



UNIVERSITY OF GEORGIA

EXTENSION

Shades of Green

Athens-Clarke County Agriculture and Natural Resources E-Newsletter

November 2022

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A note from Athens-Clarke County Agriculture & Natural Resources

Hello Readers & Happy Fall!

We will be hosting our [Green Thumb Lecture](#) on *Pruning*, on Wednesday, November 9th from 6 pm –7:30pm

We are excited to have three Masters Programs happening this Winter/ Spring! Please check out the flyers for the [Master Gardener 2023](#), [Master Naturalist 2023](#), & [Master Composter 2023](#) courses later in this issue for more information. Applications sent on request.

Email Laura Ney at lney@uga.edu
or Cari at cmisseri@uga.edu to request.

Thank you for reading this month's issue of *Shades of Green*. This will be our last issue for 2022. Looking forward to 2023!

Athens-Clarke county Agriculture & Natural Resources



Project examines how Trees' Cells work during Winter Dormancy by [Kristen Morales](#)



Trees in the summer get all the attention. Leafy green trees are symbols of growth and prosperity. Their leaves bring valuable shade, and as they change color people make extra effort to see the show. Once they drop, it's easy to assume that the plants are “asleep” until springtime arrives.

But there is a lot going on under the bark, says a University of Georgia researcher, even during winter dormancy. Now, a new federally funded project will take a closer look at how tree cells—especially the wood-forming cells known as xylem—function during colder months and lay the groundwork for greater understanding of tree genetics and productivity.

“We know trees go dormant in the winter, and we just forget about it. But genes are still there, doing their job—proteins and metabolism are still working,” said C.J. Tsai, the Winfred N. “Hank” Haynes Professor at the UGA Warnell School of Forestry and Natural Resources and an eminent scholar with the Georgia Research Alliance. She found only one paper, published 20 years ago, that looked at how tree xylem cells functioned in winter. “So we thought, this is an opportunity—it’s a knowledge gap.”

The three-year, \$2.7-million project is funded by the U.S. Department of Energy. The question of how trees function during

dormant months came up as Tsai’s research group observed greenhouse-based experiments over the years. Even under manufactured conditions, they realized trees would still grow slower during winter and have slightly different sugar profiles.

“We suspect the sugar profiles help protect the trees during the winter,” said Scott Harding, a senior research scientist at Warnell and team member who first noticed the differences in growth.

In Tsai’s lab, which focuses on tree genomics and biotechnology, the team has been characterizing a gene that controls distribution of sucrose produced from trees’ photosynthetic process (to power growth and development). Using poplar trees, the team grew a set of saplings without this gene alongside ones with it. The saplings were started in a greenhouse under controlled conditions, and all grew similarly.

Working with her graduate student Trevor Tuma, the team decided to conduct a small field trial. “It was really striking that we did not have a very obvious phenotype in the greenhouse, but after a few months outside, we saw a large difference,” she said. “By mid-November, all the trees with the mutation had dropped their leaves, and this past spring, their leaves didn’t come out until maybe April. So you can imagine if they drop their leaves

Project examines how Trees' Cells work during Winter Dormancy

by [Kristen Morales](#) (continued)

earlier and their leaves flush later, it may be because the trees' carbohydrate reserve is just not as plentiful because of the mutation."

The project's goal is to compare summer and winter gene profiles to identify which parts of a poplar trees' genome is used in the winter months. The team will then use CRISPR gene editing to mutate winter-biased genes in order to learn their functions. The pilot field study shows that it is possible to observe seasonal growth differences in trees within just a few months rather than waiting for years.

The project is also leveraging a long-term research program, the Center for Bioenergy Innovation, also funded by the U.S. Department of Energy, to test different types of poplar trees. Tsai is collaborating with Wellington Muchero and Priya Ranjan at the Oak Ridge National Laboratory in Tennessee, where they have

collected 1,000 poplar trees from across the country to grow in several common gardens in Washington and California to gain additional insights. The genes from these trees—and their reactions to the seasons—will help the researchers further understand the roles genes play in keeping trees protected during winter months.

This understanding on a molecular level can also help combat inconsistent weather patterns brought about by climate change. For example, a warm snap in early spring might cause trees to bud prematurely. If a gene or pathway could be altered to delay that bud or to confer protection, it could help with survival even when there are inconsistent weather patterns.

