

What's New at the TSU Nursery Research Center

Pests, Diseases, and Ornamental Plant Production



Adam Blalock

Area Nursery Extension Specialist



Who Are We?

- The Otis L. Floyd Nursery Research Center is a Cooperative effort between **Tennessee State University** and the **United States Department of Agriculture/ Agricultural Research Service**
- 10 laboratories
- 12 scientists
- 12,000ft² climate controlled greenhouse space
- 87 acres of outdoor field and container research plots
- Shade houses, propagation houses, container yard, pot-in-pot yard, and field plots.



Where Are We?



What Do We Do?

- **Chemical Ecology:**

- Project Leader – Dr. Karla Addesso (TSU)

- **Plant Pathology:**

- Project Leader – Dr. Margaret Mmbaga (TSU)

- **Entomology:**

- Project Leader – Dr. Jason Oliver (TSU)

- **Plant Breeding:**

- Project Leader – Dr. Lisa Alexander (USDA/ARS)

- **Horticulture:**

- Project Leader – Dr. Donna Fare (USDA/ARS)

Entomology and Chemical Ecology Research

- Entomology
 - Imported Fire Ants
 - Japanese Beetles
 - Wood Boring Insects
- Chem. Ecology
 - Mites
 - Flies
 - Ambrosia beetles
 - Scales
 - Chemical / Insect relationships
- Other new pests & products



Entomology and Chemical Ecology

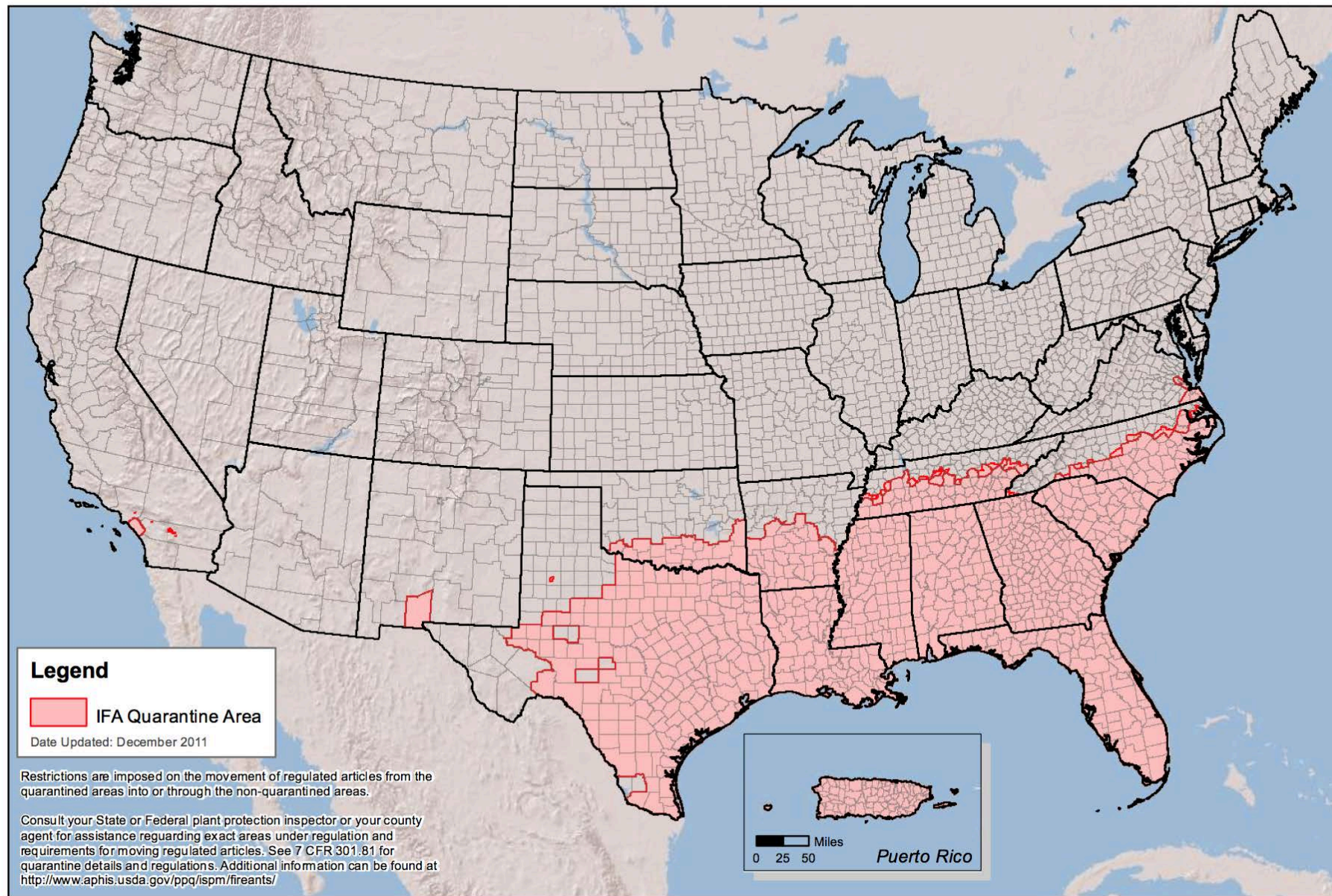
- Imported Fire Ants



http://www.desertmuseum.org/programs/images/rifa_stings.jpg



Imported Fire Ant Quarantine



Satisfying the Imported Fire Ant Quarantine

- Shipping out of the quarantine:
 - Incorporate granular insecticides in container media
 - Drench containers with insecticides prior to shipping
 - Drench/soak field grown root balls with insecticides





USDA Imported Fire Ant Quarantine 2007



SACS 10-2

Post-Harvest Drenching to Certify Containerized or Balled and Burlap Nursery Plants in the Federal Imported Fire Ant Quarantine



Baiting Nursery Blocks with a Herd® GT-77 Spreader



Imported Fire Ant Control in Production Nurseries With Baits



United States Department of Agriculture

Animal and Plant Health Inspection Service

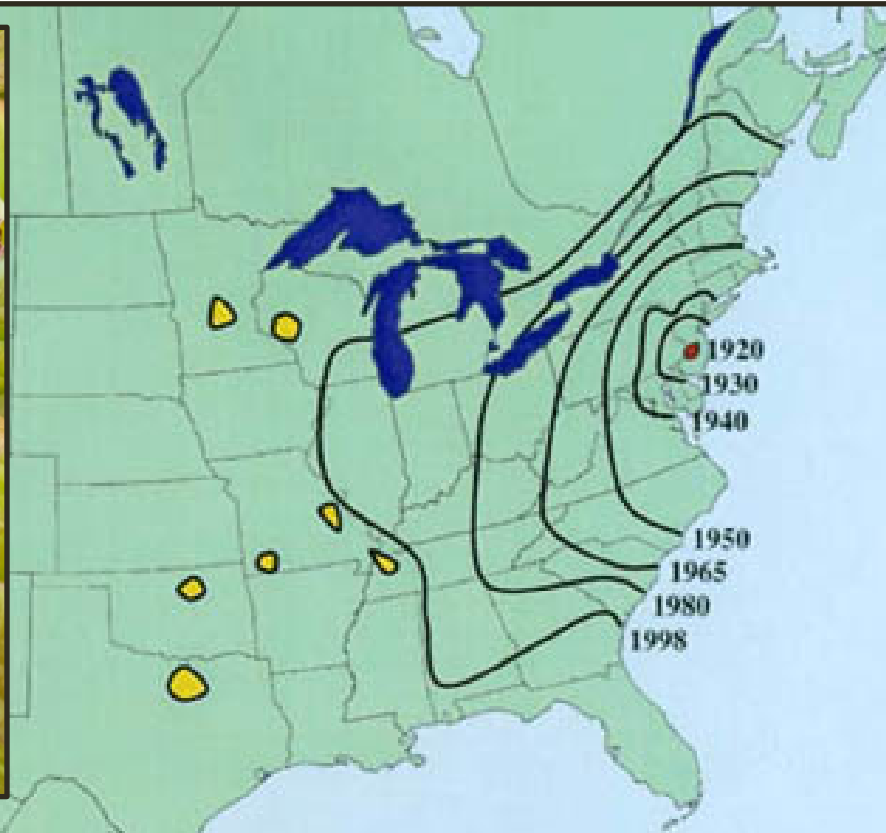
Program Aid No. 1004

Imported Fire Ant 2007:

