

# Sustainable Agriculture

Looking forward for this generation  
and the next...

at **UGA**



## Summer 2016

Well the summer heat is here in full force, but it hasn't deterred us from doing some wonderful work and having some truly awesome conferences, tours and workshops. We had over 200 people brave the heat to come to JP Campbell Research and Education Field Day and Corn Boil and around 50 come to the Organic Twilight Tour. These were just two of the great events near Athens and there are many more around the state to educate farmers and the public.

But one of the best conferences I have attended in recent times was the Southern Region Cover Crop Conference in Goldsboro, NC. Southern SARE was the major sponsor behind this conference hosted by NCSU at the Center for Environmentally Friendly Farming Systems (CEFS). Georgia had over 30 people attending - county agents, specialists, farmers, researchers, educators, and seed companies. The conference embraced every aspect of cover cropping from forages to row crops and vegetables, and included everything from conventional to organic production. The conversations and sharing ideas between all these groups really generated excitement and a great way of problem solving.

Here are just a few tidbits I picked up. From a session on how cover crops affect soil biology that growing a cereal rye cover crop before sweet corn can increase disease in the sweet corn and it takes 90 to 100 days for mycorrhizal fungi (a fungus that lives symbiotically with most plants in their roots) to build back up after tillage,

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### Upcoming Events

- August 16, 18, 23, 25<sup>th</sup> - Small Farm Business Development Training - Albany, GA
- August 19<sup>th</sup> - AGAware Small Farm Business Training - Carrollton, GA
- August 23<sup>rd</sup> - Winter Grazing - Thomaston, GA
- September 8-9<sup>th</sup> - Composting Operation Workshop - Athens, GA
- September 20-22<sup>nd</sup> - National Small Farm Conference - Virginia Beach, VA
- September 24<sup>th</sup> - Small Farm Business Development Training - Decatur, GA
- October 27<sup>th</sup>-Dec. Small Ruminant Production Training - Sylvania, GA

Find more information on these events at  
[www.SustainAgGa.org](http://www.SustainAgGa.org)

Also find basic principles of sustainable agriculture, Extension bulletins, research publications as well as archived copies of this newsletter.

but the crop needs the help from the mycorrhizal fungi to water and nutrients early in its development. Or from a session on cover crops in forages that annual ryegrass in Florida is more productive when planted with crimson clover compared to balanza, ball or berseem clover. These are little bits of knowledge that start fitting together to make a farm a more productive and sustainable operation.



*These two cover crop examples of Cowpea and Sorghum-Sudangrass were seeded on June 15, 2016. The clear growing chamber allows you to see the depth of the substantial roots.*

The second day was dedicated to various demonstrations. Attendees looked at equipment, various cover crops, managing nitrogen, root growth of various cover crops, and the nitty gritty of cover crop management. The equipment ranged from roller/crimpers and planters used in large row crop operations to small tractors and walk-behind tractors for small farms. One participant indicated it really showed you needed equipment to manage cover crops, but there are options for farms of any scale.



*Flail mow vs roller crimper on three types of cover crops; Sorghum Sudangrass, Sunn Hemp, and Lablab.*



*Just a fraction of the folks that traveled from Georgia for the Cover Crop Convergence in North Carolina.*

Although you missed the conference, you don't have to miss out on all the information that was shared. Factsheets, presentations and other information will be available on the interwebs (as my children say) in the next few months. We will send out those links as they are developed.

Also, the overwhelming response to this conference (it was sold out about two weeks after registration opened) indicated the interest and need for this kind of communication and information in the South. With that in mind, we are working to form a Southern Cover Crop Council that would help consolidate information, identify research needs, communicate the latest results, and hopefully organize another conference in a year or so. Again, we will keep you posted.

Cover crops are a practice that nearly everyone can use to improve the sustainability of their farm. They reduce erosion, improve soil organic matter, help suppress weeds... I can go on. Although we are in the heat of summer, it's not too early to be planning for your winter cover crops. As always SARE's book "Managing Cover Crops Profitably" is a great reference to get you started and your county agent can help you decide what might be right for your farm. So don't put it off, start planning and buying seeds soon.

