

Japanese Maple Scale, an Important New Insect Pest in the Nursery and Landscape

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Introductory information

A relatively new pest has been identified in Tennessee and a few other states and is proving to be a tough pest to control. The pest is Japanese maple scale (*Lopholeucaspis japonica* Cockerell) and unfortunately it makes its home on more than Japanese maples. Its small size and ability to blend in with natural variations in bark coloration make it a tough scale to detect until populations are high and the scale has spread to large areas of the nursery. Some nurseries have had shipments rejected because of this pest.

Appearance

Japanese maple scale (JMS) is a small oystershell shaped, armored scale (Figure 1). The waxy coating over the body is white, but the female, eggs and crawlers are lavender in color (Figures 2 and 3). Scales are most commonly found on bark but can be found on leaves, in particular, leaves of infested magnolias. Beware of confusing JMS with white peach scale *Pseudaulacaspis pentagona* (Figure 4). Adult female white peach scale have a distinctive “fried egg” appearance and clusters of males give bark a fluffy appearance.

Lifecycle

The lifecycle isn't completely understood for JMS and some variation in timing across Tennessee is likely. The insect overwinters on the trunks and branches of plants as a small but visible immature male and female scale that mature in the spring. JMS has two generations a year in states with a similar climate to Tennessee's. Females lay about 25 eggs under their body. Eggs are estimated to develop in April and May with crawler hatch likely to occur in mid-May in Middle Tennessee. In other areas, crawler hatch coincides with bloom of *Syringa reticulata* 'Ivory Silk' and *Hydrangea quercifolia* Oakleaf hydrangea. A second generation is likely with egg hatch estimated to begin in Tennessee around August 1. JMS has extended crawler hatch, which causes the first and second generations to overlap.

Host plants and range

JMS has an extremely wide host range including: *Acer*, *Amelanchier*, *Camellia*, *Carpinus*, *Cercis*, *Cladrastis*, *Cornus*, *Cotoneaster*, *Euonymus*, *Fraxinus*, *Gledistia*, *Ilex*, *Itea*, *Ligustrum*, *Magnolia*, *Malus*, *Prunus*, *Pyracantha*, *Pyrus*, *Salix*, *Stewartia*, *Styrax*, *Syringa*, *Tilia*, *Ulmus*, *Zelkova*, and others. JMS is a serious pest of orchard and ornamental crops in the former Soviet Union and is considered to have come to the US from Asia. Samples have been positively identified from large areas along the East Coast including CT, DC, DE, GA, MD, NJ, PA, RI, and VA as well as KY and TN.

Feeding and Damage

JMS do not feed on the phloem (plant vascular tissue) like soft scale insects. Instead, they feed directly on plant storage cells, which causes them to rupture and collapse. Damage is often not as severe as with other scale, but populations can build to extreme levels and branch dieback and plant death have been reported (Figure 5). The loss of saleable plants and rejected shipments appears to be this pest's greatest threat to the US nursery industry.

Scouting

JMS can be difficult to detect. The small, white adults are difficult to see and often blend in with light colored bark or lenticels, especially when infestation levels are low. On shrubs and multi-stem trees, focus initial scouting at the base of the plant from the soil line to approximately 8 inches above the soil line. On standard form trees, look on the trunk and scaffold branches, in particular at the branch collar. JMS are easier to see in the dormant season when foliage is not hindering the view and the waxy coating appears brighter. JMS is often in the protected interior of dense plants. During the growing season and on evergreen hosts such as China Girl holly, pull outer branches aside to expose the interior stems.

To monitor for egg development or crawler hatch, a dissecting scope is often necessary; most hand lens do not offer enough magnification to readily detect eggs or crawlers. However, a small sticky trap can be made by wrapping a JMS infested twig with double sided clear tape or by coating regular clear, tan or white tape with a very thin layer of petroleum jelly. Use flagging tape to mark the branch and check the sticky traps for the purple crawlers a couple times a week using a hand lens. Start monitoring the sticky traps a week prior to when emergence is expected in the spring and summer. Be sure to secure the edge of the tape to the bark so that crawlers cannot crawl under the tape. Focus scouting efforts at the edge of the tape.

Control

JMS is especially difficult to control in China Girl hollies and other plants heavily sheared, creating a dense canopy. A contact insecticide spray must effectively penetrate the canopy to provide the high level of coverage needed for control. Numerous factors affect achieving good coverage including: plant species, height, shape, density, age, number of plant rows between alleyways, in-row spacing, pruning, planting pattern, fertilization, weed competition, and irrigation and natural rainfall. Use water sensitive paper to verify adequate spray penetration and coverage on a range of crops of different ages to determine if your current equipment and method of spraying will achieve the coverage required for control. (Figure 6) The middle rows in blocks with more than 4 rows may require that the insecticide be applied with a handgun or a smaller airblast sprayer narrow enough to travel in each middle. Smaller airblast sprayers are locally available.