Quarantine Treatments for Nursery Stock and Other Regulated Articles



Japanese Beetles



The Spread of Japanese Beetle in North America, 1908-1998



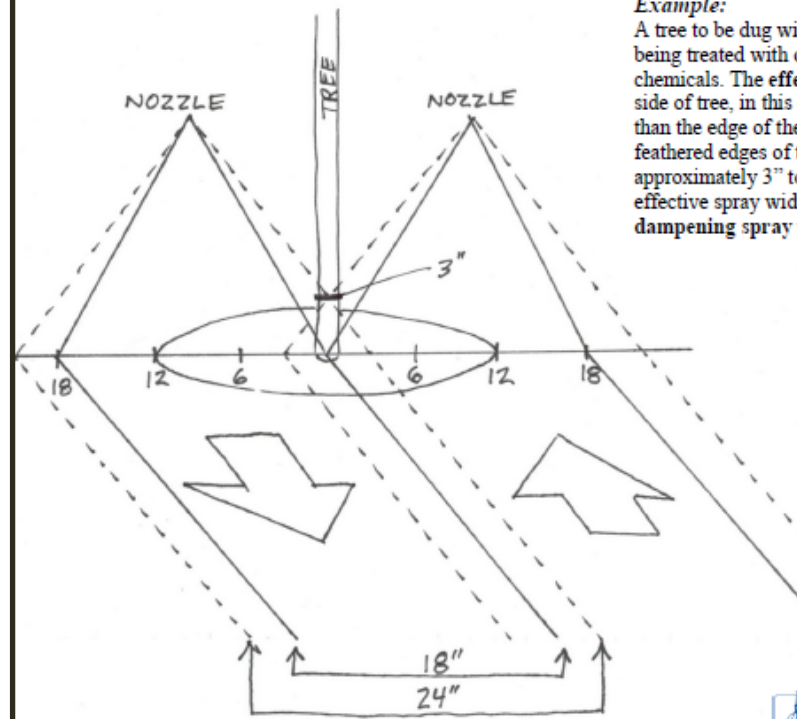
Japanese Beetles

- **Pre treatment --**
Insecticides must be banded between May and July
- **Post treatment --**
B&B dipped.

Largest B&B to be Dug	Minimum Effective Spray Width/Side	Minimum Dampness Spray Width/Side	Calibration Course Length
24"	18"	24"	227 ft.
28"	20"	26"	204 ft.
32"	22"	28"	185 ft.
36"	24"	30"	170 ft.
40"	26"	32"	157 ft.
44"	28"	34"	146 ft.
48"	30"	36"	136 ft.

Chemicals Approve for the Japanese beetle quarantine:

Chemical	Chemical Rate	Minimum GPA.
Discus N/G	247 fl.oz./Acre.	88
Flagship 25 WG	8 oz./Acre.	66
Marathon 60WP	14.5 packets/Acre.	--
Lada (imidacloprid)	25 fl.oz./Acre.	88
Mallet (imidacloprid)	25 fl.oz./Acre.	88
Quali-Pro (imidacloprid)	25 fl.oz./Acre.	88
Marathon 1G	653.4 oz. (40 lb.)/Acre.	--
Flagship 0.22G	120 lb./Acre	--



Example:

A tree to be dug with a 24" root ball is being treated with one of the approved chemicals. The effective spray width per side of tree, in this case, is 18" (6" wider than the edge of the root ball). The feathered edges of the spray band add approximately 3" to both sides of the effective spray width, resulting in a dampening spray width of 24" per side.





U.S. Domestic Japanese Beetle Harmonization Plan

*Adopted by the
National Plant Board
August 19, 1998
Last Revision April 12, 2011*





Wood Boring Insects

Flatheaded Appletree Borers



Ambrosia Beetles





Controlling the Flatheaded Appletree Borer in Nurseries with Soil Applied Systemic Insecticides

Adam Blalock and Dr. Jason Oliver

ANR-ENT-01-2014

The flatheaded appletree borer (FHAB) can cause major damage to young trees. Soil drenches of selected systemic insecticides can significantly reduce the number of FHAB attacks. To protect trees during the growing season, systemic insecticides need to be applied early in the spring or the previous fall to allow chemical uptake into the tree tissues and prevent larval damage.

The adult FHAB becomes active in middle Tennessee in May and will seek out stressed trees on which to lay its eggs throughout summer. The eggs hatch approximately one week after being laid, and the larvae will bore directly into the tree just beneath the bark and begin to feed. The larva (Image 1) is off-white in color with a prominent enlarged thoracic region just behind its head giving it a flat-headed appearance and hence the name. Adults are “bullet-shaped”, between 0.3 – 0.6 inches and generally dark in color with irregular spots (Image 2). However, despite its name, the FHAB is considered a “generalist” and will feed on many species of trees including apples, oaks, maples, dogwoods and many others.

Damage from feeding is usually not evident until fall or the next spring. Early damage symptoms are typically sunken and discolored bark and bark splitting (Image 3). As time passes the bark may begin to slough off revealing a large wound filled with frass

(Image 4). Many times the wound is a serpentine-like shape. Small tree transplants are especially at risk from the FHAB because they are often stressed from the digging and transplanting process, and due to their small size, can be completely girdled by the feeding larva (Image 5). After the larva has fully developed it will bore further into the tree where it will mature into an adult. As the adult emerges from the tree, it will leave behind a “D-shaped” exit hole (Image 6).



Image 1. The FHAB larva gets its name from the enlarged thoracic region just behind its head.

Soil applied systemic insecticides containing imidacloprid, dinotefuran and others in this chemical family (the neonicotinoids), may take several weeks to move from the soil

Table 1. Insecticide product amounts to apply by soil drench for different tree trunk diameters measured in inches for imidacloprid 2F products targeting FHAB.