*Julia Gaskin  
Sustainable Agriculture Coordinator  
University of Georgia*

## Growers Corner

### *Grassfed Cattle Relies on Overseeding Cool Season Forages*

Fort Creek Farm is a grassfed cattle operation based in Hancock County, Georgia operated by Bob and Susan Woodall. Using a management intensive grazing system they manage 125 acres of mixed grass pasture (bermudagrass, bahiagrass, and tall fescue). They have a 20 head brood cow herd and a herd of 30 to 40 finishing animals at any given time.

The Woodalls strive to provide high quality grazing throughout the year. The mixed grass pastures typically provide grazing from late May into early November. In order to have late winter and spring grazing the Woodalls have relied on overseeding cool season annual forages (e.g. annual ryegrass, arrowleaf clover, crimson clover, hairy vetch, etc.) for a number of years. Until recently the establishment of these cool season forages has been conducted utilizing custom hired no-till planting drills and operators. That process has often been frustrating in terms of expense, logistics, and varying skill levels of the drill operator. The Woodalls have considered purchasing a no till drill for the operation, but the capital investment needed is cost prohibitive for a smaller operation. In response to these frustrations the Woodalls have recently undertaken broadcast establishment of these forages with some help from the cattle herd.

Bob has detailed his process for establishment as follows:

1. Conduct a soil test and be certain that soil pH and fertility levels are adequate for the crop being established.
2. The planting window is generally mid-September through October depending on weather conditions, and be certain to inoculate legume seed as needed or purchase pre-inoculated seed.
3. Utilizing a broadcast spin spreader (Photo 1) the seed mix is broadcast over the paddock prior to turning the herd in. The herd is then turned in to graze and “trample” in the seed. High stock density is achieved utilizing temporary electric fence and portable watering troughs (Photo 2).



1. Spin spreader.



2. Temporary electric fence and water troughs are moved

4. Following the grazing event a weighted drag harrow made from old chain link fence is pulled over the paddock just to ensure good seed to soil contact (Photo 3).
5. Begin grazing the cool season annuals at 6 to 8 inches of height or greater, typically in late February to early March (Photo 4).



3. Weighted drag harrow.



4. Grazing Hairy Vetch, Crimson Clover and Annual ryegrass Mix

The Woodalls have gotten good stands in each of the two years they have used this method, and have been pleased with the results (Photo 5). The mixture planted in September 2015 consisted of 15 lbs./acre of annual ryegrass, 12 lbs./acre crimson clover, and 8 lbs./acre of hairy vetch. In 2014 the seeding rates were 15 lbs./acre, 5 lbs./acre, and 6 lbs./acre respectively. Total yield of the cool season mixes has ranged from 6,000-8,000 lbs. of dry matter per acre grazed rotationally from late February through early June.

Bob estimates the broadcast seeding method saves him \$10 per acre plus gives him logistical flexibility related to establishment. He notes that the management intensive grazing system and good soil fertility are key to this establishment method and should be addressed before implementing it. But for Fort Creek Farm gaining better management control over the establishment process with less frustration has been worth it.



Bob Woodall  
Fort Creek Farm

Philip Brown  
USDA NRCs

## Research

### *Urban Agriculture in the Right-of-Way*

The collective impact of urban farms and gardens went unnoticed for decades. Today the UN & USDA report that these small productive spaces, united, nourish 15-20% of the global population<sup>1,2</sup>. Urban agriculture fills the nooks, crannies and “waste spaces” of cities throughout the globe; as well as important niches that the dominant food system and urban planning paradigm have not. Examples include: filling gaps in healthy food access; recycling municipal wastes to rebuild depleted urban soils; and mitigating storm water and heat island issues in urban centers. Today, international (WHO, UN), national (USDA, APA, APHA), as well as local governments and agencies (Baltimore, Atlanta, etc.) are allocating resources to help urban agriculture evolve from a marginal movement to a mainstream feature in the post-industrial city. In 2014, UGA recognized that the time was ripe to explore innovative approaches that could strategically weave agriculture back into the urban fabric and cultural practices of our cities. Thanks to NNF funds from the USDA, UGA’s Environmental Planning and Design and Crop and Soil Science programs were able to explore the potential of utilizing energy right-of-ways (ROWs) for urban agriculture. This is a recap of the findings.

**Energy right-of-ways (ROWs)** are a vast, and underutilized network of land in Athens-Clarke County (ACC). Similar ROW corridors exist in counties, states, and countries throughout the world. The primary use of the space is to provide energy for a growing population to perform many daily operations in our homes, schools, businesses etc. The research team asked if there was potential for stacking a second-land use, urban agriculture, on ACC’s 86.5 miles of energy right-of-ways (pipeline and transmission), as a means of bringing a marginal urban space to a higher use, while cultivating a more resilient food system and city.

