

Green Gazette

Commercial Ornamental Horticulture News for East Tennessee

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Greetings East Tennessee,

This is the first issue of the Green Gazette, a Tennessee Extension-sponsored, quarterly newsletter featuring news, articles, events, and helpful information for the nursery, greenhouse, and landscape professionals in East Tennessee. It is my pleasure to work with you all, and I hope you will find this resource useful.

About the Author:



My name is Maureen Thiessen and I have been employed by Tennessee State University and University of Tennessee Cooperative Extension to serve the commercial ornamental industry in the eastern 33 counties of Tennessee. I joined the Extension system in March of 2014, moving from Baton Rouge, Louisiana. My education includes a degree in biology from Louisiana State University, where I

quickly learned that plants were more fun to study than humans and animals. After a brief stint in the world of molecular

Upcoming Extension Events

Knoxville-Area Grounds Management Short Course

February 3-4, 2015

UT Conference Center

600 Henley Street

Knoxville, TN 37902

More Information: <https://ag.tennessee.edu/groundsmanagement/Pages/default.aspx>

Contact: David Vandergriff
dvgriff@utk.edu

Getting Started in the Greenhouse Business

Profit and Production Workshop
February 24th, 2015

95 Church Street SE, Cleveland,
TN 37311

Preregistration due 2/10/2015

Contact: Patrick Sweatt,

psweatt@tnstate.edu

(423) 728 – 7001

Upcoming Industry Events

Plant Natives 2015: The Living Landscape, a Native Plant Symposium

TN Valley Chapter of Wild Ones
January 24, 2015

Chattanooga State Humanities
Auditorium

4501 Amnicola Highway

Chattanooga, TN

More Info:

<http://tennesseevalley.wildones.org/plant-natives-2015/>

Continued on next page

breeding, I returned to LSU to earn a master's degree in ornamental horticulture. My primary work involved developing an automated irrigation system for use in container nursery crops.

I have enjoyed getting to meet as many of you as I possibly can, and look forward to working with you in the future. Please let me know how I can further help your industry by letting me know what topics and information you would like to see!

Cheers,

Maureen

Windows of Opportunity - Take Advantage of Empty Greenhouse Space

Controlling weeds, disease, and insects in the greenhouse is a constant job. Greenhouse pest control is often especially difficult due to the added protection from the outside elements, and favorable indoor temperatures and humidity levels for insects, weeds, and diseases to thrive and multiply. A full crop for most of the year certainly makes it hard to effectively treat pests without harming your crop, allowing pests to persist and return year after year. Pesticides should not be the only line of defense – it can be expensive and ineffective once infestations are established. By taking advantage of the time between crops and adopting clean habits, pest problems can be greatly reduced or avoided, lessening your dependence on chemicals that may harm your crop and your profits.

Between crops, the absence of plants removes the sources that pests need to survive, decreasing the survivability of insects and pathogens that need the material to live, while lack of water and temperature control keep weeds down that serve as alternate hosts to many insects and disease. Leaving the greenhouse empty for a few weeks can help reduce pest populations and break life cycles. However, many species of pests can survive these meager periods through seeds, eggs, or spores on floors, walls, benches, in cracks and crevices, containers, leftover media, tools, and equipment. Take advantage of this time to thoroughly address overwintering sources of pests. After the holiday floral crops have been removed, and before production has started for the spring crop, thoroughly clean and sanitize the greenhouse. Begin this process as soon as possible, rather than waiting until right before spring production begins. Remove any old plants, soil/substrate, debris, and any dead or remaining weeds. Use pressure washers, even shop vacuuming, and sanitizing agents, such as bleach,

NextLevel – An AmericanHort Experience

February 3-5, 2015
Fort Lauderdale, FL

More Info:

<http://yournextlevel.org/>

Big Grower Executive Summit 2015

February 8-10, 2015
Marriott Orlando Airport
Orlando, FL

More Info:

