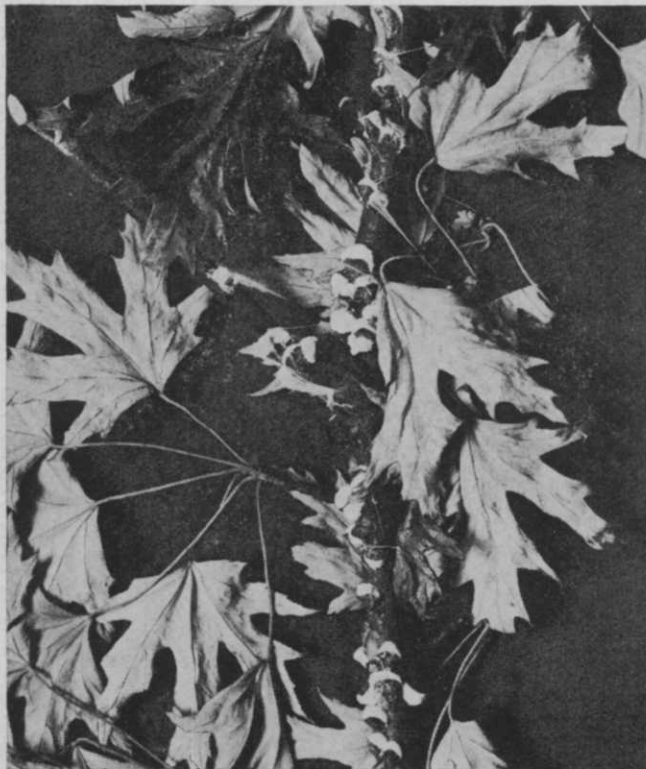


How To Control



Cottony maple scale is obvious from white egg sacs, each containing 500 to 3000 eggs. Flat, brown bodies of the female insects can be seen at end of the sacs.

Cottony Maple Scale

By

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THE COTTONY MAPLE scale, *Pulvinaria innumerabilis* (Rathvon), has been rather abundant this year, particularly in the vicinity of Cleveland. This insect occurs throughout the United States and southern Canada, wherever its host plants grow. Although primarily a pest of soft maples, especially silver maple, the cottony maple scale has also been reported to attack a wide variety of plants including: linden, alder, dogwood, euonymus, hawthorne, ivy, lilac, rose, spirea, apple, pear, willow, poplar, grape, hackberry, sycamore, honeylocust, beech, elm, plum, peach, gooseberry, currant, Virginia creeper, sumac, boxelder, white ash, black lo-

cust, oak, red mulberry, and snowball.

This scale periodically appears in great numbers, rather suddenly, and then, two or three years later, apparently disappears again, only to recur in another outbreak a few years later. The reason for this fluctuation is that there are several species of insects which feed on the cottony maple scale and these can, in a couple of years, nearly eliminate an infestation. Then, having little left to feed on, these natural enemies of the scale decline in numbers themselves. This allows the scale insect to become abundant again. Some of the insects which can contribute to a decline in cottony maple scale numbers are: several lady beetles, nota-

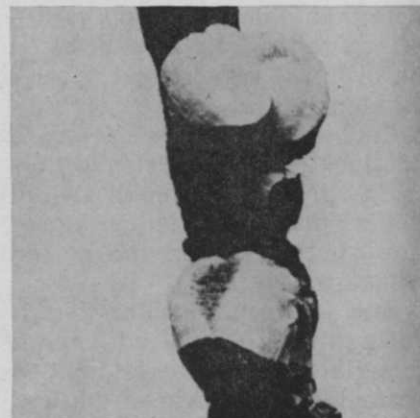
bly the two-spotted lady beetle (*Adalia bipunctata*); a moth (*Laetilia coccidivora*); and a chalcid wasp (*Coccophagus lecanii*).

Egg Sacs Are Conspicuous

The cottony maple scale is usually noticed when the females begin to produce their conspicuous white egg sacs. At this time they may be 4 x 7 mm. This is generally the period from late May to early August, depending upon latitude and annual variations in weather. These egg sacs are composed of a waxy material which the female secretes through pores near the posterior end of her body. Within these sacs each female deposits 500 to 3000 eggs. When these hatch, the young scales move to tender twigs or to the undersides of the leaves where they suck sap and grow. Before the leaves fall in autumn the male scales mature and transform into a tiny winged stage. These mate with the still immature females and then die. The females move from the leaves to small twigs and branches where they survive the winter. These overwintering females are about 1/16 by 1/8", oval in shape, slightly convex, and dark brown.

The next spring when sap begins to rise in the trees the females resume feeding and complete their development. After the eggs are laid the female dies.

As the scales grow, they produce copious amounts of honeydew which can be obnoxious as it drips from the trees onto sidewalks, cars, or passersby. Also the honeydew which sticks on leaves serves as a nutrient media for a sooty mold fungus and the



Closeup shows waxy egg sacs of the female.

