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Magnolia Scale
Insect Pest of Magnolia Trees

Magnolia scale, *Neolecanium cornuparvum*, is an insect pest of magnolia trees including star magnolia, *Magnolia stellata*, and saucer magnolia, *Magnolia* x *soulangiana*. Magnolia scale is native to the U.S. and is the largest soft scale in North America. This publication discusses the biology, damage, and management strategies that can be used to avoid plant damage caused by magnolia scale.

Biology

Males are waxy white and 1/8 inch in length. They become winged adults in summer, mate with immature females, and then die. Adult females continue developing and are ½ inch long, convex to elliptical in shape, and pink to brown when mature (Figure 1). Females produce eggs within the body cavity, and nymphs (crawlers) eclose (emerge) from summer through fall. Females die after producing eggs in the fall, leaving brown shells that can adhere to trees for months.

Young magnolia scale nymphs continuously emerge from underneath the female covering throughout the summer and fall. The nymphs are 1/25 inch long, flattened, and red-brown (Figure 2). Nymphs move around for a short time before settling down to feed on new twig growth. The nymphs are covered by a white, waxy material (Figure 3) that dissipates when the brown mature females start producing eggs. Magnolia scale females look like bumps on twigs and branches. Twigs and branches may be covered completely if magnolia scale populations are extensive.

Magnolia scale can vary in color from white to pink to purple to brown during the growing season. Magnolia scale nymphs can move among trees attached to the feet of birds. Magnolia scale overwinters as nymphs that have a red-brown ridge extending along the middle of the back (Figure 4). The overwintering nymphs are located on one- to two-year old twigs and branches. There is one generation per year in Kansas.

Figure 2. Close up of magnolia scale nymphs. Photo: Raymond Cloyd

Figure 1. Magnolia scale females. Photo: Raymond Cloyd

Figure 3. Magnolia scale nymphs covered by white, waxy material. Photo: Raymond Cloyd

Figure 4. Magnolia scale nymphs with the red-brown ridge extending the length of the back. Photo: Raymond Cloyd

Damage

Magnolia scale uses a needle-like mouthpart to feed on plant fluids from the vascular tissues (phloem) of twigs and branches. Feeding can result in stunted tree growth, leaf yellowing, and twig or branch dieback. If left unchecked, extensive magnolia scale populations can kill magnolia trees, although this depends on tree age and size. Magnolia scale, like all soft scales, produces large quantities of honeydew, a clear, sticky liquid that attracts ants, wasps, and yellowjackets. In addition, honeydew serves as a growing substrate for black sooty mold (Figure 5). Black sooty mold can interfere with the plant's ability to manufacture food through photosynthesis.

Management

Scout magnolia trees weekly from summer through fall to detect the presence of magnolia scale nymphs. Scouting helps in timing insecticide spray applications and prevents extensive populations from developing. Nymphs are small and difficult to see on twigs and branches. Use a 10- to 16-power hand lens to look for young and overwintering nymphs. During the winter when leaves are absent from trees, look for the brown shells of mature females on twigs and branches. Do not overfertilize trees with nitrogen-based fertilizers, which can promote magnolia scale infestations. Prune and remove infested twigs or branches.

Contact insecticides such as insecticidal soaps (potassium salts of fatty acids) or horticultural oils (petroleum, mineral, or neem-based) can be applied in fall, winter, and spring to kill overwintering nymphs before new growth emerges. Multiple or repeat applications will be required due to the short residual activity (persistence) of these insecticides. Insecticides with short residual activity need to be applied every 7 to 10 days for 8 to 10 weeks when the nymphs are present to suppress magnolia scale populations. The nymphs are susceptible to insecticide sprays when they emerge from underneath the female covering, which occurs from late summer through fall.

Twigs and branches should be thoroughly covered with insecticide sprays to reach the nymphs that are protected in bark crevices or under the covering of dead females. Managing magnolia scale with insecticides is difficult because for most of the growing season magnolia scale has a waxy, protective covering that protects them from exposure to insecticide spray applications.

Make a single application of a systemic insecticide to the soil between late spring and early summer before nymphs are active to protect magnolia trees from being infested with extensive populations of magnolia scale. Soil applications should be made to within 6 to 12 inches of the trunk base where the root system will facilitate uptake of the insecticide. Remove mulch from around the tree to allow the insecticide to move into the soil. Always read label directions before applying any insecticide product. Beneficial insects including ladybird beetles and green lacewings will feed on magnolia scale but do not regulate magnolia scale populations sufficiently to prevent damage to trees.

Figure 5. Black sooty mold on magnolia leaves. Photo: Raymond Cloyd

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