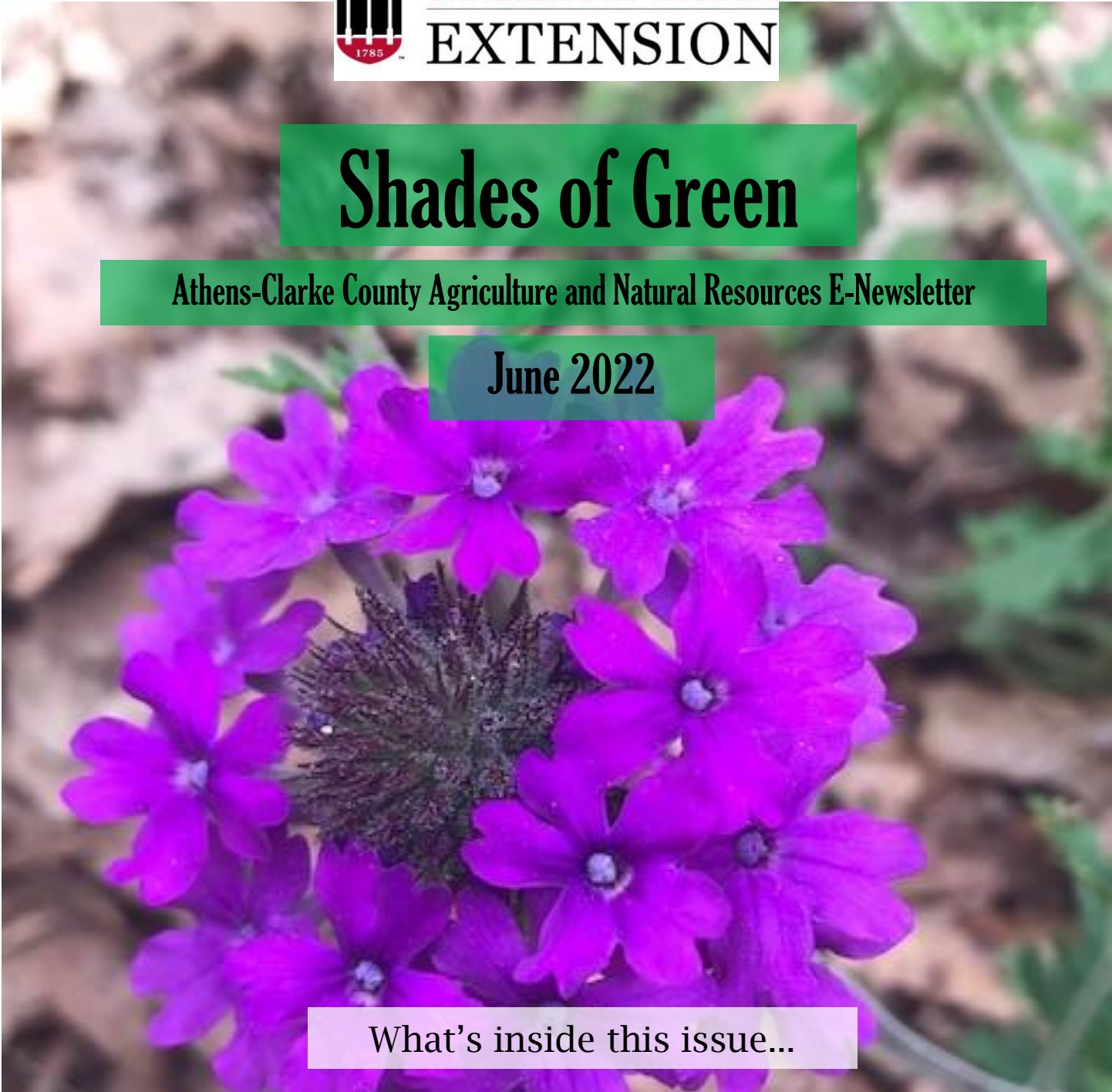




Shades of Green

Athens-Clarke County Agriculture and Natural Resources E-Newsletter

June 2022



What's inside this issue...

