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EC1536 Several Scale Insects Affecting Shade Trees in Nebraska

Martin H. Muma

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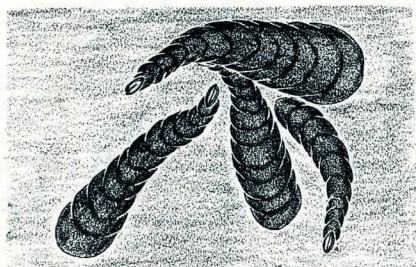
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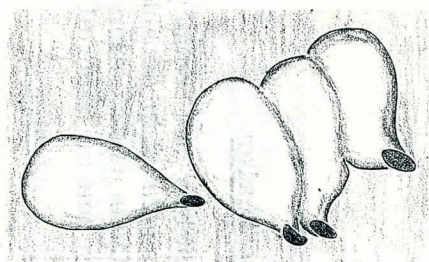
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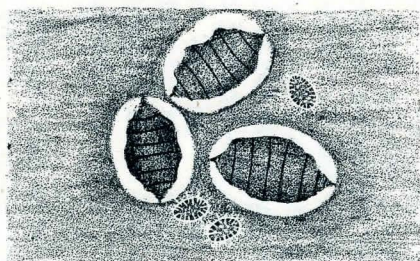
Several Scale Insects Affecting Shade Trees In Nebraska



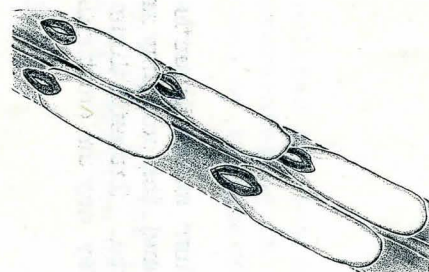
OYSTER-SHELL SCALE



SCURFY SCALE



EUROPEAN ELM SCALE



PINE LEAF SCALE

Cooperative Extension Work in Agriculture and Home Economics
University of Nebraska College of Agriculture, and the United States
Department of Agriculture cooperating, W. H. Brokaw, Director, Lincoln.

SEVERAL SCALE INSECTS AFFECTING SHADE TREES IN NEBRASKA

Martin H. Muma, Extension Entomologist

Scale insects are among the most important pests of shade and ornamental trees in Nebraska. Losses, in the form of severe defoliation and the death of part or all of a tree, often occur. The four most important scales in the state are the oyster-shell scale, scurfy scale, European elm scale and the pine leaf scale.*

Oyster-shell Scale

Trees heavily infested with this insect will have the bark covered with small, curved, brownish-grey scales that measure about 1/8 inch in length. As the common name indicates they appear very much like a tiny oyster shell (see cover). This scale may be found on most species of ash and lilac, poplar, dogwood, elm, soft maple, linden, horse chestnut and many others. It feeds on the bark of the trees or bushes causing the bark to dry out, crack and curl. Often large limbs or the entire tree will die as the result of a heavy infestation.

The tiny white eggs produced by the female under the scale vary in number from 50 to 60. Eggs that have lived over the winter hatch in the spring, and the white louse-like young crawl over the trunk and limbs of the tree for a few hours before settling down to feed on the juices of the bark and produce the waxen scale. The scales grow rapidly maturing about mid-summer and the winged males fly for a short time, mate with the females and die. Females after mating begin to deposit their eggs gradually shrinking in size until they die leaving the scale filled with eggs.

This insect may be controlled by a thorough spraying with one part of lime sulfur (33° Be) to seven or eight parts of water in the early spring just before the leaves appear on the tree. It may be necessary to repeat the treatment two or three years before complete control is obtained. An effective control may also be obtained with a light miscible oil emulsion applied when the young scales are hatching. A 2 per cent spray, one part of oil to fifty parts of water, using any one of the commercially prepared light oil emulsions usually gives better results than the lime sulfur spray.

Scurfy Scales

These scales, which are also bark feeding insects, attack young elm, willow, dogwood, ash, Japanese quince and a number of other fruit and shade trees. Older trees rarely have heavy infestations. Mature female scales (see cover) are somewhat pear-shaped, white to greyish-white in color and measure about 1/8 inch in length. Males tend to be narrow straight-sided and are only one quarter as large as the females. Young scales are purplish in color.

* Oyster-shell scale, Lepidosaphes sp.
Scurfy scale, Chionaspis sp.
European elm scale, Gossyparia spuria Modeer.
Pine leaf scale, Chionaspis pinifoliae Fitch.

The life histories of the several closely related species are similar to that of the oyster-shell scale with the insects overwintering in the egg stage under the scales. This scale, however, may have one or two generations per year while the oyster-shell scale has only one.

Control of scurfy scales is also the same as that for the first insect discussed; either a lime-sulfur or light miscible oil emulsion may be used.

European Elm Scale

This insect which attacks only the elms, differs in appearance, life history and control from the two scales discussed above. The winter is passed in the cracks and crevices as half grown, flat-bodied scales embedded in masses of white cottony wax. In the spring they move out of hibernation and begin feeding along the lower sides of branches and trunk of the tree. Upon maturing the females mate with either wingless or winged males, attach themselves permanently and begin laying eggs. The newly hatched young are a lemon yellow and are provided with spines that soon become coated with a cottony wax. Young scales migrate to the smaller limbs, twigs and leaves where they feed during the summer. When the weather turns cold they return to the trunk and larger limbs to hibernate. Mature scales and newly hatched young are shown on the cover.

The hibernating stage of this scale may be controlled with the use of a 6 or 7 per cent emulsion of a miscible oil such as Volck, Lunoco or others. The spray should be applied in the spring before the leaves appear and a thorough spraying must be made. A 2 per cent miscible oil spray applied when the young are hatching will also be fairly effective.

Pine Leaf Scale

This scale is probably the most injurious insect pest of evergreens in the state. It attacks most of the pines as well as the blue and white spruce. Severe infestations cause yellowing of the needles and defoliations; many times death results especially in young trees. Unlike many scales this insect confines its feeding to the needles. Mature females are a snowy white, measure from 1/8 inch to 1/6 inch in length and vary from a pear-like shape on spruce needles to a linear shape on pine needles. Those figured on the cover were on a pine needle. Males are always straight-sided and measure only 1/25 inch in length.

The life cycle of this insect is similar to that of the oyster-shell scale except that there are two generations each year. The winter is passed in the egg stage under the old scales, each female laying 20 to 30 small purplish eggs.

Control of the pine leaf scale is difficult as oil sprays tend to injure the foliage of evergreens. Careful application of a 2 or 3 per cent light oil emulsion will however control the scale. Two or three sprayings spaced at intervals of two or three weeks in the spring should give control. Evergreens should not be sprayed in the fall or on bright hot days. Moderately warm cloudy days should be chosen for applications of the spray. A dry mix lime-sulfur spray consisting of 1 part of lime sulfur to 18 parts of water has also been suggested for control of this insect.

Other Scales

Several other scale insects including the brown pine scale, Putnam's scale, San Jose scale, and the cottony maple scale also attack shade and ornamented trees in the state. Infestations of these pests occur very rarely though and for the most part they may be controlled by one or more of the measures given above.