stripe on the back. Three pairs of prolegs are present, though one pair is quite small and inconspicuous. The cylindrical eggs are gray with brown cap-like tops (**Figure 2.**).

**Life History:** The moths emerge from the soil in November and December. The eggs are laid in close-ranked, flat masses of one hundred or more on the bark of twigs and limbs. The overwintering eggs hatch in April and early May as the buds open. The caterpillars feed for 4 or 5 weeks. When full-grown they enter the soil and make tough cocoons of silk and dirt particles near the surface. They pupate in early June, but moths do not emerge to lay eggs until November.

### Spring Cankerworms (*Paleacrita vernata* (Peck))

**Description:** The male moth has a wing expanse of 7/8 to 1-1/4 inches. The forewings are thin and silky with an ash gray color. The hind wings are similar but paler. The wingless female is nearly 1/2 inch long and generally a dark ash gray with a black dorsal line. Each sex has minute reddish spines in dorsal rows on the abdomen, which give the dorsum a reddish aspect. The caterpillar has a sooty (grayish-white) white head, mottled with brown, and two pairs of prolegs. When full-grown the caterpillars are 3/4 to 1 inch in length, and vary in color from reddish to yellow-brown, brown, blue-black or an intermediate color. The broadly oval eggs are a shiny white when first laid, but change to light yellow-brown with age.

**Life History:** The moths appear in April and May and lay small irregular clusters of fifty or more eggs in bark crevices on the host tree. Hatching and larval feeding



**Figure 3.** A dark form of fall cankerworm larvae. (Note that the color can vary from pale green to brown, black or reddish-green) (E. Bradford Walker, Vermont Department of Forests, Parks & Recreation, [www.insectimages.com](http://www.insectimages.com))

occur in early May, about the same time as with the fall cankerworm. When full-grown, the larvae enter the soil and pupate. The larvae overwinter in a bare earthen cell and pupation occurs in later winter.

### Pest Management Practices

**Natural Control:** These pests are ordinarily kept at low population levels by natural factors. A wide variety of common birds feed on the eggs and cankerworm larvae. In addition, several species of ground beetles have been recorded as predators of the larvae. Of the many insect parasites that have been reared from the various life stages of the fall cankerworm, those attacking the egg stage appear to be the most important. In recent outbreaks of the fall species in Pennsylvania, Virginia, Nova Scotia and western New York, the egg parasite *Telenomus alsophilae* destroyed as much as 70 to 80% of the egg population. Two additional species of wasps, *Trichogramma minutum* and *Euplectrus mellipes*, have also been recovered from eggs of this defoliator. This relatively high rate of parasitism usually occurs after 2 or 3 years of noticeable defoliation.

Though information concerning the effects of various natural mortality factors on populations of the canker worm is lacking, field observations suggest that the agents mentioned above, assisted by adverse weather, small mammals, starvation and larval disease, are very effective in bringing outbreak populations down to localized, non-epidemic natural levels. Of equal importance is the fact that these natural processes play a significant role in keeping cankerworm populations at tolerable levels for a number of years following each outbreak.



**Figure 4.** Cankerworm moths caught in a sticky band (Mery Pritchard, University of Manitoba, Canada)

**Mechanical and Cultural Controls:** Homeowners may want to consider using one of the tree banding techniques, which are available and intended to catch female moths as they climb the trunks of trees before they mate and lay their eggs. Products intended for this purpose are available in garden centers. According to a study titled "An Assessment of Tree Banding Techniques to Capture Cankerworm Defoliators of Elm and Ash Trees in Winnipeg, Manitoba, Canada by Kerienne R. La France and A. Richard Westwood, which was published in *Arboriculture & Urban Forestry*, Scientific Journal of the International Society of Arboriculture, Vol 32, No. 1, January 2006 two such methods are using Tree Tanglefoot™ (**Figure 4.**) (a sticky substance) applied to fiberglass pipe insulation and Bug Barrier Tree Band™



**Figure 5.** Bug Barrier Tree Band™ applied to a tree trunk. (Envirometrics Systems, Inc.)

(**Figure 5.**), which is a plastic shield with an adhesive that traps insects. **Do not apply adhesive substances directly to the bark of trees – only use the products according to label instructions.** Remove the products from the trees after the moth activity has ceased. Although in the study each product trapped moths there was no indication that you will be able to prevent an infestation of cankerworms by using either of these methods. For the fall cankerworm mechanical trapping must be installed in early fall and for the spring cankerworm in March, April and May.

Keep trees in good vigor. If necessary have trees properly pruned, watered during extended periods of hot, dry weather (drought) and fertilized based on soil and/or foliar test results.

**Insecticide Control Options:** The following insecticides are suggested for use by licensed certified pesticide applicators: **acephate**, *Bacillus thuringiensis subsp. kurstaki* and *aizawai*, **\*bifenthrin**, **carbaryl**, **\*chlorpyrifos**, **cryolite (Kryocide)**, **\*cyfluthrin**, **\*deltamethrin**, **\*diflubenzuron**, **\*fluvalinate**, **indoxacarb**, **\*lambda-cyhalothrin**, **\*oxydemeton-methyl** (\*Harpoon, elm and maples only), **\*permethrin**, **phosmet** (spring cankerworm), **spinosad**. (Cornell Cooperative Extension has no formal homeowner insecticide control recommendations for cankerworms) Pesticides sprayed to rapidly growing foliage will not provide adequate control. Applications of these insecticides are made in the last 3 weeks of May (148-290 GDD). *Eggs may be killed by horticultural oil*

*sprayed to the trunk and branches.* GDD = [growing degree days](#). Refer to a copy of *Using Growing Degree Days for Insect Pest Management* for more information.

\*= restricted-use pesticide; may be purchased and used by certified pesticide applicators or used by someone under the direct supervision of a certified pesticide applicator.

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Slightly revised by Thomas Kowalsick, Cornell Cooperative Extension – Suffolk County, 2/2006.

Pesticide recommendations obtained from *2012 Pest Management Guide for Commercial Production and Maintenance of Trees and Shrubs (TS-12)*. Contact our office for information on ordering a copy.

The Pesticide Management Education Program (PMEP), in cooperation with the New York State Department of Environmental Conservation (NYSDEC), maintains a web site with a searchable database for pesticide products currently registered in New York State. Homeowners who have Internet access can locate currently registered products at <http://pims.psur.cornell.edu/index.php>. Several different queries are available that will produce a summary for the product(s) that the system locates. If the system fails to locate the product in question, then that product is not currently registered in New York State. The database also provides a summary of important information related to every product currently registered. Two data fields “Status” and “Expiration Date” are provided in each summary. Products with a status of “Registered - Discontinued” are currently registered but will probably be discontinued for use, sale, and distribution in New York State after the date noted in the “Expiration Date” field.

**This publication contains pesticide recommendations. Changes in pesticide regulations occur constantly and human errors are still possible. Some materials mentioned may no longer be available, and some uses may no longer be legal. All pesticides distributed, sold or applied in New York State must be registered with the New York State Department of Environmental Conservation (DEC). Questions concerning the legality and/or registration status for pesticide use in New York State should be directed to the appropriate Cornell Cooperative Extension specialist or your regional DEC office.. Read the label before applying any pesticide.**

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