<u>A Note From Athens-Clarke County Agriculture and Natural Resources</u>	Pg. 2	<u>Lightning Bugs are Aglow!</u> <u>Protecting Firefly Habitat this Season</u>	Pg. 7
<u>Conserving Pollinators in Urban Landscapes</u>	Pg. 3		<u>Online Green Thumb Lecture</u>
<u>Master Gardener Project Highlight</u> <u>HMS Experiential Learning Garden:</u> <u>Growing Collaborative Communities</u>	Pg. 5	<u>Stay in the Loop!</u>	Pg. 10
		<u>Helpful Resources</u>	Pg. 14

A note from Athens-Clarke County Agriculture & Natural Resources

Hello and happy June! Hoping this month's issue finds you looking forward to a lovely summer season ahead. We have a few timely articles and information on events coming up in June in this month's newsletter.

The [local farmers markets](#) are in full swing as well.

This month we are also including a [Master Gardener Project Highlight](#).

We are looking forward to another one of our monthly [Green Thumb Lectures](#).

This month, Gardening for Small Spaces is the topic.

We will learn about containers, raised beds, and more.

Athens-Clarke County Agriculture and Natural Resources



Conserving Pollinators in Urban Landscapes

By Becky Griffin, S. Kris Braman



Plant selection and landscape maintenance play a critical role in pollinator populations, particularly as land use shifts to urban landscapes. Rooftop gardens, like this one on the UGA Geology Building, can provide needed resources for insects.

Urban landscapes have become a focus in pollinator conservation. Urban plant selection and landscape maintenance play a critical role in pollinator populations and the preservation of essential ecosystem services.

At the same time, land use is shifting, from forested and agricultural settings to more urban constructs with pavement, commercial buildings and developed housing. Land designated as urban areas in the U.S. increased by approximately 7.9 million acres (3.2 million hectares) from 1900 to 2000.

To explore this critical area of conservation research, last month we published a review article in the open-access Journal of Integrated Pest Management titled “[Opportunities for and Impediments to Pollinator Conservation in Urban Settings](#),” which pulls together case studies done in urban landscapes and points to opportunities for future study and action.

Habitat planning

Effective conservation decisions and planning require careful assessment of the consequences of land-use change and the effects of local and landscape-scale factors on bees, butterflies, flies and other pollinators. Understanding and not underestimating the needs of the various pollinator

functional guilds to inform conservation strategies is critical to success.

When choosing plants for a new housing subdivision, which ones provide the best resources for insects? How can other provisions, such as nesting sites, be ensured within an office building development? How critical is the choice of pavement material? These questions should be addressed as urban spaces are created and as older urban areas are revitalized. Research provides us with some answers and gives us some direction.

Diverse pollinator communities can be enhanced and conserved in urban areas through local and landscape-scale efforts. Plant selection with an overall intentional landscape design has the potential to increase the population of beneficial insects.

For example, research done on milkweed (*Asclepias* spp.) and monarch butterfly (*Danaus plexippus*) habitat gives us [guidance on habitat planning for these insects](#).

In all insect habitats, the use of integrated pest and pollinator management (IPPM) practices should be commonplace, and, for homeowners, a habitat assessment guide can be a valuable tool.

[\(Continued on page 4\)](#)

Conserving Pollinators in Urban Landscapes cont.



Rachel Tellano counts pollinators during the inaugural Great Georgia Pollinator Census. The census is an annual citizen-science project that relies on observations collected by the public. Researchers who take advantage of citizen science are able to leverage scientific data collected by the public across a wider geographic scale, an undertaking that would normally be logistically difficult and expensive.

Education and communication are also key elements needed to engage policy makers to move conservation forward at the accelerated pace required to address current challenges (e.g., rapid urbanization) and impending ones (e.g., climate change, invasive species). The public perception of insects and insect habitat is a consideration here.