"It's really a gold mine for us to find out what other genes are 'awake' during winter and what their functions are," said Tsai.

Test for Radon this November and Help a Neighbor

By Cal Powell

With many Georgians spending more time at home, it's important to monitor your home's indoor air quality.

Radon is the leading cause of lung cancer in non-smokers and the second-leading cause of lung cancer overall.

Radon levels are highest in the cooler months and can concentrate to dangerous levels indoors. This year, more than 800 Georgia residents will die of radon-related lung cancer. These deaths are preventable.

"The best thing you can do is test your home," says Pamela Turner, a University of Georgia professor and UGA Cooperative Extension specialist. "Radon is an invisible, odorless and tasteless gas, so testing is the only way to know if the radon gas level in your home is high."

Testing your home for radon is easy and inexpensive with a kit from UGA Extension.

Each kit purchased from UGA Extension at www.UGAradon.org in November will come with a voucher for a free kit that can be shared with another Georgia resident.

Non-Georgia residents should visit www.EPA.gov/radon to find their local state radon program contact information.

Cal Powell is the director of communications for the University of Georgia College of Family and Consumer Sciences.



Diverse Landscapes at the Heart of Bee Conservation

by Amanda Budd



A bee on a flower in the Trial Gardens at the University of Georgia. (UGA file photo)

A mix of buildings and forest increases the number of species of bees in a given area

New research from the University of Georgia revealed that mixed land use – such as developments interspersed with forest patches – improves bee diversity and is leading to new solutions for bee conservation.

The researchers hypothesized that development would negatively affect bee diversity, but the results of the study were surprising. They found that small amounts of development actually had a positive impact on the number of bee species present in a given area.

“One of our key findings, I think, was just how many bees there were.” —Kris Braman

The team from UGA’s [College of Agricultural and Environmental Sciences](#) included Amy Janvier, [Kris Braman](#), [Clayton Traylor](#) and [Miriam Edelkind-Vealey](#). The results of their work were published earlier this year in the [Journal of Insect Conservation](#).

For their study, researchers sampled bees on a variety of properties around Athens, Georgia, and classified the percentage of development, agricultural fields and forests in the surrounding landscape. This allowed the team to link landscape factors with the diversity of bees observed on each property.

The researchers found 111 species during their study. Braman, principal investigator and head of the [Department of Entomology](#) at CAES, said

she’s happy to see the immense bee diversity hosted by Athens.

“One of our key findings, I think, was just how many bees there were,” said Braman. “The number of species we found represents about 20% of the bee species that are known in Georgia. If you think about all the different habitats where you can find bees — in more natural or wild settings, orchards and all sorts of habitats — for us to get that many species was very gratifying.”



Photo by Peter Frey/UGA)

In addition to revealing how many bees were present, the results showed the importance of forest remnants, which are small pieces of forest left in otherwise developed areas. More species are likely to live in a landscape that has both

Diverse Landscapes at the Heart of Bee Conservation

by Amanda Budd

open, developed areas and forest remnants, than in just developed land or just forest. Braman explained this shows the enriching effect of more blended landscapes with multiple land-cover types. Having only forest cover limits bee diversity to forest-dwelling species. But forest patches in combination with other land-use types preserves forest-dwelling species and hosts other bee species that prefer open spaces. Braman said that some species — like the Morrison’s miner bee (*Andrena morrisonella*) — must prefer the more open habitats provided by developed areas.

Braman noted that the findings may be a helpful framework for future research to assist in bee conservation.

“I think this work serves as a groundwork for future discovery that can help us understand what we need to plant more of for bee conservation,” said Braman. “Entities like UGA’s [State Botanical Garden of Georgia](#) have plant-conservation initiatives and they’re very interested in what they can do for wildlife, including bees, so we can use this research to look at that more in the future.”

Braman said the primary author of the paper, Janvier, a second-year master’s student in the [Department of Entomology](#), passed away in 2020 during the data-collection phase of the study. Braman and the other authors chose to honor their colleague by publishing the completed study with Janvier listed as first author.