Trunk Diameter (in Inches) ²	Imidacloprid 2F Amounts per Tree per Trunk Diameter ¹						Maximum Number of Trees Treated per Acre per Year		
	Milliliters			Fluid Ounces			Half Low Rate	Lowest Labeled Rate	Highest Labeled Rate
	Half Low Rate ³	Lowest Labeled Rate	Highest Labeled Rate	Half Low Rate	Lowest Labeled Rate	Highest Labeled Rate			
0.25	0.375	0.75	1.5	0.012	0.025	0.05	2,019	1,009	505
0.5	0.75	1.5	3	0.025	0.05	0.1	1,009	505	252
0.75	1.125	2.25	4.5	0.037	0.075	0.15	673	336	168
1.0	1.5	3	6	0.05	0.1	0.2	505	252	126
1.5	2.25	4.5	9	0.075	0.15	0.3	336	168	84
2.0	3	6	12	0.1	0.2	0.4	252	126	63
2.5	3.75	7.5	15	0.125	0.25	0.5	202	101	50
3.0	4.5	9	18	0.15	0.3	0.6	168	84	42
3.5	5.25	10.5	21	0.175	0.35	0.7	144	72	36
4.0	6	12	24	0.2	0.4	0.8	126	63	32
4.5	6.75	13.5	27	0.225	0.45	0.9	112	56	28
5.0	7.5	15	30	0.25	0.5	1	101	50	25
5.5	8.25	16.5	33	0.275	0.55	1.1	92	46	23
6.0	9	18	36	0.3	0.6	1.2	84	42	21
6.5	9.75	19.5	39	0.325	0.65	1.3	78	39	19
7.0	10.5	21	42	0.35	0.7	1.4	72	36	18
7.5	11.25	22.5	45	0.375	0.75	1.5	67	34	17
8.0	12	24	48	0.4	0.8	1.6	63	32	16
8.5	12.75	25.5	51	0.425	0.85	1.7	59	30	15
9.0	13.5	27	54	0.45	0.9	1.8	56	28	14
9.5	14.25	28.5	57	0.475	0.95	1.9	53	27	13
10.0	15	30	60	0.5	1	2	50	25	13
10.5	15.75	31.5	63	0.525	1.05	2.1	48	24	12
11.0	16.5	33	66	0.55	1.1	2.2	46	23	11
11.5	17.25	34.5	69	0.575	1.15	2.3	44	22	11
12.0	18	36	72	0.6	1.2	2.4	42	21	11
12.5	18.75	37.5	75	0.625	1.25	2.5	40	20	10
13.0	19.5	39	78	0.65	1.3	2.6	39	19	10
13.5	20.25	40.5	81	0.675	1.35	2.7	37	19	9
14.0	21	42	84	0.7	1.4	2.8	36	18	9
14.5	21.75	43.5	87	0.725	1.45	2.9	35	17	9
15.0	22.5	45	90	0.75	1.5	3	34	17	8

Camphor Shot Borer: A New Nursery and Landscape Pest in Tennessee



Camphor Shot Borer A New Nursery and Landscape Pest in Tennessee

Jason Oliver, Nadeer Youssef, Joshua Basham, and Alicia Bray (*Tennessee State University*), Kenneth Copley (*USDA-APHIS-PPQ*), Frank Hale, William Klingeman, and Mark Halcomb (*University of Tennessee*), and Walker Haun (*Tennessee Department of Agriculture*)

Introduction

The camphor shot borer, (*Cnestus mutilatus* [Blandford]), (CSB) (Fig. 1) is a beetle pest native to Asia.



Fig. 1. Female (left) and male (right) camphor shot borer (CSB).

The beetle was first detected in the United States in Oktibbeha County, Mississippi in 1999. It is now known to occur in Alabama, Florida, Georgia, Louisiana, North Carolina, Ohio, Tennessee, Texas and West Virginia. In Tennessee, the CSB was first detected on April 25, 2008 near a lumber facility in Wayne County. As of 2012, CSB has been trapped in 18 Tennessee counties (Fig. 2) and probably occurs in other Tennessee counties. The CSB most likely entered the U.S. in some type of wood packing material. In the U.S., nursery stock and firewood are other likely means of transport.

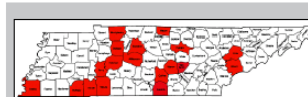


Fig. 2. Tennessee counties with known infestations of CSB in 2012.

CSB Biology

The CSB belongs to a group of wood-boring beetles called the ambrosia beetles. All ambrosia beetles carry

fungi (ambrosia), which they subsequently introduce into the tunnels (galleries) when boring into the tree (Fig. 3). The ambrosia fungi grow in the galleries and serve as food for adult beetles and developing young (i.e., larvae).



Fig. 3. Cross-section of a CSB gallery showing eggs and white-colored ambrosia fungus.

Male CSB do not fly, so all new tunnels in the trunk are initiated by females (Fig. 4). On the tree trunk surface, the gallery entrance appears as a small round hole (Fig. 4).



Fig. 4. Left photo: Adult female CSB boring into a tree branch. Right photo: Gallery entrance hole recently excavated in the branch. The rear of the female CSB is visible inside the gallery entrance.

Temperature influences CSB developmental rate from egg to adult, which may take as little as 5 to 6 weeks in warm weather. Male CSB are believed to stay in the gallery, where they likely mate with siblings before eventually dying. Females may remain in the gallery to over-winter or may emerge and begin attacking new plants.

Scale





Why is Japanese Maple Scale so Prevalent in Nurseries?

- Broad host range
- 2 generations per year (opposed to 1 in northern states)
- Active from May – October
- Crawlers (Juveniles) are not vulnerable (without waxy waterproof shell) for very long