One case study showed that **overcoming negative attitudes about insects is possible** when the public is provided with information about an insect's value and services. Promotional efforts and workshops educating stakeholders on the importance of insect ecosystems can yield policy changes favorable to pollination conservation. Protection of urban pollinators and the ecosystem services that they provide requires that we move from reactive to proactive activities that tie together regional efforts.

Meanwhile, citizen-science initiatives can be effective ways to communicate essential information, garner public support, and acquire valuable data concerning pollinators in a cost-effective manner. For example, the **Great Georgia Pollinator Census** provides resources to educators, giving them the tools to educate students about pollinators while empowering all citizen-scientists to become pollinator advocates in their communities.

Improving our knowledge of bee life history, **phenology** and nesting sites is essential. Understanding the role and lifecycles of lesser-

known pollinators like flies and wasps is vital, while there is a critical need to expand our available taxonomic expertise.

For example, syrphid flies (*Syrphidae* spp.) provide **both pollination and biological pest control**, yet there are significant gaps in our understanding of this dual role. With the economic value in the U.S. of ecological services, including pollination by "wild" insects, estimated to be at least \$57 billion, understanding these insects is imperative.

Our review of these recent case studies gave us the chance to pull together research, resources and ideas that can provide some next steps in pollinator conservation as well as research opportunities. These studies include integrated elements of pest and pollinator management through plant selection, landscape and recreational area design, and community engagement with the goal of pollinator conservation. We also included decision-making resources that can be useful for planning.

Becky Griffin is a community and school garden coordinator with the University of Georgia Extension. Kris Braman is an entomology professor with the University of Georgia College of Agricultural and Environmental Sciences and director of the UGA Center for Urban Agriculture.

Master Gardener Project Highlight

HMS experiential learning garden: Growing collaborative communities

Rita Mathew, Project Chairperson, 21st Century Experiential Learning Garden

60% of those surveyed by Pew Research Centre say that “public K-12 education system has a lot of responsibility” in education and workforce preparation. Surprisingly, the same survey indicates 72% of adults consider “individuals themselves” are more responsible for learning (Bialik, 2017). Hilsman Middle School experiential learning garden was inspired by the book, “There is a season: An intentional approach to sustenance” (Keifer & Mathew, 2020), as a resource for students to learn about sustainable development. University of Georgia-Athens Clarke County (UGA-ACC) master gardeners, adult volunteers, and an energized team of boy scouts from Troop 149 led the transformative, self-directed, process of community collaboration to design and build a vegetable and herb garden at Hilsman Middle School (HMS) in Athens, GA.

The purpose of the project was to provide an opportunity for experiential learning in the areas of gardening, sustainable development, water conservation, composting, and leadership by increasing student’s awareness and understanding of the value of horticulture and landscaping; using horticulture as a tool to increase responsibility and leadership for student; and teaching individuals and professionals (i.e., teachers and therapists) how to use horticulture to reach students. It was anticipated that students would learn concepts of health benefits of gardening including, for example, nutrition, and value of seasonal nature of growing; other key areas were reading, science, and math, to name a few.

Grounding the project

Kanwar et al. (2019) share results of a study conducted in India on sustainable development, in which farmers learned complex tasks and successfully solved problems when they worked together. Similarly, a work day was planned on April 7th and 9th to install six 8’x4’ raised beds, and four 4’x4’ raised beds. Members from ten groups participated either in person or by contributing resources. They included AAMGA, UGA-ACC Extension, Oconee Plant-A-Row, Clarke Middle School Plant-A-Row, ACC Green Program, ACC landfill, Boy Scout Troop 149, UGA Office of Service Learning, RTA Consulting, Hilsman Middle School. Man-hours were at least 146 hours. Materials contributed were wheel barrows, drip system tubing and valves, screws, stakes, compost, topsoil, mulch, seeds, and starter plants. Dr. Gary Wade, Mr. John Aitken and Mr. Dave Giordano provided expert knowledge, detailed diagrams for the drip system, as well as a timer for conserving water during summer.

