

The Brown Elm Scale: Description and Control

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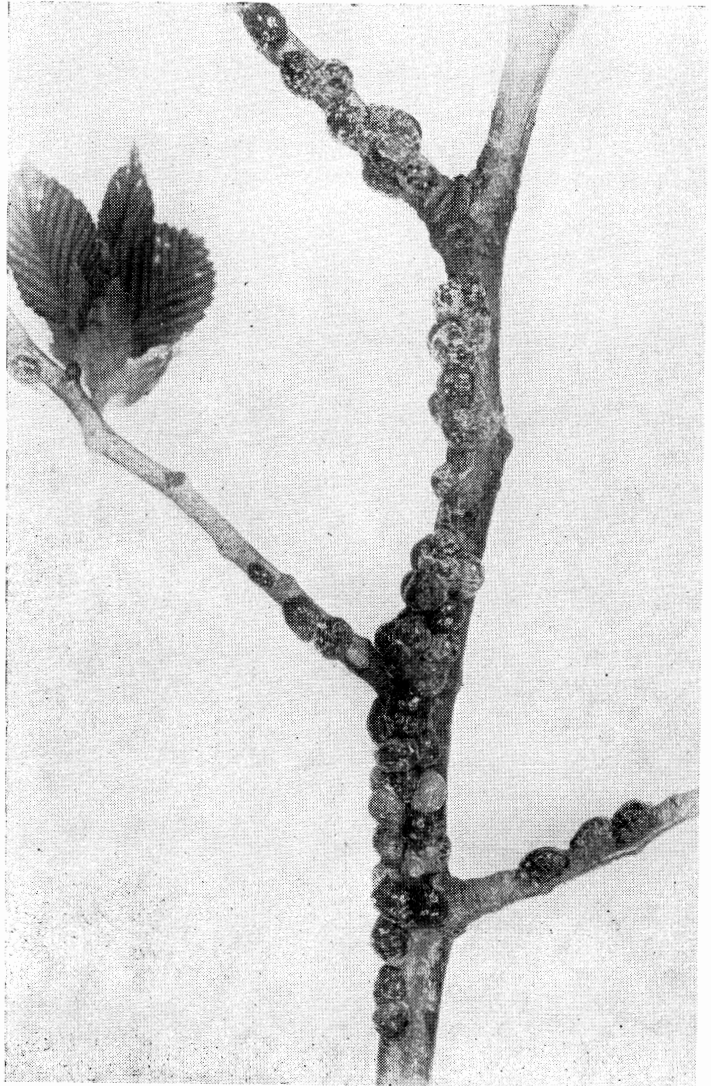
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BY F. A. FENTON

Brown elm scale, showing mature or nearly mature female scales on elm. Scale looks like this in April or May, which is too late for spraying to be effective.

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THE BROWN ELM SCALE:*

Description and Control

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DISTRIBUTION.

One of the most common scale insects infesting elms in Oklahoma is locally known as the *brown elm scale*. It is frequently referred to as the European fruit lecanium because of its origin and the fact that in some parts of the country it infests fruit trees. It is widely distributed throughout the United States and has been reported from all parts of Oklahoma except the Panhandle and eastern counties.

KINDS OF TREES INFESTED.

The brown elm scale has been found in Oklahoma on mulberry, plum, pecan and maple trees, but it occurs chiefly as a pest of elms. Other trees known to be infested are box elder, white birch, hazelnut, chestnut, pin and laurel oak, sweet gum, shagbark hickory, butternut, black walnut, sassafras, red bud, honey locust, magnolia, apricot, cherry, prune, pear, apple, poplar, willow, hackberry and osage orange.

INJURY.

On elm the injury is usually noticed in April and May when the female scales are conspicuous (Cover) and the trees visibly injured by the insect. Heavy infestations kill smaller branches, stunt tree growth, and devitalize the tree so that it is subject to the attacks of borers and diseases.

DESCRIPTION AND LIFE CYCLE.

The mature female is a smooth, brown hemisphere from 1/8 to 1/4 inch in diameter. During growth the body is soft and plastic, but at death it becomes a hard, brown shell, fast-

* *Lecanium corni* Bouche.