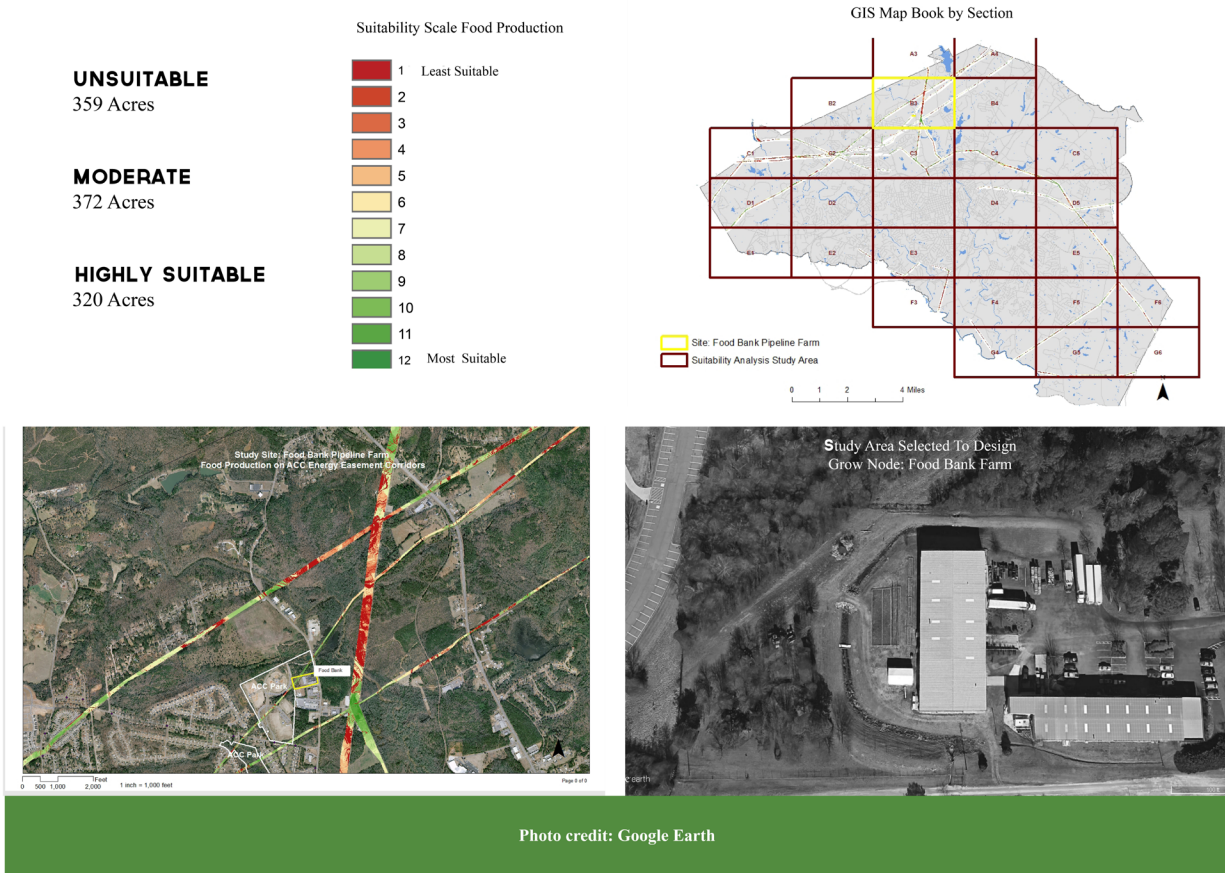
<sup>1</sup> Food and Agriculture Organization of the United Nations. 2005. “Farming in Urban Areas Can Boost Food Security: Green the Cities Through Agriculture - World Environment Day “. Food and Agriculture Organization of the United Nations  
<sup>2</sup> Natural Resource Conservation Service. 2013. Small Farmers & Urban Agriculturalist. edited by USDA: USDA

UGA learned that utility companies permit agriculture in the ROW. However, farmers must adhere to guidelines, so as not to compromise the primary use. For example, companies review plans for a deer fence to ensure that their employees can still access & maintain energy infrastructure. The fact that wells and

ROW farmer access to infrastructure. (Ex: well, high tunnel etc.) The food bank property was selected as a sample grow node study site.