<http://www.biggrower.com/executivesummit/>

Contact: Harry Urban, GPN Events, hurban@sgcmail.com

Pest and Production Management Conference

Society of American Florists
Rosen Plaza Hotel
Orlando, FL

More Info:

<http://www.safnow.org/ppmc-hotel-and-travel>

Interior Plantscape Symposium

April 8 -9, 2015
Longwood Gardens
Kennett Square, PA

More Info: <http://goo.gl/fyR2ke>

California Spring Trials

April 11 – 16th, 2015

More Info:

<http://americanhort.org/springtrials>

quaternary ammonium, and hydrogen dioxide, to sanitize bench areas, tools, and any containers that are to be reused. Below is a helpful table from Purdue Agriculture explaining the uses of different agents. Be sure to scrub away any dirt or organic matter before using a sanitizing agent. Pay special attention to areas where a disease or pest infestation has occurred, since infected material can remain on tiny particles of substrate, soil, dust, remaining plant pieces, and surfaces. Always follow label instructions when using cleaning agents, using proper protective equipment and ensuring adequate ventilation, since many cleaning agents produce harmful fumes.

Also use this time to repair any areas that serve as barriers to weeds and insects, including torn weed fabric on the floor or areas of thinning gravel. Sweep or shop-vac greenhouses thoroughly between crops, and routinely during production. Still, overwintering weed seed can be hard to combat in greenhouses. Pre-emergence herbicide options for use in the greenhouse are very limited; however, Marengo® can be used in the greenhouse if needed, but on the floors only. Be sure to thoroughly read and apply the instructions on any pesticide label. Pay attention to any leaks or areas that are consistently moist, as these areas can serve as overwintering environments for fungal and bacterial pathogens, and breeding grounds for insects.

Table 1. Examples of chemicals used for greenhouse sanitation.

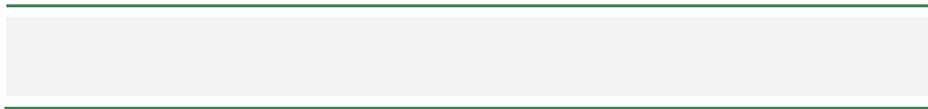
Product	Active Ingredient	Uses	Comments
Numerous brands	ethanol (70%)	Effectively sanitizes cutting tools.	Extremely flammable. May not be feasible for large-scale sanitation.
Numerous brands	chlorine bleach (approximately 1% active ingredient)	Sanitizes pots, flats, walls, and benches.	Should be prepared fresh before use. May corrode metal. Volatile and phytotoxic.
Green Shield®	quaternary ammonium	Sanitizes all greenhouse surfaces and tools.	Little residual effect. Can also be used on evaporative cooling surfaces.
Phyosan 20®	quaternary ammonium	Sanitizes all greenhouse surfaces and tools.	Also labeled for cuttings and plants.
OxiDate®	hydrogen dioxide	Sanitizes all greenhouse surfaces and tools.	Approved for organic greenhouse use.
ZeroTol®	hydrogen dioxide	Sanitizes all greenhouse surfaces and tools.	Can be used as a broad spectrum fungicide.
Selectocide®	chlorine dioxide	Sanitizes all greenhouse surfaces.	Can penetrate surfaces not accessible to liquid disinfectants.

Note: always wear personal protective equipment when applying sanitation chemicals in the greenhouse. Follow product labels for instructions and safety precautions.

Once you have thoroughly cleaned your greenhouse, keep practicing clean housekeeping habits. Continue frequent sanitation of surfaces and tools, removal of plant debris and diseased plants and substrate, and always inspect incoming plant material. Consult UT's Systems-Based Approach to Pest Management Guide for further sanitation practices (see below).