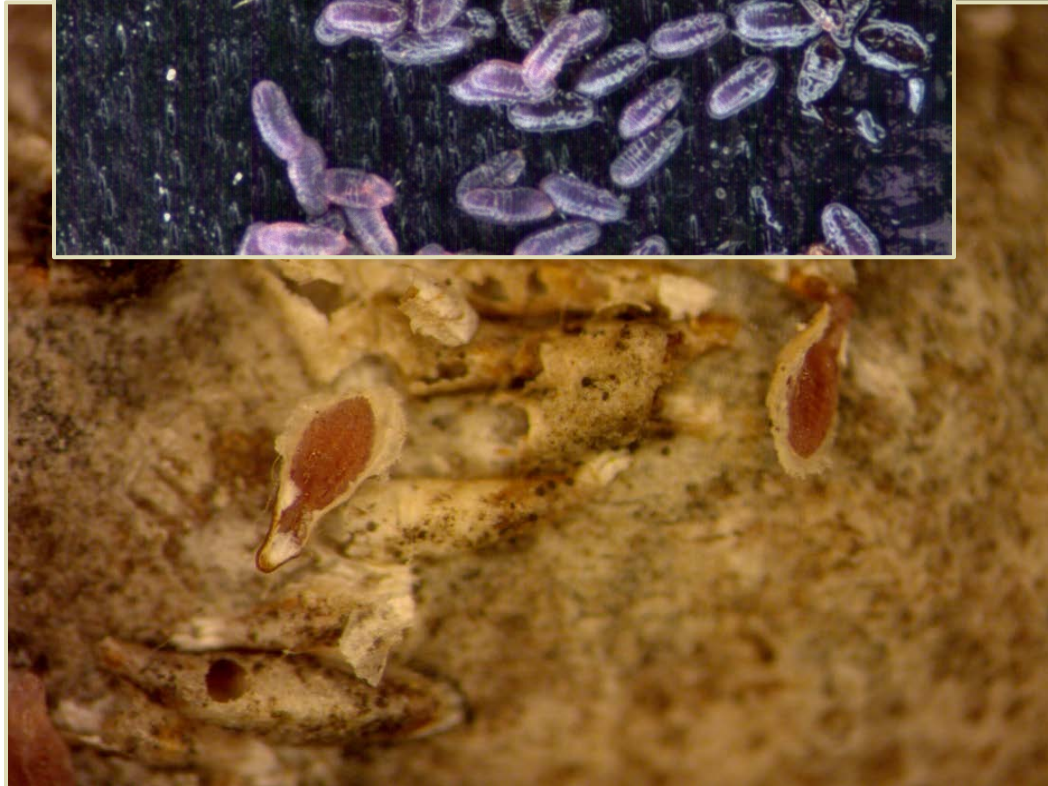
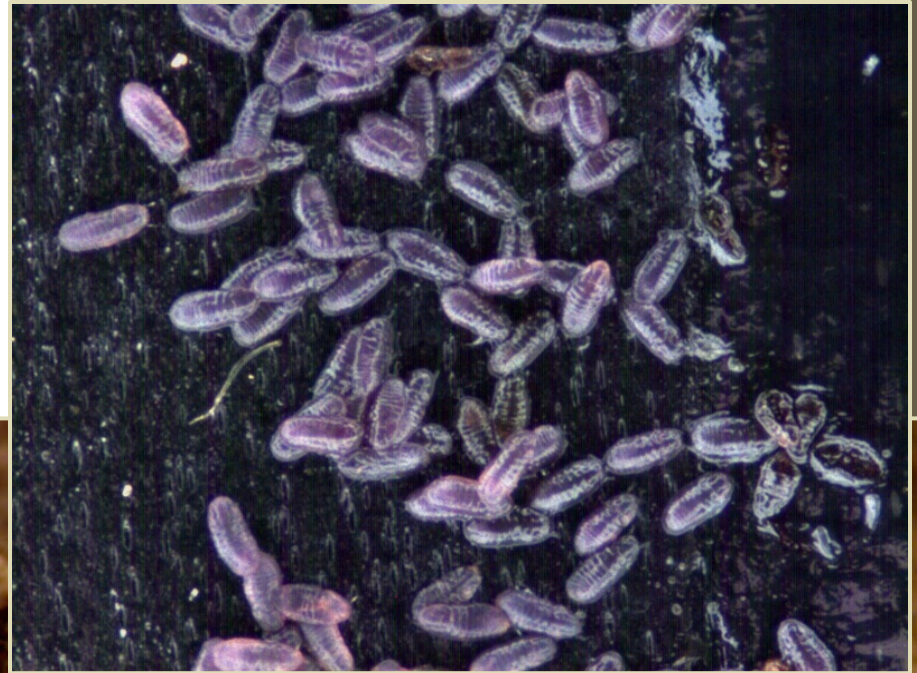
Japanese Maple Scale Evaluation



Japanese Maple Scale

Evaluation

- **Objective 1:** Monitor the JMS lifecycle in a typical Tennessee field nursery.
- **Objective 2:** Evaluate insecticides for reducing scale numbers.



Insecticides

- **Late March**

- Dormant Oil

- **Mid April**

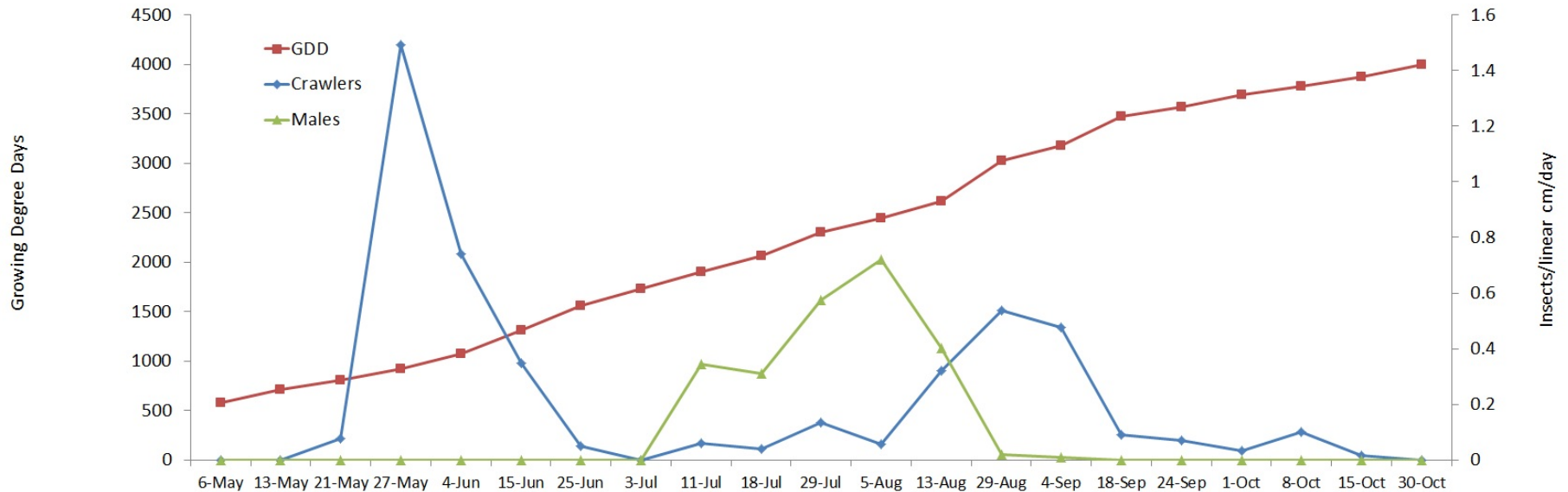
- Discus[®] (imidacloprid)
- Safari[®] (dinotefuran)
- Kontos[®] (spirotetramat)

- **Early June**

- Summer Oil
- Kontos[®] (spirotetramat)
- Fulcrum[®] (pyriproxifen)
- M-Pede[®] (potassium salts of fatty acids)
- Safari[®] (dinotefuran)