Thanks to urban Ag policies adopted since 2014, some form of food production is possible on every land use zone that ACC ROWs cross. ACC

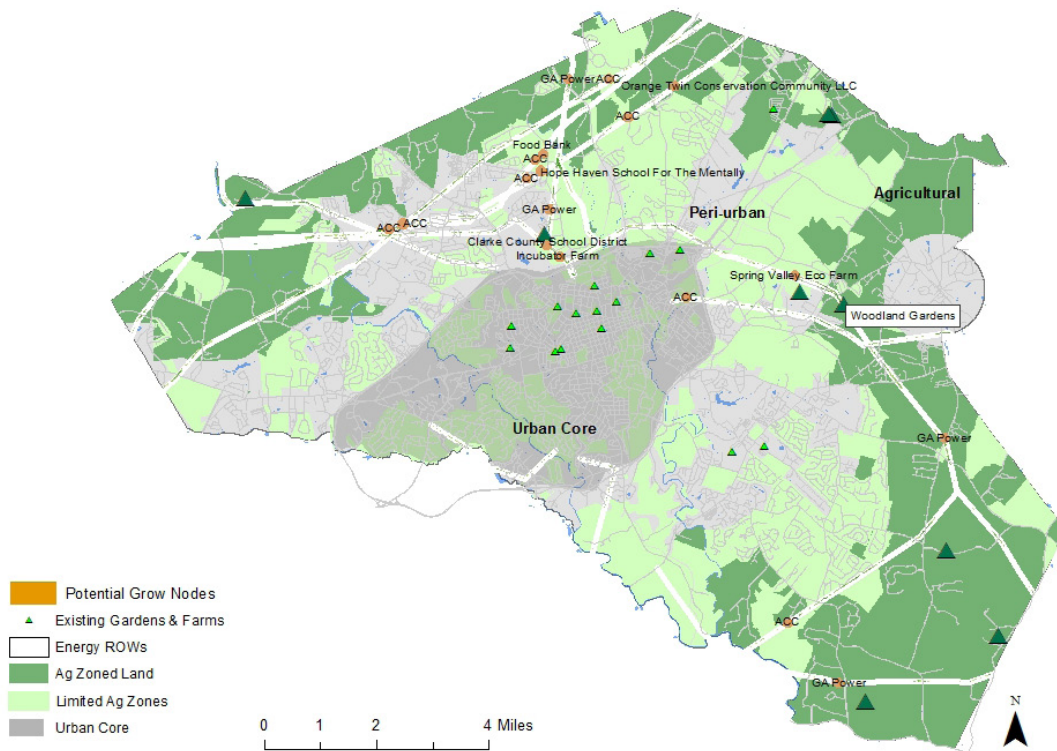
**SUITABILITY ANALYSIS: RESULTS ENVIRONMENTAL CRITERIA**



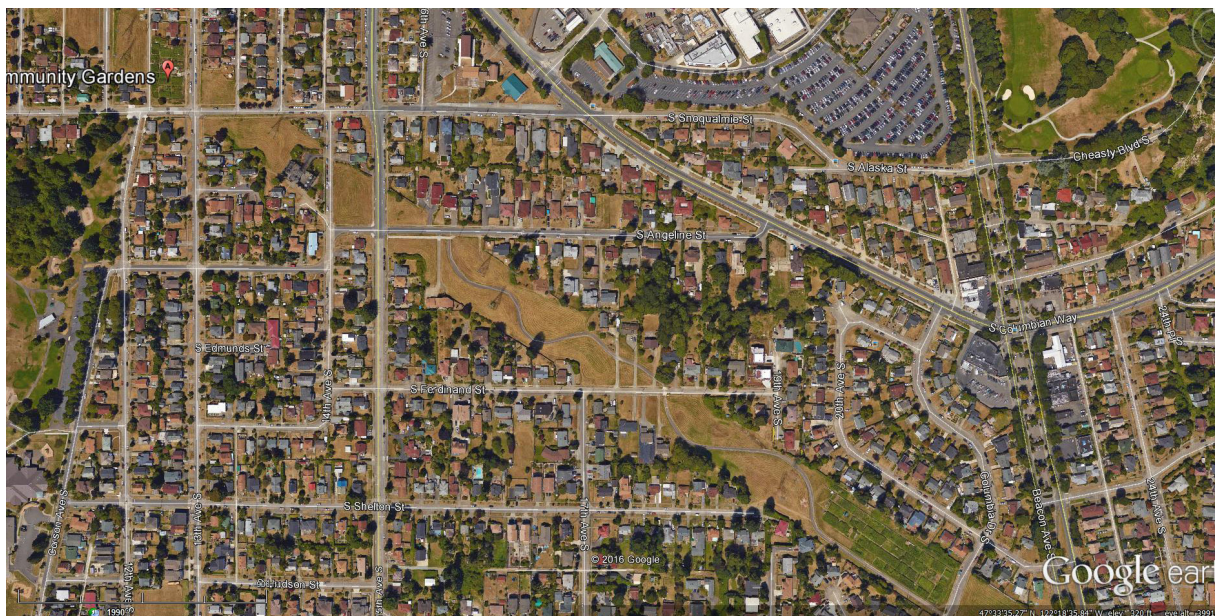
permanent structures are not permitted in the ROW creates the need to cultivate creative partnerships with land owners along the ROW to access some farm infrastructure. It also means that ROW farms & gardens are less likely to be developed as cities grow.

