North Dakota Scale Insects
Fact Sheet (Forestry)

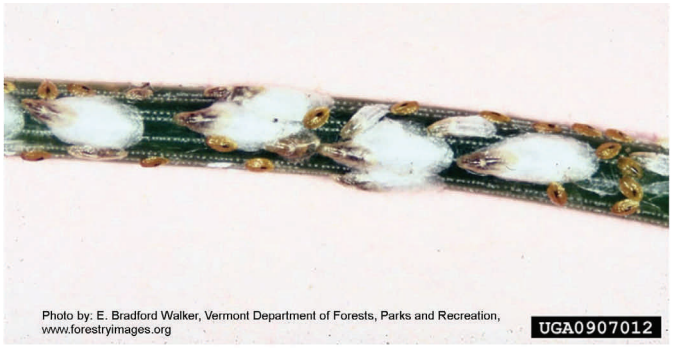
USDA Natural Resources Conservation Service – North Dakota June 2007

Introduction:
Scale insects, by themselves, rarely cause the death of trees or shrubs. They may weaken plants and make them susceptible to secondary damage from other insects, diseases, or environmental stresses such as drought or herbicide drift. Scale insects are opportunistic and may colonize a tree or shrub already under stress from other causes.

Lecanium Scale on Green Ash Field Windbreak

Scale insect infestations fluctuate in severity and extent over time. Several species of beneficial insects (lady beetles and parasitic wasps) are capable of controlling scale infestations. Once scale insect populations begin increasing, so do the beneficial insects that feed on them, thereby keeping the scale insects in check and reducing the extent and severity of the infestation in most situations. There are many scale insect species that can infest trees and shrubs. Most woody plants will have a few scales most of the time, however, little damage normally occurs.

Life Cycle
Depending upon species, scale insects, may raise one to two generations per year. For much of their lives scale insects are protected by the "scale" that covers them, making most insecticidal controls difficult. In spring, beneath the protective scale, eggs hatch into crawlers (nymphs) that move about looking for feeding or over-wintering sites. This period of time may only be a few days for each hatch of crawlers.



Pine Needle Scale with Crawlers

Damage
Scale insects cause damage by sucking vital fluids from their host plants. Leaf and needle stunting, yellowing, twig and branch dieback, as well as plant death are possible depending upon population densities and plant health and vigor. Damage to limbs can occur if scales encircle one-third of the branch circumference.

Scales can also create nuisance problems by producing a sticky, sweet substance called honeydew, which they secrete while feeding. The stickiness and associated black sooty mold that grows on the honeydew can be an annoyance if vehicles or patio furniture are underneath scale-infested trees.

Control or Management
Best management of scale insects usually results from managing the site to encourage an adequate population of beneficial insects and maximizing the health and vigor of each tree and shrub.
When control is deemed necessary, begin inspecting trees and shrubs around May 1st and continue checking every 3 to 5 days until crawlers are observed. Since different species of scale hatch at different times, continue monitoring through mid July.

Pine needle scale

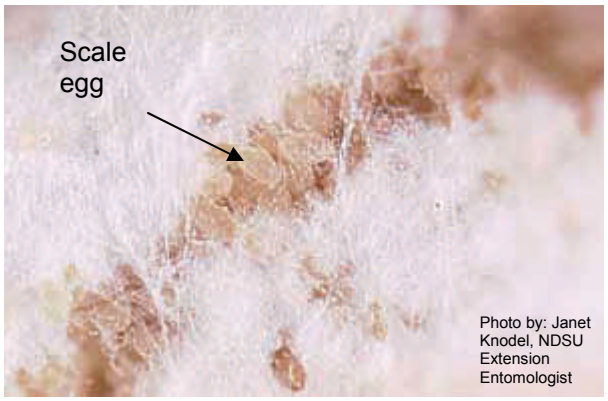
To identify crawlers, inspect scale infested limbs closely and look for tiny things that move. Crawlers are about .5 mm wide by 1-3 mm long. To facilitate this process, shake branches over a sheet of white paper and look for crawlers moving about. This process should be repeated after insecticide applications to determine effectiveness of treatment.

The best time for insecticidal control is immediately after egg hatch when the crawlers begin searching for feeding sites, but before they begin producing their protective cover. For contact insecticides, a second application may be needed 10 days later.

Contact Pesticide Options - Read label to determine if product is labeled for host plant.

Paraffinic (horticultural) oil
Insecticidal soap (many available)
Carbaryl (Sevin)
Acephate (Orthene)
Malathion (many available)

Contact insecticide applications may kill beneficial insects that feed on scales, which would make the problem worse.



Cottony Maple Scale and Eggs

Systemic Insecticides - Systemic insecticides (such as imidacloprid) are labeled for control of scale on trees and shrubs. These insecticides may be injected or more commonly, applied as a soil drench. As a drench they must soak into the ground, be absorbed by the roots and translocated throughout the plant. It can take from two weeks to three months before the product will be taken up by the roots and start controlling scale, depending upon the size of the tree. Large volumes of water, 200-400 gallons per acre, must be used with soil drench applications. Once applied, systemic insecticides will provide control for about one year and are more friendly to beneficial insects that feed on scale. Due to costs and application requirements, these products are rarely used except to protect high value plants where heavy infestations of scales regularly occur.

Scale Management Summary - Scale management is most effective when trees are managed for maximum health and vigor and other stress factors are minimized. In extreme situations, insecticide application may be warranted.

References:

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