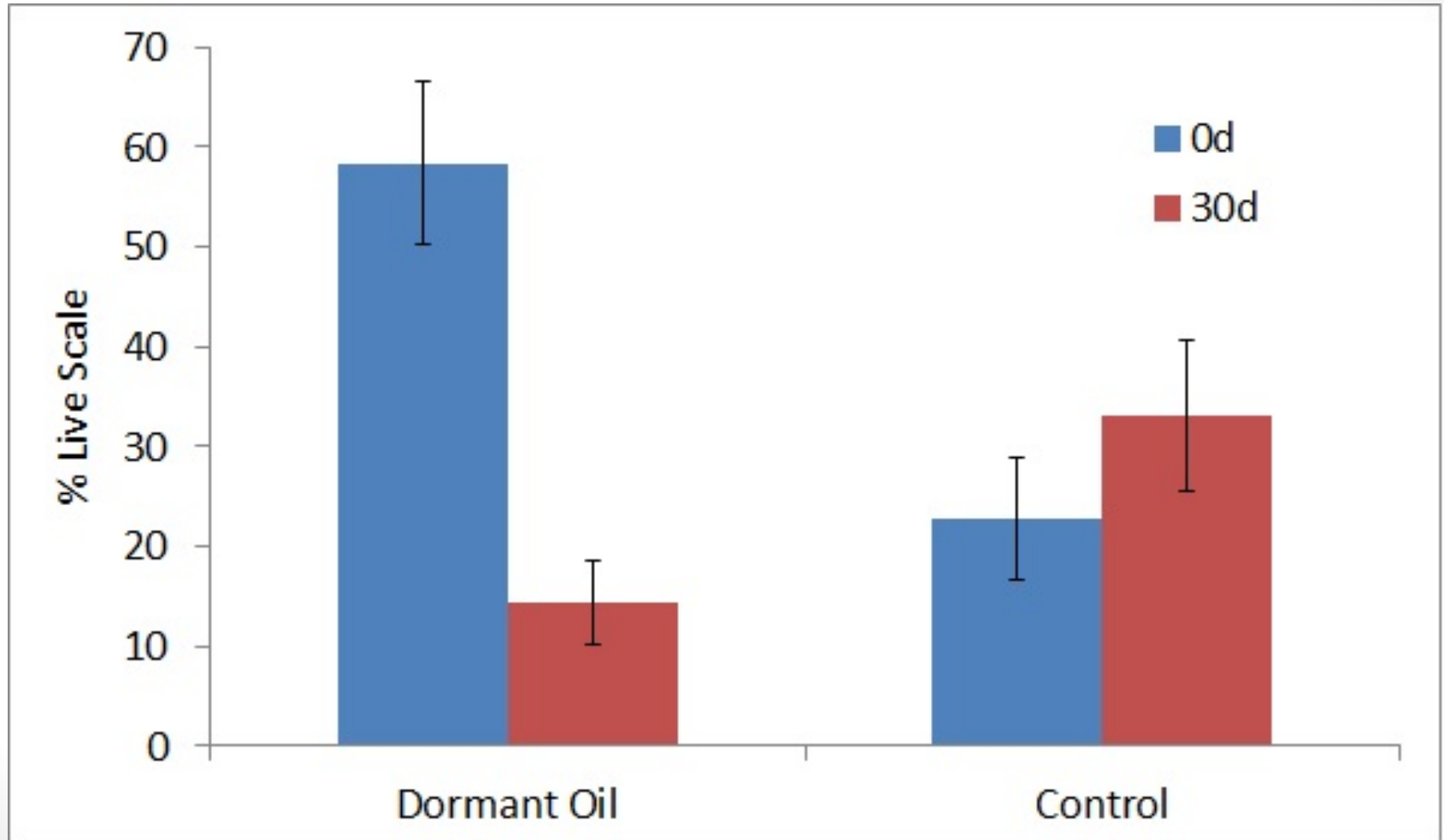
Japanese Maple Scale – Crawler

Monitoring

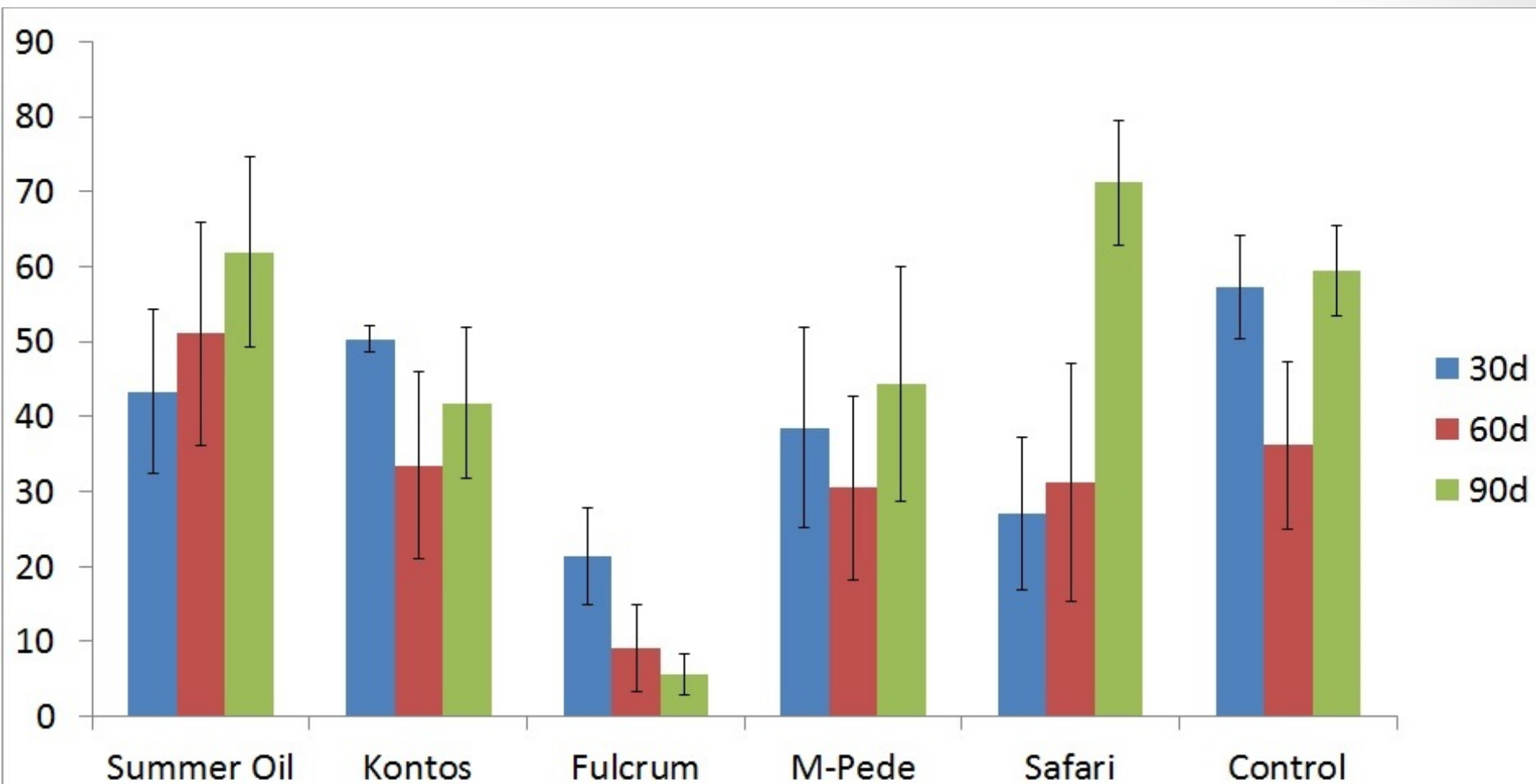


Japanese Maple Scale Crawler Monitoring

Dormant Oil Results

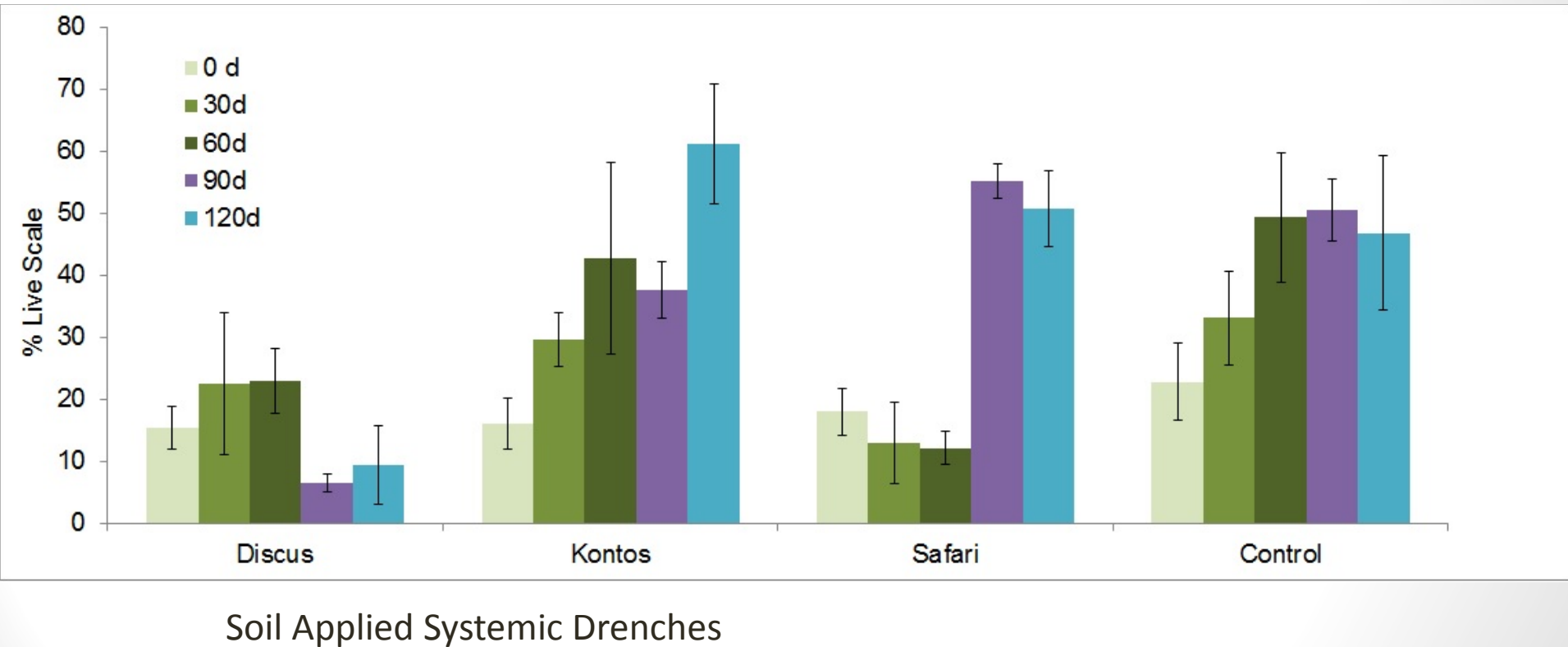


Foliar Spray Results (Applied in June)

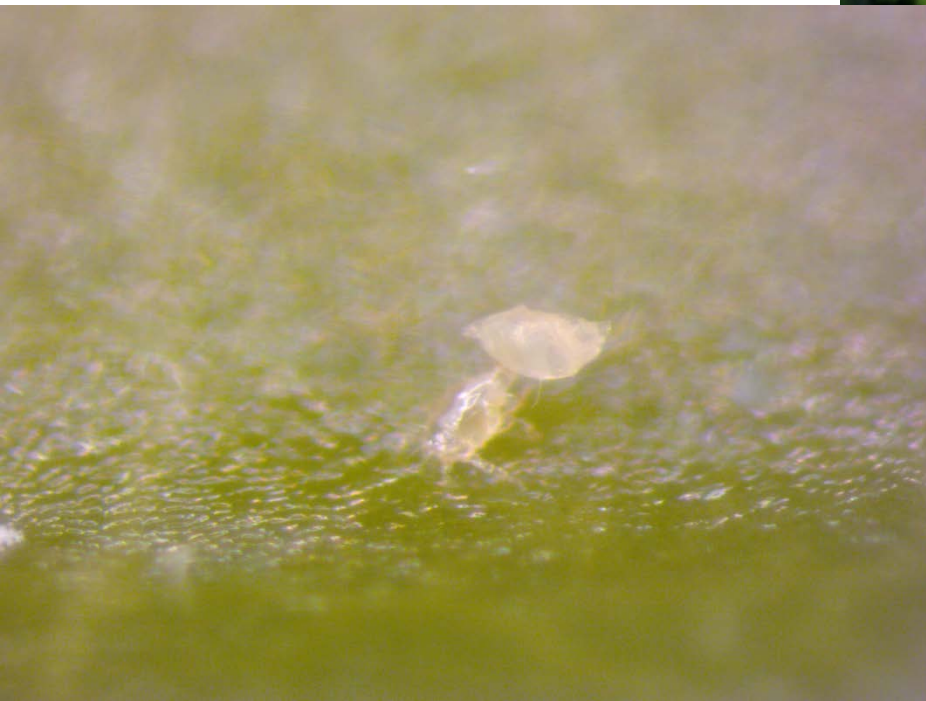


Foliar Sprays – targeting crawlers

Systemic Drench Results (Applied in April)



Broad Mites



Broad Mites

Broad Mites

Adam Blalock, Nursery Extension Specialist
and
Dr. Karla Adesso, Chemical Ecologist

Broad mites (*Polyphagotarsonemus latus*) are a species of small mites that damage many ornamental crops. They are most active during the warmer summer months but they may be active year round in a greenhouse. If not controlled in time, feeding damage can result in unmarketable plants. Broad mites typically feed on the newest growth, which eventually becomes deformed and stunted. Broad mites are almost impossible to see with the naked eye and are best viewed with a strong hand lens or microscope.



Image 1. The leaves on this dogwood (*Cornus florida*) plant are stunted, strap-like and curling downward in response to broad mite feeding.

Typical symptoms of broad mite feeding can mimic 2,4-D herbicide damage. New leaves are small, stunted, strap-like, and they sometimes curl downward and inward (Images 1 and 3). Prolonged feeding will stunt and reduce plant growth, increase shoot proliferation farther down the stem, and sometimes result in a leaf color change. Broad mite saliva is toxic to plants, thus even after the mites are destroyed, new growth may still emerge deformed.