Sources and Further Reading:

Cochran, D.R., Fulcher, A., Hale, F.A., and Windham, A.S. Systems-Based Approach to Pest Management: A Quick Reference Guide. University of Tennessee Extension, Southern Extension Risk Management Education, and USDA. http://plantsciences.utk.edu/pdf/fulcher_SBPM_man_english_090314_wo_spanish_checklist.pdf



Kleczewski, Nathan M., and Egel, Daniel S. Sanitation for Disease and Pest Management. 2011 Commercial Greenhouse and Nursery Production. Purdue Extension. Pub. # HO-250-W. <https://www.extension.purdue.edu/extmedia/HO/HO-250-W.pdf>

Smith, Tina. Cleaning and Disinfecting the Greenhouse. 2014. Greenhouse Crops and Floriculture Program. University of Massachusetts. <http://extension.umass.edu/floriculture/fact-sheets/cleaning-and-disinfecting-greenhouse>

Look Out for These Invasive Pests!

Emerald Ash Borer

You may have heard about the Emerald Ash Borer, an invasive beetle pest introduced to the U.S. from Asia. It was first found in Michigan in 2002, and has been killing tens of millions of Ash trees as it spreads into the southern states. Its presence stretches from the northeastern U.S. to Georgia and Arkansas in the south, and to Colorado in the west. Adult beetles are dark metallic green, and lay eggs in the bark. When larvae emerge, they bore under the bark to feed on nutrients in the vascular tissue. This boring activity lasts for several weeks and damages the tree's ability to transport nutrients, resulting in rapid deterioration of tree health. Symptoms of damage include canopy thinning and dieback, water-sprouting, and D-shaped exit holes in the bark. Ash trees typically die within three years of infestation. Due to EAB's continued movement and its rapid destruction of ash trees, infested areas are under quarantine. All of the eastern Tennessee counties, with the exception of Cumberland, are under the Emerald Ash Borer quarantine, and therefore cannot move any product (lumber, firewood, mulch, nursery stock, or any other plant material) in the Ash (*Fraxinus*) genus outside the quarantine without a special certificate or permit from the TDA. If you deal with ash trees or their products, please visit the Tennessee Department of Agriculture website listed below for information on how to help prevent the spread of Emerald Ash Borer.



Michigan State University



D. Cappaert, MSU

Tennessee Dept. of Ag Emerald Ash Borers: <http://www.tn.gov/agriculture/regulatory/eab.shtml>

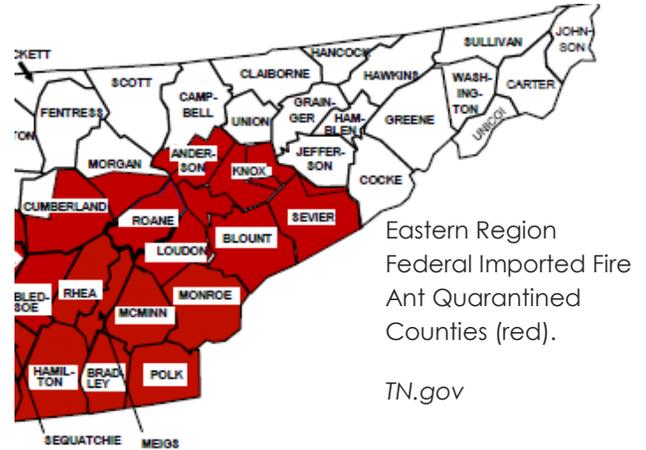


Imported Fire Ants

Another rapidly spreading, invasive pest is the Imported Fire Ant. Both red and black imported fire ants were introduced to the U.S. Gulf Coast from South America, and subsequent hybridization (interbreeding) between the two species has produced a more vigorous fire ant that has contributed to the further spread of fire ants into states north of the Gulf South. Fire ants have a very painful sting, and can cause severe reaction and even death to sensitive individuals. Fire ants also pose a health threat to livestock and wildlife.

Their chewing and feeding activity can destroy stored grains and feed, as well as damage equipment and electrical insulation.