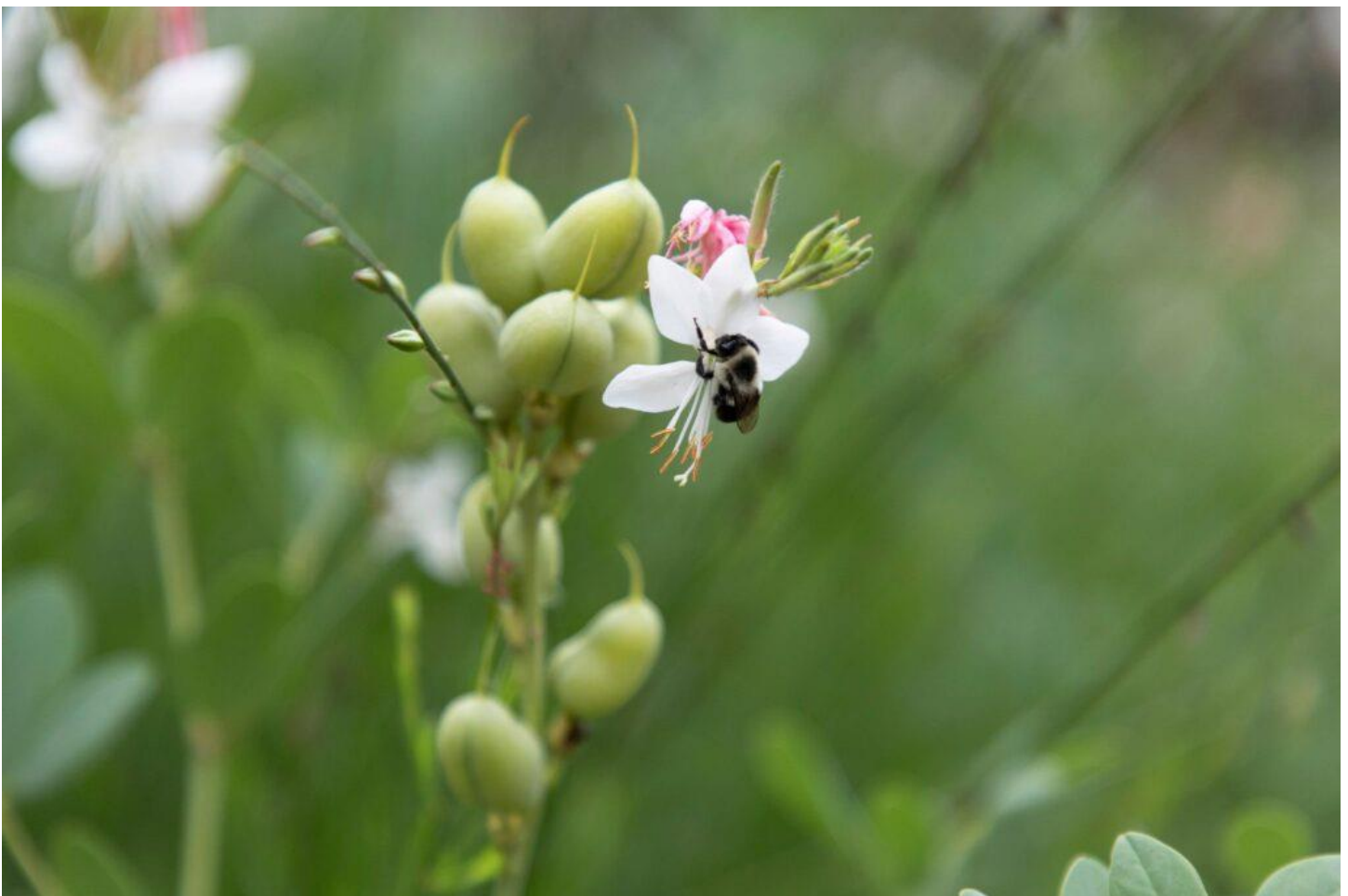


Photo by Andrew Davis Tucker/UGA

Lush Landscape Plants under 20 feet for Small Spaces

By Jordan Powers

Whether looking to create a natural screen between homes or hide an unsightly corner of a property, experts with [University of Georgia Cooperative Extension](#) say that well-chosen small trees and shrubs can help homeowners create a natural fence in the landscape.

Before heading to the nursery or garden center, [Sheri Dorn](#), Extension specialist in consumer ornamentals and [Georgia Master Gardener Extension Volunteer](#) coordinator, advises homeowners to first consider space.