Experiential Learning

Akshat Biswal used this opportunity to plan and provide community service as part of his Life Scout rank requirements. Akshat’s report gives insight into the process of learning:

“We were able to accomplish these goals even with the rain we experienced on the first day and a limited number of people because of spring break. The rain was a nuisance but was worked around through building the beds in the green house. Having a limited number meant that each person needed to work twice as hard for the goals to be accomplished in time. This hard work was rewarded with Hilsman middle school having garden beds being built and allowing master garden volunteers to achieve hours in a worthwhile project. In the end, though there were many challenges, we were able to overcome them and achieve our goals and even do extra work for the middle school.”

Pictures 1 – 11 show product development from lumber to finished raised bed, leadership, active listening, mentoring, and nurturing relationships. Not so obvious is learning other important topics - science, math, cooperation, curiosity about plants, conservation, composting and recycling.

Looking Ahead

I am grateful to Hilsman Middle School administration and teachers for inviting me to initiate and develop this partnership, an example of corporate social responsibility. Dr. Paul Matthews, Associate Director of Service Learning UGA, who serves as Scout Master for Troop 149, deserves special mention for being a friend to the community, and for his exemplary track record of growing collaborative partnerships in Athens-Clarke and surrounding counties. It is our hope that the findings will make a small contribution to lifelong learning (Long, 1990), action research theory, curriculum development, teacher support, resources for school administration, and communities taking a step towards sustainable development.



Master Gardener Project Highlight



1. Lumber for raised beds



2. Mr. Aitken contributing supplies



3. Scouts and adult building a raised bed.



4. Akshat with Eagle Scout, Carter.



5. Leveling a raised bed.



6. Volunteers preparing the ground.



7. Reinforcing raised bed with stakes.



8. Learning drip system mechanics.



9. Beds layered with compost and topsoil



10. Planting cucumbers, peppers, tomatoes and more...



11. Rita Mathew taking a break with students

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Long, D. (1990). *Learner managed learning: The key to lifelong learning and development*. Kogan Page.



Lightning Bugs are Aglow! Protect Firefly habitat this Season

By Becky Griffin, Jason Schmidt

The glowing light produced by adult fireflies, called bioluminescence, comes from light-producing lantern organs in their abdomen where the chemicals luciferase and luciferin work with other substances in the insect's body to light up without generating heat.

Georgia is home to more than 50 species of fireflies — or lightning bugs — more than any other U.S. state.

The dancing light patterns we enjoy in our gardens and landscapes are an important, and nostalgic, part of Georgia summer evenings. To protect these insects and ensure that we continue to enjoy them, it is important to understand their lifecycle and habitat needs. Fireflies are in the insect family Lampyridae and are not actually flies or bugs, but nocturnal beetles.

The glowing light produced by adult fireflies, called bioluminescence, comes from light-producing lantern organs in their abdomen where the chemicals luciferase and luciferin work with other substances in the insect's body to produce light without generating heat.

The light flashes can vary from yellow to green depending on the species. The most common species in Georgia is *Photinus pyralis*, or the common eastern firefly. Aside from having the lantern organs on the underside of the abdomen, *Photinus pyralis* have a pale border around each outer wing (elytra) and a shield plate that covers the top of the insect's head.

The flash patterns of fireflies are unique to each species and allow these insects to locate potential mates. In general, the males flash as they fly, while the females flash as they wait in tall grass or on other plants.

Watch for flash patterns of various species oc-

curing at a specific times of night and specific times of year. For example, *Photinus carolinus* is a species known for its synchronous flashing, blinking on and off in unison. These are found at dark in the summer in areas around the Great Smoky Mountains National Park.