The destructive potential of fire ants has implications for green industry professionals. A Federal Imported Fire Ant Quarantine (FIFAQ) is in effect in infested areas, and currently covers the southern half of Tennessee. In the Eastern region, the quarantine extends north through Anderson, Knox, Sevier, and most recently, Jefferson, counties. Border counties (Scott, Campbell, Union, Grainger, Hamblen, and Cocke) should be *especially careful* in moving and receiving potentially infested items, such as nursery stock, potting substrate, sod, soil, soil-moving



equipment, landscape tools, hay, mulch, etc. Once fire ants are established, they are very *difficult* to get rid of. Growers and landscapers within the quarantine (parts of Cumberland and Morgan, Anderson, Knox, Sevier, Loudon, Blount, Roane, Bledsoe, Rhea, Meigs, McMinn, Monroe, Hamilton, Bradley, and Polk) must have a TN Department of Agriculture (TDA)-issued certificate to move regulated items outside of the quarantined area. These items include any **soil, unpackaged potting substrate, plants with roots and soil attached, grass sod, hay/straw stored near soil, and used soil-moving equipment**.

Certificates are granted once the material is deemed free of fire ant infestation, which may require chemical treatment with FIFAQ-approved insecticides. There are four approved methods of treatment outlined in the USDA's *Imported Fire Ant: Quarantine Treatments for Nursery Stock, Grass Sod, and Related Materials* guide listed below. Specialists at the TSU nursery research center in McMinnville have also outlined nursery drench procedures in a very easy-to-follow guide, *Post-Harvest Drenching to Certify Containerized or Balled and Burlap Nursery Plants in the Federal Imported Fire Ant Quarantine*, which is listed below as well.

A concerted effort between all green industry professionals is needed to slow the spread of this invasive pest. If buying from within the quarantine, only use certified, treated plant material. If you see any fire ant infestations, the TDA would like to know for monitoring purposes. You can report findings to your Extension office or to the TDA at (615) 837 – 5137.

The TDA treats fire ants outside the quarantined area at no cost to the landowner. For landowners inside the quarantine, *Managing Imported Fire Ants in Urban Areas*, and *Fire Ant Management Options for Golf Courses* provide excellent management techniques, listed below.

Sources and Further Reading:

Tennessee Department of Agriculture Imported Fire Ants Website:
<http://www.tn.gov/agriculture/regulatory/importedfireants.shtml>

USDA guide: Imported Fire Ant: Quarantine Treatments for Nursery Stock, Grass Sod, and Related Materials. August 2013. <http://www.tnstate.edu/faculty/ablalock/documents/IFA%20nursery%20quarantine%20August%202013.pdf>

Oliver, Ochieng, Vail, Youssef, Halcomb, Haun, Powell, and Callcott. Post-Harvest Drenching to Certify Containerized or Balled and Burlap Nursery Plants in the Federal Imported Fire Ant Quarantine. February 2010. <http://www.tnstate.edu/faculty/ablalock/documents/Fire%20Ant%20Post%20Harvest%20Drench%20Treatments.pdf>.

Managing Imported Fire Ants in Urban Areas. LSU AgCenter. <https://www.lsuagcenter.com/NR/rdonlyres/5EB1B5BA-857A-4693-BF2C-D5817CBB6B38/3110/pub2817ManagingFireAnts4.pdf>

Fire Ant Management Options for Golf Courses. Texas A&M University. 2002. <http://fireant.tamu.edu/files/2013/02/FAPFS017.2002rev.pdf>

Tree Topping – Don't Do It!



While the cold, cloudy winter days can be hard to get through for many people, the winter season can be a beautiful time to witness the trees showing off their exquisite branches. Different tree species exhibit unique patterns, patterns known as fractals. Fractals show up in many places in nature, from ferns, nautilus shells, and yes – branching trees!