“Do you have enough space for the tree — or any plant — that you have selected?” Dorn asks. “This is not just at planting time either. Homeowners need to think about how that plant is going to grow and fill the space available. Will it touch and rub the siding on a building or scratch windows? Will it overhang a street and be constantly hit and broken by delivery trucks? Will it block a critical view such that it causes a safety concern?”

Below-ground space also warrants consideration. If trees are planted in small spaces, including between sidewalks, next to foundations or near septic drain fields, there should be ample space for the root system, according to Dorn. Without enough space, tree roots can lift sidewalks and the trees can be at risk of blowing over during storms.

A publication from UGA Extension, [“Great Plants Under 20 Feet for Small Spaces,”](#) suggests planting trees and shrubs in the fall as root systems will continue to develop while the top of the plant shuts down during cooler temperatures. With this method, roots are better established by the time hotter summer temperatures roll around. Another issue in considering the amount of space a plant needs is how close they are placed to other new plantings or existing plants in the landscape.

“We are impatient to fill a space, to see a sizable plant in place,” Dorn said. “When we plant based on mature width and height, the initial planting feels thin. There's lots of space that provides opportunities for weed growth. The human instinct is to plant more. Don't do it!”

If homeowners do not heed this warning, the plants may be more prone to problems down the line, including increased insect or disease issues and a landscape that might feel overgrown within a few short years, Dorn added.

Here are four small trees and plants — all under 20 feet — recommended by UGA Extension for small spaces.



Loquat is a broad-leaved evergreen tree with lustrous dark-green foliage and blooms that are formed the summer prior to flowering.



The Japanese maple is a deciduous tree with a slow to medium growth rate and red or green foliage, depending on the variety.

Lush Landscape Plants under 20 feet for Small Spaces

By Jordan Powers



The greenish-white flowers of the weeping yaupon holly appear from mid- to late April, followed by red fruit.

Weeping yaupon holly (*Ilex vomitoria Pendula*) is hardy in zones 7 to 9. This broad-leaved evergreen has fine texture, a weeping form and a height of 15 to 20 feet with an 8- to 10-foot spread. The growth rate is medium to fast. Small, dense leaves are lustrous dark green. The greenish-white flowers appear from mid- to late April, followed by red fruit. Weeping Yaupon Holly does not have any serious problems. Occasionally, leaf miner can be a problem. Both male and female forms are available in the trade. This holly is adaptable to various soil conditions and grows well in Southern gardens. It can handle both wet and dry growing conditions. The best growth occurs in full sunlight, but this tree is tolerant of light shade.



The white fringe tree is deciduous with slightly fragrant white flowers that open in May, followed by dark blue egg-shaped fruit.

Japanese maple (*Acer palmatum*) is hardy in zones 5 to 8. It has a horizontal branching form and will reach 15 to 20 feet in height with a 10- to 15-foot spread. This is a deciduous tree with a slow to medium growth rate and red or green foliage, depending on the cultivar. Japanese maple has few disease and insect problems. There are many cultivars available, several of which can be expensive depending on the size purchased. The cultivars are propagated by grafting and, even though they are one of the most beautiful trees, the price of the grafted cultivars can be high. Japanese maples do best when planted in areas receiving filtered shade. Planted in full sun, they may suffer leaf scorch.

Loquat (*Eriobotrya japonica*) is hardy in **zones** 7 to 10. It has coarse texture and a rounded form. It will grow from 10 to 20 feet at full maturity, with a 10- to 15-foot spread. Loquat is a broad-leaved evergreen tree with lustrous dark green foliage and blooms that are formed the summer prior to flowering. Flowers, which open from November through January, are white and fragrant. Loquat has a medium to fast growth rate. The fruit is edible. Similar to pears, the fruit ripens from April to June. Fireblight is one of the few problems that affects Loquat.

White fringe tree (*Chionanthus virginicus*), also known as grancy greybeard, is hardy in zones 4 to 9. This tree will grow from 12 to 20 feet with a 10- to 15-foot spread. It has coarse texture with an irregular form. It is deciduous with beautiful, slightly fragrant white flowers that open in May, followed by dark blue egg-shaped fruit in September. The fruit is a food source for birds and is mostly hidden in the foliage. There are not many serious problems associated with this species. The White Fringe Tree is native to the Southeast.