Once a male finds a mate through tracking flash patterns, mated females generally deposit eggs on the ground under mulch, around log bark or in other moist forest debris. In approximately three weeks, the eggs hatch into insect larvae that are often luminescent — they glow.

The crawling, soft-bodied larvae feed on invertebrates such as slugs, grubs or earthworms before transitioning into a pupal stage, when they are in a case-like structure similar to a cocoon. The adult insects emerge in mid-summer to begin the lifecycle again.

Although some fireflies are predatory, the adults of most species feed on nectar and likely help with pollination in gardens. The tall flowers, grasses and shrubs of your pollinator garden can serve as a safe place for females waiting for males. These insects are in adult form for about two months, though the entire lifecycle can take one year.

Here is how to provide habitat for fireflies in your landscape:

Add flowering plants of varying heights. Include tall grasses as well as trees and shrubs in your landscape.

Turn off outdoor night lighting during mid-summer. Light pollution is thought to disrupt firefly mating and could be a major cause of firefly population decline.

Leave parts of your landscape undisturbed with leaf litter and plant debris as safe places for the insects to deposit eggs and for overwintering.

Fireflies are Aglow! Protect Firefly Habitat this Season cont.



Tall flowers, grasses and shrubs in your pollinator garden can serve as a safe place for female fireflies waiting for males. (Photo by Katie Walker)

Provide a clean water source on your property. This could be as simple as a birdbath lined with rocks or a plant pot bottom with filled pebbles and water. The insects need access to water without the possibility of drowning.

Limit pesticides on your property.

Understanding the lifecycle and habitat needs of fireflies can help increase the population of fireflies in your landscape, allowing you to enjoy them this and every summer.

To learn more about fireflies, check out "[Fireflies, Glow-worms and Lightning Bugs](#)" from University of Georgia Press.



Athens-Clarke County Extension

Virtual Green Thumb Lectures

2022 Free Monthly Gardening Class Series



June: Gardening for Small Spaces

- From containers to raised beds & more, we will learn the basics of small space gardening.
- Learn which plants, soils, and containers/beds are best for small space gardening.

Gardeners of all experience levels are welcome.

WHEN:

Wednesday, June 8th, 6:00-7:30 pm

WHERE:

ONLINE via Zoom.com

Specific link to join Zoom meeting will be sent to the email you register with.

TO REGISTER:

Registration is required.

Please register by June 7th by visiting

www.accgov.com/gardening



For questions:

Contact

Laura Ney, Extension Agent at
706-613-3640 & lney@uga.edu
Or contact ANR Educator Cari, at
cmisseri@uga.edu



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EXTENSION

Photos top & bottom by Kristi Sego

Stay in the loop! (local or online activities and events)

Saturday, June 11th 9AM-1PM

Trial Garden Public Open House

Our annual event is a chance to see all the latest ornamental annuals and perennials in bloom! We will be offer tours and answer questions about the gardens. There will be a selection of Classic Caladiums and other surprises for sale, and an optional suggested donation of 5\$ to support our student employees and garden operations and learning materials. Come out and play in the garden with us!

West Broad Farmers Market Celebrates

Juneteenth is the oldest national celebration of the emancipation of enslaved people in the United States. The West Broad Market & Garden worked with the community to create one of Athens' first celebrations of Juneteenth starting in 2012. Since then, awareness of the significance of Juneteenth and of Jubilee Day has grown throughout Athens, resulting in a number of important community celebrations that create opportunities for Athenians to come together. This has been an important tenet of the work of the West Broad Market & Garden to bring people together to support positive growth for our community - through health, wellness, economic opportunity, and civic engagement. The West Broad Farmers Market's Juneteenth Celebration is a day of reflection, but also a day to celebrate African American freedom, achievement, and culture!

In collaboration with Athens-Clarke County and other community partners, our celebration this year will be a part of ACC's 19 Days of Juneteenth. **We invite everyone to join us on Saturday, June 18th from 11 AM to 2 PM at Rocksprings Park & Community Center** for an exciting lineup of cultural activities, live music, an interactive kids zone, and performances at the 2022 Juneteenth Celebration! Stay tuned for more details on this community event.