Broad mites are no larger than 0.2 mm, less than half the size of a two-spotted spider mite. They are able to hide and feed in the tightest, newest growth so scouting activities should be concentrated there first. They are also often found on the underside of the

creased and cupped leaves caused by their feeding. Broad mites are usually light green to yellow, football shaped (Image 4) and very active on the plant, walking and crawling around vigorously.

Broad mites have a short and rapid lifecycle living between 5 and 13 days. An unmated female will lay male eggs only, but after mating, she will lay about 4 female eggs for every male egg. Eggs are clear, elliptical, and covered with opaque white dots (Image 2). In a few days, 6-legged larvae will hatch and immediately begin to feed. Two to 3 days after hatching, the larvae enter an inactive (*i.e.*, quiescent) phase. Active adult males will pick up and carry the quiescent females (Image 5) until they become active, at which time, mating occurs.

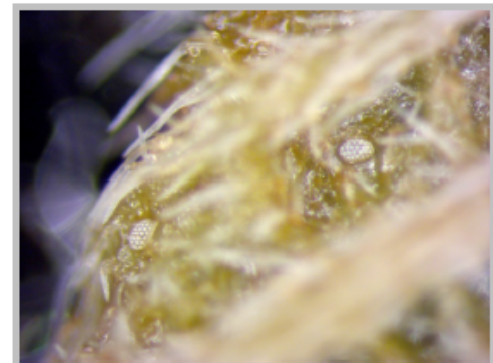


Image 2. Eggs are one of the easiest distinguishing features to look for when identifying broad mites. Under a microscope the eggs appear as clear round little spheres covered with white opaque dots.

Broad mites are believed to be dispersed to new plants through plant-to-plant contact or moved by larger insects like white-flies and aphids. It is unknown if broad mites will survive unprotected outdoors through a winter in Tennessee.