For a full list of recommended plants and additional planting tips, read "[Great Plants Under 20 Feet for Small Spaces](#)" from [Bob Westerfield](#),

Lush Landscape Plants under 20 feet for Small Spaces

By Jordan Powers

UGA Extension consumer horticulturist, and Malgorzata Florkowska, a retired technician in the [Department of Horticulture](#) at the UGA [College of Agricultural and Environmental Sciences](#).

When making final selections, Dorn encourages homeowners to explore plants that are new to them, including options with new colors or tex-

tures for their landscapes and gardens.

“Look for ways to enhance diversity in gardens by planting a variety of plants rather than large groups of the same thing,” Dorn said. “We have so many wonderful landscape choices to enhance our landscapes, in turn adding value to our neighborhoods and communities.”



Jordan Powers is the Public Relations Coordinator and Writer for UGA's College of Agricultural and Environmental Sciences

Athens-Clarke County Extension

Virtual Green Thumb Lectures

2022 Free Monthly Gardening Class Series



November: Pruning

Please join us online for an informative presentation on topics including:

- Why you might need to prune
- Proper pruning techniques
- How to prune different plants



Gardeners of all experience levels are welcome.

WHEN:

Wednesday, November 9th, from 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 November 9 by visiting

www.accgov.com/gardening



For questions:

Contact Laura Ney, Extension Agent at 706-613-3640 or lney@uga.edu or Educator Cari at cmisseri@uga.edu

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

The Johnstone Lecture features a talk

by Cassandra Quave, author of *Plant Hunter*

Presented By: [the State Botanical Garden of Georgia](#)

Dates: November 9, 2022

Location: [State Botanical Garden of Georgia](#)

Time: 6:30 PM to 8:30 PM

Price: Free

AUTUMN SPLENDOR LAKESIDE LOOP HIKE

400 Bob Holman Rd., Athens, GA 30607

Presented By:

[Athens-Clarke County Leisure Services](#)

Dates: November 19, 2022

Location: [Sandy Creek Park \(Lakeside Trail-head East \(Campsite Dr.\)\)](#)

Time: 11:00 AM to 3:00 PM

Price: \$2.00 Res, \$3.00 Non-Res

Winter Wonderlights presented by the

[State Botanical Garden of Georgia](#)

Time: 5:30 PM to 9:00 PM

Price: \$15 per person, free for children under 3

Dates: 11/23/2022, 11/25/2022, 11/27/2022, 11/30/2022

PAINT BY NATURE Presented By: [Memorial](#)

[Park and Bear Hollow Zoo](#)

- Dates: 11/9/2022
- Location: Memorial Park & Bear Hollow Zoo
- Time: 6:00 PM to 7:30 PM
- Price: \$12 - \$18

LECTURE: JANISSE RAY: "THE ART OF A PLACE CALLED LONGLEAF"

90 Carlton Street, Performing and Visual Arts
Complex, University of Georgia, Athens, GA

(706) 542-1817

Presented By: [Georgia Museum of Art](#)

Dates: November 17, 2022

Location: [Georgia Museum of Art](#)

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.

The State Botanical Garden of Georgia has great local events occurring each month. Make sure to check out their [event calendar](#) or [discover education activities for home](#).

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: [@AthensFarmersMarket](#)

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](#)

The **Oconee Farmers Market** is

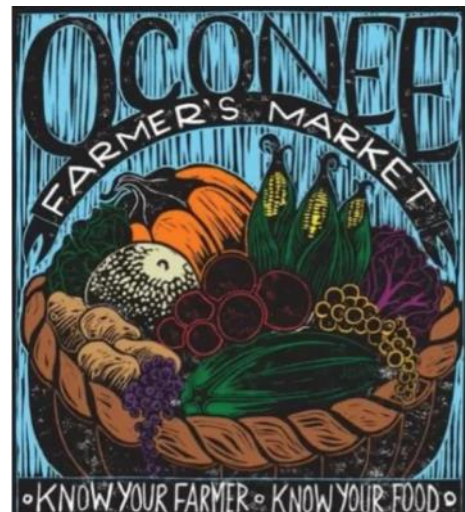
Open 9-Noon every Saturday

from April– October 15th.