What is also painfully obvious during the winter season is the frequent habit of tree topping. Tree topping is the practice of cutting branches down to flat “stubs,” or removing large or whole portions of the tree or branches. The purpose of tree-topping for many is to control size or avoid obstacles, such as power lines. Others top trees because they want to reduce shade, or they believe it stimulates better tree growth, such as is often practiced with crapemyrtle.

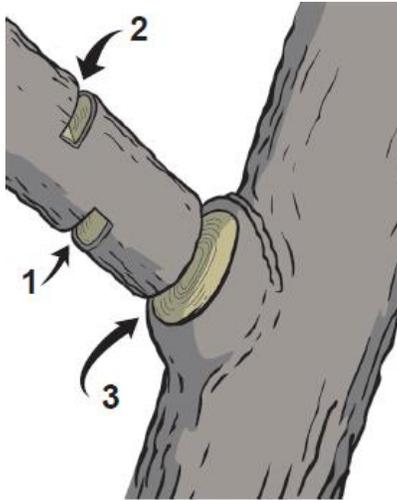
No matter what the reason or situation, however, tree topping is **never** a good practice. Every cut made to a tree is a wound that the tree must use energy to close off and protect from pathogens. Several large cuts not only greatly increase exposure of the tree's inner tissues to insect and disease, but also cause the production of chemical stress signals that actually attract damage-causing insects. With such large portions of the tree's energy-producing foliage removed, the capacity to fight disease, close wounds, and overwinter in future years is greatly reduced. Some wounds never heal, and cause the remainder of the branch to die and decay, posing danger to the people and structures in its vicinity.

The survival response of rapidly producing new shoots and leaves leads to production of flimsy branches that are only weakly attached to the parent branch. Some think they are getting a “flush” of beautiful new foliage; however, they are really getting an unsightly crop of weak shoots that are now more prone to breakage, causing a dangerous situation especially during windy or inclement weather. This



These limbs will die and become a hazard.

practice also creates the need for continual maintenance of these new shoots, which will rapidly grow and compete for apical dominance.



Always reduce the weight of a branch before completely removing it, so as to decrease the chance of stripping the protective bark. Make the first pruning cut (1) on the underside of the branch, several inches out from the parent branch. Make the second cut beyond the first, on the top side of the branch (2). This should cause removal of the limb beyond that point. Lastly, remove the remaining stub by trimming just beyond the branch collar (3).

Picture: *Pruning Mature Trees*-treesaregood.org

Instead, practice healthy pruning techniques that preserve the tree's natural form. Never remove more than 25% (less for a mature tree) of a tree's branches, and consult a certified arborist for larger removal needs or utility interference. Always cut branches back to the parent, lateral branch – do not leave stubs! Make sure that cuts are always made back to **stronger**, parent limbs, and cut as flush with the parent branch as possible *without cutting off the branch collar*. The branch collar is

the bulge of thickened bark tissue around the base of the branch. Keep in mind that if significant portions of a tree must be removed due to safety reasons or because of utility obstacles, the better choice may be to remove the entire tree using professional services.

Sources and Further Reading:

Chalker-Scott, Linda. The Myth of Tree Topping. Washington State Cooperative Extension.

http://puyallup.wsu.edu/~linda%20chalker-scott/horticultural%20myths_files/Myths/Tree%20topping.pdf

French, Susan C. A Guide to Successful Pruning: Stop Topping Trees! 2009. Virginia Cooperative Extension Service.

<http://pubs.ext.vt.edu/430/430-458/430-458.html>

Powell, M.A. Pruning Trees and Shrubs. 1983. North Carolina Cooperative Extension Service.

Pruning Mature Trees. 2011. International Society of Arboriculture.

http://www.treesaregood.com/treecare/resources/Pruning_MatureTrees.pdf

Why Topping Hurts. 2011. International Society of Arboriculture.

<http://www.treesaregood.com/treecare/resources/WhyToppingHurts.pdf>



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