



Potato Leaf Hopper - *Empoasca fabae* is a phloem feeding light green insect with piercing mouth-parts that overwinter in the Gulf of Mexico and arrive in Tennessee between April and early June via strong wind events (photo right). Popular ornamental hosts include apple, ash, birch, elm, hickory, maple, oak, redbud, viburnum and many more. The female can lay up to 100 eggs in the veins and leaf stems



# TSU NURSERY NEWS TO USE

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that take about 30 days to become mature adults which can then survive an additional 30 days. During this developmental time significant damage can occur leading to the coined term "hopperburn" (photo left) which causes the leaves to twist and fold on each other resembling herbicide damage and results in branch dieback and stunting. IPM strategies include planting resistant cultivars - *Acer rubrum* (Brandywine, Somerset, Sun Valley), and utilizing and encouraging biological control while also applying pesticides timely. Pyrethroid insecticides (Talstar, Tempo, Scimitar) work as a foliar application while Imidacloprid, and Dinotefuran (Safari, Transect) can be applied as basal soil systemic treatment (allow three weeks for uptake).

JAPANESE MAPLE SCALE is an exotic armored scale that infests red maple, Japanese maple, dogwood, and broadleaf evergreens like holly, Japanese holly, and boxwood. Additionally, it can be found on other ornamentals such as the Bradford pear tree pictured right. The scales are covered by hard (tests) that are separable from the insect's body and covered with white wax. Beneath the test, scale bodies and eggs are usually purple. Scales have piercing-sucking mouthparts and feed on storage cells causing branch dieback, thinning canopy, and death. Adult scales are oyster shell shaped and 1 – 1.8 mm. Females lay about 25 eggs under their body, eggs develop in April and May and hatch and crawler emergence occurs around the first week of May in Tennessee. Treatment includes applying a high rate of pyriproxyfen with horticultural oil (minimum 0.5%) starting now and continuing through May to prevent crawler establishment. If establishment is found early, pruning and burning the infested branches can also be an effective strategy. Dr. Karla Adesso is currently looking for infestations of JMS in the landscape to collect material and assess what types of parasitoids are naturally occurring in the state. Please respond directly to Karla if you find an infestation, [kaddesso@tnstate.edu](mailto:kaddesso@tnstate.edu). More information on the scale can be found at this link:

[www.tnstate.edu/extension/documents/Japanese%20Maple%20Scale%20In%20the%20Nursery%20-%20edit111521.pdf](http://www.tnstate.edu/extension/documents/Japanese%20Maple%20Scale%20In%20the%20Nursery%20-%20edit111521.pdf)



Photo by Phil Haar, Japanese maple scale on Bradford Pear



Spiny Pigweed (*Amaranthus spinosus*) PHOTO CREDIT:

DR. ANTHONY WITCHER

Spiny amaranth, spiny pigweed (*Amaranthus spinosus*) is a warm season annual broadleaf plant native to Central and South America but is widespread throughout the southeastern United States. Spiny amaranth prefers moderate soil moisture with full sun but can tolerate low moisture and is found in disturbed or bare areas such as recently cultivated fields, field margins, and roadsides. When present in nurseries it is a nuisance and hazard due to pairs of sharp spines (up to 0.5 inch long) at each leaf node and branch that distinguish it from other pigweeds. Spiny amaranth has an upright and highly branched growth habit to a height of 3 to 5 ft. Leaves are simple and smooth, alternate, egg- or diamond-shaped to 2.5 inches wide by 4 inches long, and sometimes with a V-shaped light-colored marking. The inflorescence is composed of clusters of tiny green flowers in a spike with male flowers at the tip and female flowers at the base of the spike. Fruits (utricle) are small (2 mm) and contain tiny (1 mm) round dark brown seeds. An individual plant can produce up to 114,000 seeds which are dispersed by wind, water, animals, and farm equipment. Plants have a very large taproot supporting many fibrous roots. Hand-weeding can be tedious due to the spines and stems breaking off, allowing plants to regrow. Plants can also tolerate mowing. Spiny amaranth can be controlled with post-emergent herbicides such as diquat, glufosinate, and glyphosate and works best prior to flowering. Pre-emergent herbicide applications can prevent spiny amaranth establishment and effective products contain dimethenamid-P, flumioxazin, oxadiazon, oxyfluorfen, pendimethalin, prodiamine, simazine, and trifluralin. Please contact Dr. Anthony Witcher ([awitcher@tnstate.edu](mailto:awitcher@tnstate.edu)) for more information on nursery weed control.

Additionally, Dr. Jason de Koff at Tennessee State University is applying for a grant to determine the economic feasibility of using a drone to take inventory of nursery stock in the field. This would provide time savings by allowing producers to take aerial photographs of their nursery stock and then upload the images to software that will automatically count the number of nursery products. Your responses to the 8-question survey (see link below) will be anonymous and will allow them to better design a project based on your needs and potential interest. Thank you for your help!

[https://tnstateu.az1.qualtrics.com/jfe/form/SV\\_b2bf500jmiGMB3o](https://tnstateu.az1.qualtrics.com/jfe/form/SV_b2bf500jmiGMB3o)

Further extension publications for more information on Japanese maple scale below:

chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.tnstate.edu/extension/documents/Japanese%20Maple%20Scale%20In%20the%20Nursery%20--%20edit111521.pdf



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