Located in front of the

Watkinsville Courthouse

[Oconee Farmers Market - Farmers Market - Watkinsville, Georgia](#)



Master Gardener January 2023

Join UGA Extension
as a Master Gardener
Extension Volunteer
for Athens-Clarke County

[Printable Application](#)



Established in 1990, the Athens Area Master Gardener Program provides novice and seasoned gardeners with an intensive educational experience in horticulture principles, practices and pest management. Classes are taught by UGA faculty and other subject area experts.

Position Summary

Master Gardener Extension Volunteers

- Answer gardening questions at the ACC Extension office
- Staff informational booths at farmers markets and local events
- Conduct plant clinics, help with Plant a Row for the Hungry gardens
- Assist curators at the State Botanical Garden of Georgia
- Teach Junior Master Gardener programs at local schools and more

Job Responsibilities

- After completing the educational component of the program, participants perform 50 hours of volunteer service in their community before the end of the calendar year.
- Each year thereafter you must volunteer for 25 hours per year to maintain active status.
- 6 hours of Continuing Education per year

Questions? Contact

Extension Agent Laura Ney at lney@uga.edu
or Educator Cari Misseri at cmisseri@uga.edu



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Athens-Clarke County

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Master Naturalist April 2023

Join UGA Extension as a Master Naturalist for Athens-Clarke County



Are you a nature enthusiast? Take the Georgia Master Naturalist course! Developed in 2004 by UGA Extension and the Warnell School of Forestry and Natural Resources, the Georgia Master Naturalist Program is an adult environmental education course exploring the ecosystems and natural environments of the Athens area and our state.

Position Summary

Master Naturalist Program

- This program is a combination of lectures and hands-on field studies taught by UGA faculty and field experts.
- Classes are customized to local habitats such as granite outcroppings, ponds, mountains, forests and urban landscapes.

Course Topics may include

- *Geology*
- *Ecology Principles*
- *Environmental Awareness*
- *Native Plants*
- *Birding*
- *Wildlife Issues*
- *Entomology & Herpetology*
- *Local Agriculture*
- *Water Issues and Stream Monitoring*
- *Invasive Plants and Pests*

Questions? Contact
Extension Agent Laura Ney at
lney@uga.edu
or Educator Cari Misseri at
cmisseri@uga.edu



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Athens-Clarke County

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Master Composter January 2023

Join UGA Extension
as a Master Composter
Extension Volunteer
for Athens-Clarke County



If you enjoy working with people, digging in the dirt and are interested in teaching others about composting, then the Master Composter program is for you! You will become part of an elite group of volunteers that uses the information learned in this training program to teach others how to turn their organic material into a beneficial soil amendment.

Position Summary

Master Composter Extension Volunteers

- Teach or assist with compost workshops.
- Staff composting informational booths at various public education and outreach events.
- Give lectures and hands-on presentations on composting to various civic, community, and garden groups

Job Responsibilities

- ***Complete the training course and field trips.***
- ***Complete a class project***
- ***Volunteer a minimum of 40 hours back to the program in the first year.***
- ***Build compost bins***

Questions? Contact
Extension Agent Laura Ney at
lney@uga.edu
or Educator Cari Misseri at
cmisseri@uga.edu



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ATHENS AREA MASTER GARDENERS NOVEMBER 2022 MEETING

It was great to see new and old friends at the
October Green Up Ceremony!

For November we will be meeting at the
State Botanical Gardens in the Porcelain Museum,
at 6 p.m., on November 15th.

Please reach out to new master gardeners and ask them to join us. We will have a delicious pot lock.. Our program will consist of a review of the duties and obligations as master gardeners and the communities that we serve.

We will hopefully have a "surprise" tour at the end of the program.

The AAMGA Christmas gathering will be held at Oconee State Bank's meeting room in downtown Watkinsville, on December 13th, at 6pm.

****Note**** A week earlier than usual. This is a fun time to gather and fellowship. A white elephant gift exchange will be the highlight of the evening. Please be looking for a garden related gift under \$20 to share!

Mark your calendars now!

Looking forward to seeing you on November 15th!

Jean Ryan

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>

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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](#)

[Georgia Turf](#)

[Pest Management Handbook](#)

[Pesticide Applicator Info](#)

[Free Online Webinars](#)

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

[UGA Center for Urban Agriculture](#)

[Georgia Certified Plant Professional](#)

[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.

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

Visit us online:



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Email: cmisseri@uga.edu or
lney@uga.edu

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Cover Photo & Editing by Cari Misseri