Kudzu Bug



Emerald Ash Borer



Anomala orientalis (Waterhouse)



Dichotomus carolinus (L.)



Dynastes tityus (L.)



Euphoria sepulchralis (Fab.)



Euphoria inda (L.)

Gnorimella maculosa (Knoch)



Osmoderma eremicola Knoch



Pelidnota punctata (L.)



Phaneus vindex MacLeay



Pleocoma dubitabilis dubitabilis Davis



Popillia japonica Newman



Popillia japonica
Japanese Beetle



Xyloryctes jamaicensis (Drury)



Pathology Research

- Powdery Mildew
- Phytophthora
- Dogwood research



Horticulture and Plant Breeding Research

- Horticulture
 - Irrigation
 - Container production
 - Stress responses
 - New cultivar evaluations
 - Propagation methods
- Plant Breeding / Genetics
 - Hydrangea
 - Clethra
 - Styrax
 - [Beauty Berry]
 - [Carolina Silver Bell]
 - [Osmanthus]









Crapemyrtle Evaluation

Camellia Evaluation



Witchhazel Evaluation



'Amethyst'



'Jelena'



'Arnold Promise'



'Diane'

'Green Thumb'





Hamamelis virginiana



'Quasimodo'



'Little Suzie'



Yellow Magnolia Evaluation

Noteworthy cultivars for Tennessee

- 'Carlos'
- 'Judy Zulk'
- 'Sunspire'







Sourwood transplanting evaluation

Oxydendrum arboreum - Sourwood



Variegated Sourwood



Hydrangea Breeding





Hydrangea quercifolia 'Ruby Slippers'



Botanical Name:	<i>Hydrangea quercifolia</i> 'Ruby Slippers' (NA 74836; PI 658493)
Hardiness:	USDA Zones 5-8.
Development:	'Ruby Slippers' was developed from a 1998 hybridization of oakleaf hydrangea cultivars 'Snow Queen' and 'Pee Wee'. It was released in 2010.
Significance:	'Ruby Slippers' is one of the first two hydrangea cultivars released from the U.S. National Arboretum's shrub breeding program in McMinnville, Tenn. Its compact plant form and large, upright inflorescences make it particularly suited for use in small residential landscapes.
Description:	Height and width: 3.5 feet tall and 5 feet wide at 7 years. Habit: Small, deciduous, rounded shrub. Foliage: Dark green in summer; mahogany-red in fall. Flowers: In early summer, 'Ruby Slippers' is covered with 9 inch long inflorescences that are held upright above the foliage. Flowers open white, but quickly turn pale pink and then deepen to rose.
Propagation:	Softwood cuttings root in 4 to 6 weeks under mist with 4000 ppm IBA.
Landscape Use:	Foreground planting in the shrub border, deciduous hedge, mass planted in large areas.
Availability:	For a list of wholesale nurseries propagating this plant, contact Dr. Sandra Reed, U.S. National Arboretum, 472 Cadillac Lane, McMinnville, TN 37110, Sandra.Reed@ars.usda.gov



Botanical Name: *Hydrangea quercifolia* 'Queen of Hearts'
(NA 79748; PI 668118)

Hardiness: USDA Zones 5-8

Development: Queen of Hearts was developed from a 1998 hybridization of oakleaf hydrangea cultivars 'Snow Queen' and 'Pee Wee'. It was released by the U.S. National Arboretum's shrub breeding program in McMinnville, Tenn. in 2013. 'Queen of Hearts' was selected from the same population that produced 'Ruby Slippers'.

Significance: 'Queen of Hearts' was selected for its large, upright inflorescences and heavy flowering. It flowers approximately 7 to 10 days later than standard oakleaf hydrangea cultivars, and inflorescences remain attractive after those of other cultivars have faded.

Description:
Height and width: 6.5 feet tall and 9 feet wide at 10 years.
Habit: Medium, deciduous, rounded shrub.
Foliage: Dark green in summer; mahogany-red in fall.
Flowers: In early summer, 'Queen of Hearts' is covered with 9-inch-long inflorescences that are held upright above the foliage. Flowers open white and then slowly age to a deep pink color.

Propagation: Softwood cuttings root in 4 to 6 weeks under mist with 4000 ppm IBA.

Landscape Use: As a specimen plant, in the shrub border, or mass planted in large areas.

Availability: For a list of wholesale nurseries propagating this plant, contact Dr. Margaret Pooler, U.S. National Arboretum, 10300 Baltimore Ave., Bldg. 010A, Beltsville, MD 20705. Margaret.Pooler@ars.usda.gov

'Queen of Hearts'





'Duet' *Callicarpa dichotoma* (Beautyberry)





'Firefly' *Clethra alnifolia*



'Petite Jade' Acauba





Aucuba japonica 'Petite Jade'



Botanical Name:	<i>Aucuba japonica</i> 'Petite Jade' (NA 55288; PI 668405)
Hardiness:	USDA Zones 6-10.
Development:	'Petite Jade' Japanese laurel originated from cuttings collected from Chollipo Botanical Garden, South Korea, in 1984. The plant was grown for many years in the U.S. National Arboretum's Introduction Garden and was sent to nurseries for evaluation in 2002.
Significance:	'Petite Jade' differs from other Japanese laurel cultivars in its compact, rounded habit and resistance to blight caused by <i>Glomerella cingulata</i> .
Description:	Height and width: 6 feet tall and 10 feet wide in 30 years. Habit: Evergreen, slow-growing compact shrub with mounded form and dense branching. Foliage: New growth is shiny and bright green, aging to dark green. Flowers: Tiny green and maroon flowers are insignificant in the landscape. Fruit: Half-inch long oblong deep green fruits ripen to medium red in late autumn.
Propagation:	Cuttings may be taken any time of year, treated with 3000 ppm IBA, and stuck in half perlite and half long-fiber sphagnum under mist. Cuttings generally root within a month. After rooting, plants should be grown in tall pots or bands since they are prone to root rot if kept too wet.
Landscape Use:	'Petite Jade' is well-suited for use as a foundation plant, in mass planting, and in formal designs. Performs well in shade and tolerates drought once established.
Availability:	Monrovia Growers, 817 East Monrovia Place, Azusa, CA 91702 or contact Scott Aker, U.S. National Arboretum, 3501 New York Avenue, NE, Washington, DC 20002, Scott.Aker@ars.usda.gov.