The team utilized GIS to analyze the suitability of ACC ROWs for food production. Of the 1052 acres in ACC ROWs, 692 acres were deemed moderately to highly suitable for farming. The team identified 18 grow nodes, or locations on the ROW with suitable land and a property owner partner that might allow a

ordinances permit gardens to commercial farms on 17 of the 18 proposed grow node sites. This allows a community to choose a form of ROW Ag that works for their neighborhood's unique needs. Four successful models for operating ROW farms used in other North American cities were identified including: 1) private property owners leasing space in the ROW to farmers; 2) utility companies leasing space in the ROW to farmers; 3) local governments, utility companies, and non-profits creating spaces & programs for ROW farmers and; 4) cities utilizing ROWs for Continuous Productive Urban Landscapes or series of ROW gardens linked by bike and pedestrian trails.



*Opportunities to Scale Up Urban Ag: Grow Node Sites in Grow Zones Land Suitable for Food Production on Energy ROWs + Suitable Property Owner Partner*



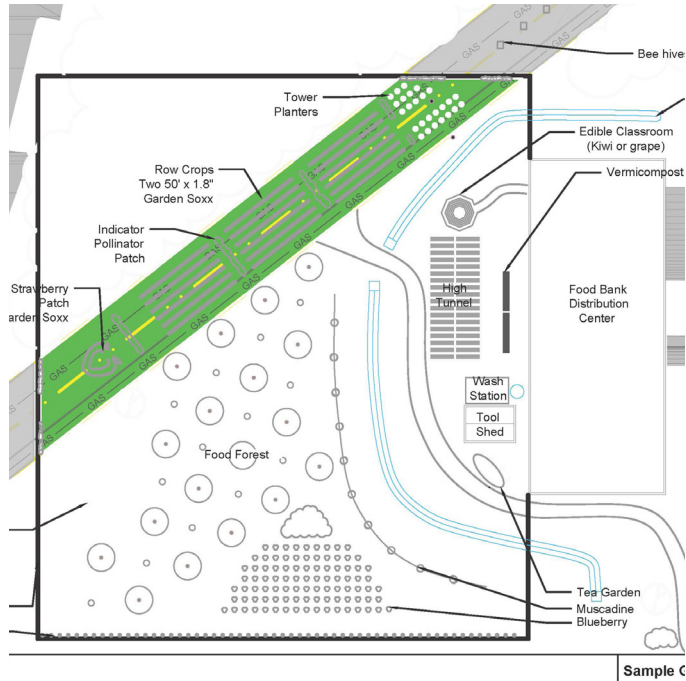
*Chief Sealth multi-use path on ROW in Seattle. Two P-patch gardens connected by trails. Source: google earth.*

The biggest concern encountered involved farming on transmission ROWs amidst Electromagnetic Fields (EMFs). The current conclusion of the World Health Organization, EPA, NIEH, CDC etc. is a weak correlation has been found between EMF and Childhood Leukemia. No evidence of other health issues been confirmed over the course of three decades of

research and 25,000 scientific studies<sup>3</sup>. As research continues, cities such as Los Angeles and Toronto have decided that the scientific conclusions about health risks associated with obesity out-weigh those of EMFs.