[West Broad Farmers Market — Locally-Grown.net](https://www.westbroadfarmersmarket.com)

Join the

Athens Area Sustainable Growers Network for our

Summer 2022 Field Day focused on food safety and marketing.

About this event

Participants will meet local food buyers and learn harvest and food safety techniques from an industry expert. Dinner to follow.

Date and time

**Sat, June 25, 2022
3:00 PM – 7:15 PM EDT**

Location

J. Phil Campbell Sr. Research and Education Center
1420 Experiment Station Road
Watkinsville, GA 30677

The State Botanical Garden of Georgia is open for the public, but make sure to check out [their website](#) for updates and hours. Contact the State Botanical Garden of Georgia by emailing garden@uga.edu or calling 706-542-1244.

- [Discover education activities for home.](#)
- Check out their [event calendar](#) for more offerings.

UGA Extension offices around the state are working hard at developing quality online presentations on various topics.

Visit the UGA Extension [event calendar](#) to see events happening local to our county as well as virtual opportunities.

Local Farmers Markets



The **Athens Farmers Market** is taking place on Saturdays from 8am-12pm at Bishop Park. Make sure to visit [their website](#) for updates and details.

Find them on Facebook: [@AthensFarmers-Market](#)

Follow them on Instagram: [@athensfarmersmarket](#)



West Broad Farmers Market

Online ordering with pick-up and delivery options are available on Saturdays.

Visit [their website](#) to find out how to order online.

Find them on Facebook: [@WestBroadMarketGarden](#)

MARIGOLD



MARKET

The **Winterville Farmers Market** is taking place on Saturdays from 10am-2pm at Pittard Park. Visit [their website](#) for more information.

Find out more on Facebook: [@marigoldmarketwinterville](#)

Instagram: [@marigoldmarketwinterville](#)

Join Athens-Clarke County 4-H!



Students in 5th - 12th grades in Athens-Clarke County can sign up for 4-H now. The mission of Georgia 4-H is to assist youth in acquiring knowledge, developing life skills, and forming attitudes that will enable them to become self-directing, productive and contributing members of society. 4-H meetings will look different this year and are online. There is no charge to be a member or participate in a competition.

To start your 4-H Adventure e-mail the ACC 4-H Agent, Elizabeth Conway, at ebarber@uga.edu today!



Virtual 4-H Programs can be viewed on the ACC 4-H website:

<https://tinyurl.com/acc4hvirtual>

The University of Georgia is committed to the principals of equal opportunity and affirmative action.






Concerned about the state of your garden?

Are weeds taking over your landscape?

No need to fear, Clarke is here!

Follow @gardenwithclarke on Instagram  and learn how to battle pests, identify weeds, build your soil and so much more as you garden alongside Clarke, Athens-Clarke County's super gardener!



gardenwithclarke
UGA Extension Athens-Clarke County





Helpful resources online:

[Find My Local Extension Office](#)

[Bugwood— Pest Images](#)

[Landscape Alerts Online](#)

[Pest Management Handbook](#)

[Georgia Turf](#)

[Free Online Webinars](#)

[Pesticide Applicator Info](#)

[Georgia Certified Plant Professional](#)

[SE Ornamental Horticulture Production & IPM Blog](#)

[UGA Center for Urban Agriculture](#)

[Extension Publications](#)

Athens-Clarke County Extension Agriculture and Natural Resources

Mission Statement

The UGA Athens-Clarke County Extension's mission is to respond to the people's needs and interest in Agriculture, the Environment, Families, and 4-H/youth in Athens-Clarke County with unbiased, research-based education and information.

Visit us online:



Contact us:

275 Cleveland Road
Bogart, GA 30622
Phone: (706) 613-3640
Email: lney@uga.edu
Or cmisseri@uga.edu

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