Thorough applications of horticultural or superior oil during the dormant period in late winter are an important component of achieving control. Additionally, insecticide sprays should be used to target each flush of crawlers during the spring

and summer. Recommended insecticides include the insect growth regulators pyriproxyfen (Distance) or buprofezin (Talus 40SC) and the neonicotinoid clothianidin (Arena 50 WDG). Additionally, 0.5 to 1% horticultural oil can be tank mixed with Distance or Talus 40SC for improved control. Change sticky traps 2-3 weeks after first crawler emergence. If crawlers continue to be caught on the fresh traps, apply a second insecticide application.

References (and internet sites)

Japanese Maple Scale. TPM/IPM Weekly Report for Arborists, Landscape Managers & Nursery Managers, June 4, 2010. Contributors: S. Gill, P. Shrewsbury, K. Rane, C. Schuster, G. Rosenkranz, D. Clement, A. Ristvey, and B.

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Figure 1. Immature Japanese maple scale on holly.



Figure 2. Japanese maple scale eggs beneath the adult female.



Figure 3. Japanese maple scale crawler.

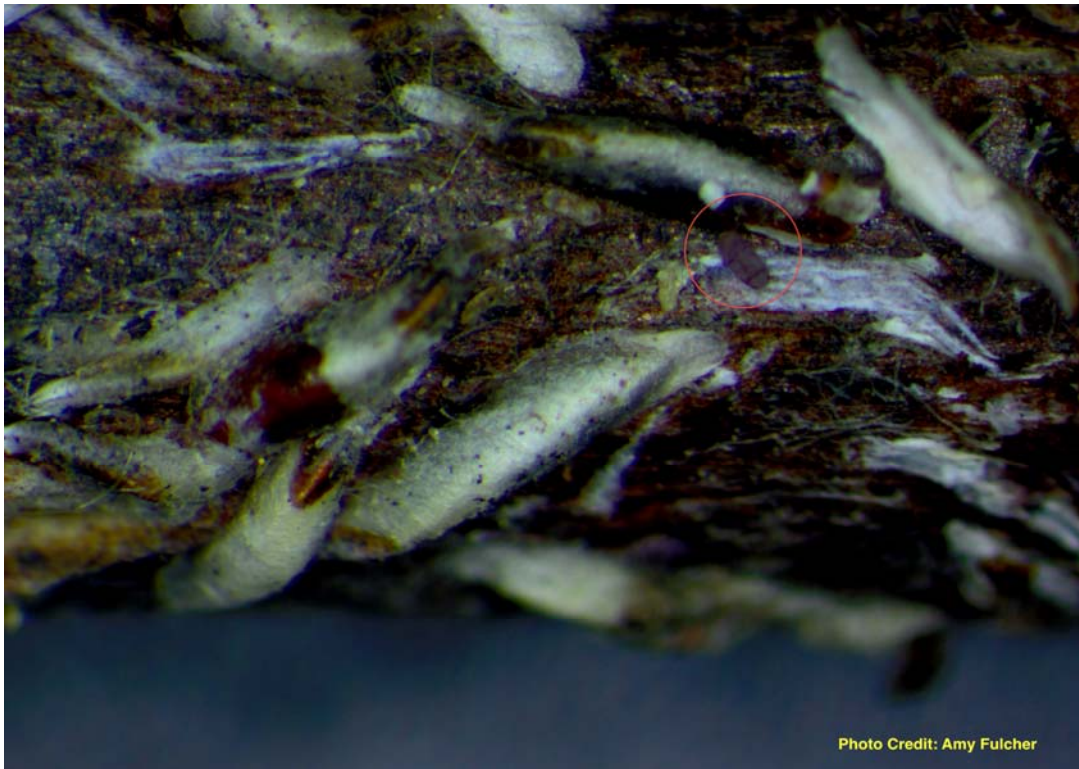


Figure 4. White peach scale can resemble Japanese maple scale. White peach scale is characterized by a “fried egg” appearance of individual adult females and a fluffy appearance created by a dense infestation of males.



Figure 5. Japanese maple scale can develop a large population quickly.



Photo Credit: Amy Fulcher

Figure 6. Tree shown is on the edge of the field. The outward facing side of the tree (left) receives more spray and JMS are absent from this portion of the tree. The inward facing side of the tree (right) is more protected and receives less direct spray coverage. Scale populations have built up on this part of the tree.