<sup>3</sup>World Health Organization. 2008. Assessment conclusions and suggestions of WHO's international EMF project

They developed best management practices to mitigate EMF exposure to children (prudent avoidance policies, mandatory EMF testing & management plans etc.) and have utilized ROWs to create linear parks, trails, community gardens and farm to cultivate healthier urban environments. The UGA team concluded that there is potential to use ACC energy



ROWs to grow healthy food and scale up urban agriculture. Additional research on EMFs effects on crops, and the potential health effects on a part-time ROW farmer are recommended. In the meantime, the team partnered with the Food Bank of Northeast Georgia to design a sample pipeline grow node. The first phase will be implemented this fall.

*Elizabeth Beak  
MS Environmental Planning and Design Candidate  
University of Georgia*

## Grower's Corner

### *Journeyman Farmer Program Gears Up for Second Year Excitement*

University of Georgia Cooperative Extension is set to offer a second year of the Journeyman Farmer training for beginning and young farmers this August.

This multi-session crash course in business planning, vegetable and fruit production, or goat and sheep husbandry provides those thinking about starting a farm and those who are new to farming with the solid foundation they need to build their business. Participants also have the opportunity for a Hands-on training to gain farm experience.

Farmers who complete the entire training will receive a Journeyman Farmer Certificate, signifying that they have completed coursework in business planning, production training and hands-on training.

“Many of the young people interested in farming don’t come from a farming background,” said Julia Gaskin, director of UGA’s Sustainable Agriculture Program. “We have been very interested in developing a comprehensive training program to help this group and those currently farming that want to improve their operations.”

This is the second year that the partnership has offered this training. The 2015 class provided training to 60 farmers from 11 counties.

“I found the course very helpful in starting up my farming business,” said Ellis Lamme, a Lawrenceville small farmer and president of the Upper Ocmulgee River Resource, Conservation, Development Council. “Take the time to better your farming business knowledge with this course. Your green thumb will get greener.”



*The hands-on small ruminant workshop was a hit! Valuable FAMACHA certification is offered as well.*

The partnership hopes to expand the number of farmers served this year by conducting the trainings throughout the state, including Screven Co, Carroll Co, Dougherty Co and in metro Atlanta. Registration for this low-cost training opportunity is open now, so check with your county agent in these areas. Participants need to register before the business training classes in August to be eligible for their Journey Farmer certificate.

The first step of the training program is small farm business planning. The UGA Small Business Development Center — a unit of the Office of Public Service and Outreach — and AgSouth Farm Credit will provide business planning and financing workshops to the farmers.

After completing the small farm business training, participants can enroll in the production training offered in their area, choosing Small Fruit and Vegetable Production or Small Ruminants Production. These production areas were chosen because there is demand for these crops and to help beginning farmers start farming on small parcels of land.

“Goat production is an ideal enterprise for beginning farmers because of (growing) demand for goat meat in the United States and because they do not require an intensive system,” Dr. Tom Terrill, part of the of

FVSU team led by Dr. Niki Whitley, said. “Goats can utilize brush, broadleaf weeds and grasses on marginal land and still be productive.” Dr. Whitley also heads up the Hands-on Training which will allow beginning farmers to gain experience on a working farm.

Georgia Organics is leading the Hands-on Training for farmers interested in small fruit and vegetable production that will offer internships and/or mentoring experiences.

The University of Georgia College of Agricultural and Environmental Sciences, UGA Small Business Development Center, Georgia Organics, the Georgia Fruit and Vegetable Growers Association, Fort Valley State University and AgSouth Farm Credit, along with other partners, are developing the training and mentorship program to help beginning farmers become sustainably successful farmers.

This Journeyman Farmer program is funded by a 2016 U.S. Department of Agriculture Beginning Farmer and Rancher Development Grant. For more information about Georgia’s Beginning Farmer and Rancher Development Program, see [www.SustainAgGA.org](http://www.SustainAgGA.org).

*Merritt Melancon  
Public Relations Coordinator  
University of Georgia*

Upcoming Event!



## Composting Operation Workshop

September 8-9<sup>th</sup>, 2016

This 2-day workshop covers topics such as:

- The Science of Composting
- Compost Siting and Design
- Composting System Types
- Basic Sampling Techniques
- Managing the Compost Process
- Municipal Composting Operations

**WHERE:** The Bioconversion Research & Education Center (BREC)  
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