Wolpe



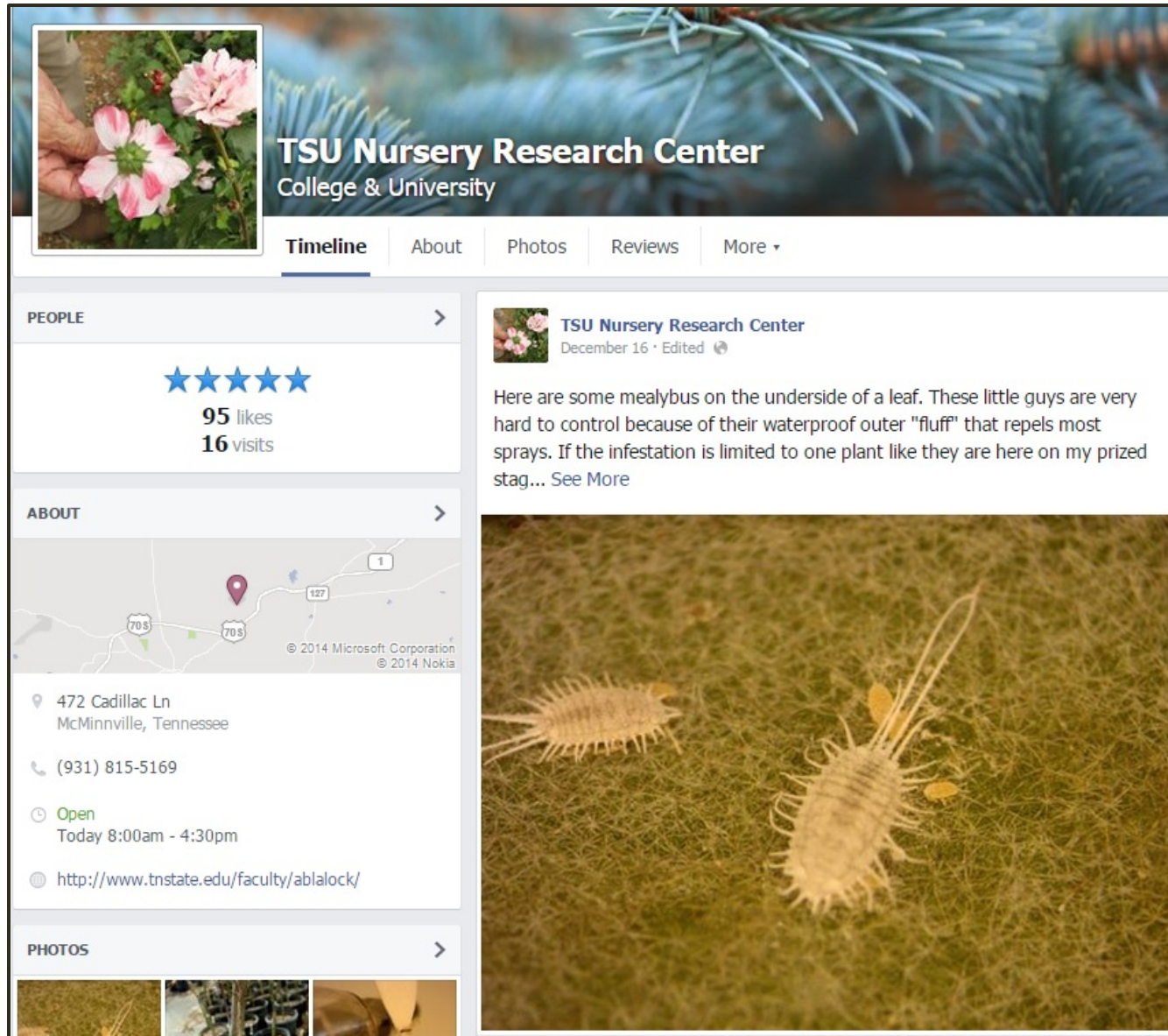








More Information



The image shows a screenshot of a Facebook profile for the TSU Nursery Research Center. The profile header features a cover photo of a blue pine branch and a profile picture of a hand holding pink flowers. The name 'TSU Nursery Research Center' and the category 'College & University' are displayed. Navigation tabs for 'Timeline', 'About', 'Photos', 'Reviews', and 'More' are visible. The 'PEOPLE' section shows 95 likes and 16 visits. The 'ABOUT' section includes a map, address (472 Cadillac Ln, McMinnville, Tennessee), phone number (931) 815-5169, and website URL (http://www.tnstate.edu/faculty/ablalock/). A post from December 16 shows a close-up of mealybugs on a leaf with the text: 'Here are some mealybus on the underside of a leaf. These little guys are very hard to control because of their waterproof outer "fluff" that repels most sprays. If the infestation is limited to one plant like they are here on my prized stag... See More'. A large photo of two mealybugs is shown below the text.

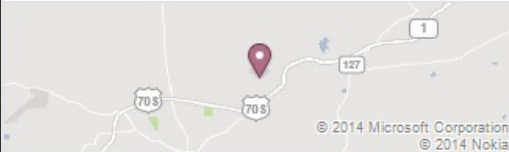
TSU Nursery Research Center
College & University

Timeline About Photos Reviews More ▾

PEOPLE >

★★★★★
95 likes
16 visits

ABOUT >


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McMinnville, Tennessee

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🕒 **Open**
Today 8:00am - 4:30pm

🌐 <http://www.tnstate.edu/faculty/ablalock/>

PHOTOS >

 **TSU Nursery Research Center**
December 16 · Edited 🌐

Here are some mealybus on the underside of a leaf. These little guys are very hard to control because of their waterproof outer "fluff" that repels most sprays. If the infestation is limited to one plant like they are here on my prized stag... See More



More Information

Colleges & Schools	Home > Agriculture & Consumer Sciences > Nursery Research Center
College of Agricultural, Human and Natural Sciences	<h2>Otis Floyd Nursery Research Center</h2>
Degree Programs	Dedicated to Improving Nursery Crop Production in Tennessee
Cooperative Extension	
Otis L. Floyd Nursery Research Center	<p>Tennessee is home to a vibrant and growing nursery industry. Many of the trees and shrubs planted in the Eastern half of the United States originate from commercial nurseries located in Tennessee.</p>
<ul style="list-style-type: none">>> Directions to the Nursery Research Center>> Nursery Research Center Directory>> Nursery Research Center History>> Genetics>> Entomology>> Horticulture>> Plant Pathology>> Chemical Ecology>> Extension>> Contact US	<p>The Tennessee State University Otis L. Floyd Nursery Research Center is located in the heart of Tennessee's nursery industry, about 80 miles southeast of Nashville in McMinnville, Tennessee.</p> <p>Our mission is to provide leadership in strengthening and expansion of our nursery industry through innovative research and extension programs in entomology, genetics, horticulture, pathology, chemical ecology, nursery extension and related sciences.</p>
Directions	
Contact Us	
	 <ul style="list-style-type: none">Nursery Research Center DirectoryDirections to the CenterContact UsHistory of the Center

More Information



Adam Blalock
TSU Nursery Extension Specialist

Faculty Directory

[Home](#) > [Faculty Websites](#) > [Adam Blalock](#)

Adam Blalock

Welcome

Contact Me

TSU Nursery Research

Diseases

Located at the [Otis L. Floyd Nursery Research Center](#) (approx. 80 miles southeast of Nashville on the edge of the Cumberland Plateau) I work in a research facility dedicated to the improvement of the Tennessee nursery crop industry. It is operated through a cooperative effort between Tennessee State University and the United States Department of Agriculture/[Agricultural Research Service](#).

Insects

Nursery Production

Presentations

Soil and Fertility

We work to provide education and assistance to the wholesale nursery producers in middle Tennessee (Warren, Coffee, DeKalb, Franklin, Grundy, and Van Buren Counties). We also provide:

Weather Reports

Weeds

- educational programs,
- demonstrations,
- group meetings,
- farm visits,
- and media updates.

What's New

Other

plant tips



'Jelena' (aka 'Copper Beauty') is a wonderful selection of *Hamamelis x intermedia*.

Witchhazels bloom in February in Middle Tennessee so take some time to get up close and appreciate their unique delicate flowers. Many new selections have been named and release lately and talk among some gardeners indicate it may be one of those plants you will see more and more of over the next few years. For more plant tips, check out the [TSU Nursery Research Center's Facebook page](#).

research



The End