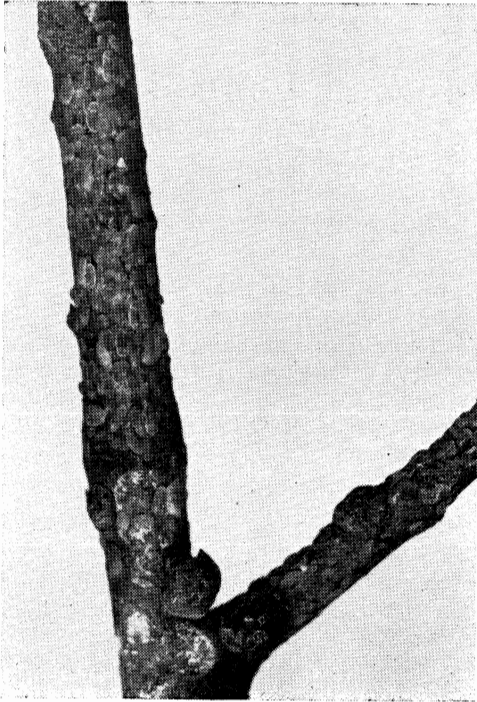


Fig. 1. Brown elm scale, showing general appearance in early spring.

ened loosely to the bark and covering the several hundred white eggs laid beneath. Later, when the eggs hatch, all that remains beneath the scale is a whitish powdery substance composed chiefly of the shrivelled egg shells.

The eggs are laid in the early summer and hatch into tiny, lice-like creatures which crawl from beneath the scale and migrate to the leaves. Large numbers attach themselves on the lower leaf surfaces, yet they are so small and transparent that they are easily overlooked. Later in the summer, following a molt, they become larger, the bodies become opaque, and they attach along the principal veins of the leaf.

Before the leaves fall from the tree in the autumn, the scales migrate to the bark of the smaller branches, where they remain all winter. At this stage they are brown, oval objects, not larger than 1 millimeter in length (Fig. 1).* With the beginning of sap flow in the spring, feeding commences and soon the male scales can be differentiated from the females in their smaller size and white glassy color which contrasts sharply with the bark. The adult male is a small, brown gnat, 1¼ millimeters long. It is incapable of feeding and lives but a short time.

CONTROL

The brown elm scale can be controlled by spraying the trees during the dormant season with an oil spray. Summer sprays to control the scale on the leaves have proved ineffective. Good results can be obtained by spraying in March just before the trees leaf out, during or shortly after blooming, but when the leaf buds are still dormant. Oil sprays at this time may kill the bloom but will not harm the tree. Studies at Stillwater have shown no delay in elm trees leafing out after being sprayed with dormant oils, nor has there been any checking of growth.

Table 1 summarizes the results obtained by spraying with several brands of oil sprays. Excellent results were obtained by two brands of miscible oils and one oil emulsion.

Table 1.—Comparative Degree of Scale Control by Dormant Oil Sprays on American Elm.

Spray designation	Type of oil	Percent oil in finished spray	Percent control
A	Miscible	4	95.2
B	Miscible	6.2	88.2
C	Emulsion	4	94.7
D*	Miscible	5	36.5
E*	Emulsion	4	60.0

* Brands D and E were applied during a cold, windy day when at times a light, misty rain fell. This may have accounted for the poor control.

Use a spray machine capable of developing a fine spray or mist and be sure to cover completely all the branches, especially the lower ones. The trunk and larger limbs need not

* Both Fig. 1 and the cover picture are by G. A. Bieberdorf.

be sprayed. An average of 5 to 6 gallons of spray material will be needed for the average-sized shade tree in Oklahoma, and larger amounts for large-sized elms. Either miscible oils or oil emulsions may be used. Observe precautions in using oil sprays.

PRECAUTIONS in Using Oil Sprays.

1. Don't spray when it is windy.
2. Don't spray when the temperature is below 40 degrees Fahrenheit.
3. Don't spray when the temperature is likely to drop below freezing within 24 hours after spraying.
4. Don't use a spray machine that has been used for sulphur spraying unless it has been thoroughly cleaned out before using the oil.
5. Avoid getting spray on houses, or on automobiles which may be parked under trees. (A small amount of spray will do no harm to such objects, however.)