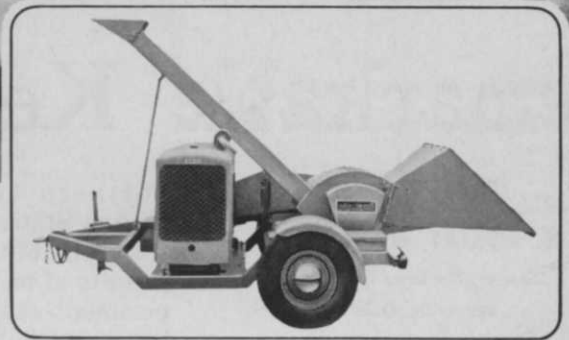
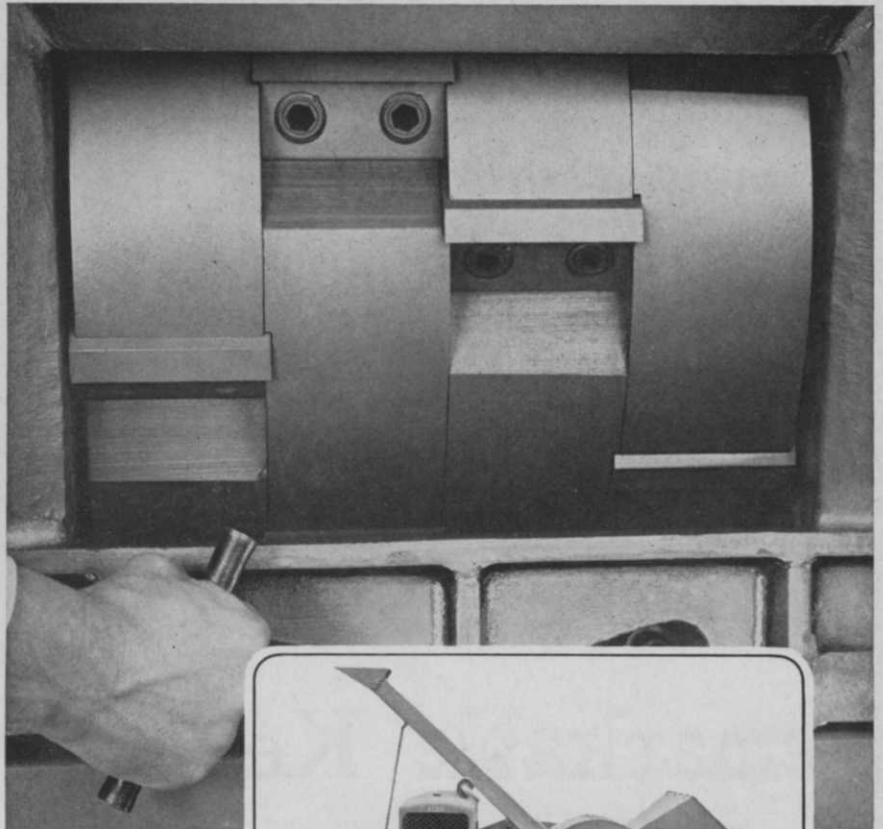
black mass of this can reduce the esthetic value of a tree.

The more serious damage which the scale can cause when present in large numbers results from their sucking sap from leaves and twigs. This reduces growth and weakens the tree, and can cause dieback of branches or even the death of trees if an infestation is not controlled. Weakened trees are susceptible to attack by bark beetles and borers. For this reason some people may want to spray their more valuable trees. Suitable materials are a Superior-type oil applied when the trees are dormant, or either malathion or carbaryl (Sevin) applied as the crawlers begin to move out of the egg sacs.

The dormant oil treatment, designed to kill the overwintering females, is least harmful to the natural enemies of the scale, but care must be taken to ensure that it is applied only when the trees are truly dormant, as oil is known to cause injury to some maples, particularly the hard varieties. A highly refined Superior oil should be used at the rate of 2 to 3% oil in water. Thorough coverage is important.

The materials, malathion and carbaryl, can be used to destroy the young crawlers as they move to the leaves and twigs. Carbaryl may be used at the rate of 2 lbs. of 50% wettable powder per 100 gals. of water. This material has the advantage of a somewhat longer residual action than malathion, but is more toxic to honeybees and slightly more hazardous to apply. Also it may cause some injury to the trees if used in wet or humid weather. Malathion can be used at the rate of 4 lbs. of 25% wettable powder per 100 gals. of water. This treatment usually needs to be repeated 10 days later due to the short residual period which is characteristic of malathion.

These materials will be ineffective if used at other times of the year since after the crawlers settle down and begin developing they are very difficult to kill. Only while they are moving, generally early July in central Ohio, can they be controlled with malathion or carbaryl.



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