

# Sustainable Agriculture

Looking forward for this generation  
and the next...

at **UGA**



## Summer 2019

It would be an understatement to say that it was a hot summer. Our farmers have been faced with their fair share of challenges over the past few years, and this year was certainly no cake-walk. In spite of some of the setbacks we've faced there are promising opportunities on the horizon for growers in the southeast. Many growers are waiting with anticipation to begin growing industrial hemp in 2020. While the Georgia Department of Agriculture has not yet begun accepting applications, growers and processors are beginning to collect what information they can regarding the new crop. The University of Georgia has been conducting variety trials throughout the summer on research stations across the state. Data should become available sometime this winter for growers planning for the 2020 growing season. As one of the state hemp researchers in Georgia, I expect to have more information over the next several years to help support our growers as they begin exploring this new agricultural crop.

Sincerely,

Tim Coolong  
State SARE Coordinator

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### Upcoming Events

**Lettuce Know, Lettuce Grow Workshops**  
Georgia Organics sponsored workshops at Woodland Gardens and Crystal Organics  
September 12 & 25, 2019

**Small Farms Tools Field Day**  
Demonstration Day at Kennesaw State University - September 25, 2019

**SE Regional F&V Conference**  
Southeast Regional Fruit and Vegetable Conference - Savannah, GA  
January 9 - 12, 2020

**Southern SAWG Conference**  
Southern Sustainable Agriculture Working Group (SSAWG) Conference - Little Rock, AR  
January 22 - 25, 2020

**Georgia Organics Conference**  
Georgia Organics Conference and Expo  
Athens, GA - February 7 - 8, 2020

# Grower's Corner

## Working Farms Fund

The Working Farms Fund is a new initiative of The Conservation Fund aimed at protecting farmland at risk of development, which will help create pathways for next generation farmers to access land and will help expand the food system in Georgia. The Conservation Fund is a national non-profit with a dual mission of land and water conservation and sustainable economic development. The Fund has protected over 8 million acres of land across the United States, with over 3 million acres of working lands, including working farms, working ranchlands and working timberlands.

The Working Farms Fund will purchase and protect at-risk farmland in the initial target 30-county region of Metro Atlanta. Through an innovative buy-lease-protect-sell finance model, the Working Farms Fund will match next generation farmers, including young, veteran, minority, and EQIP-eligible producers to farmland and secure conservation easements on those farms in order to permanently protect the land. Placing a conservation easement on a property means that it is no longer available for development, in perpetuity. Land values are typically lowered through this process, because the land is restricted, in this case, to farmland use only. The Working Farms Fund model of placing conservation easements on farmland will reduce the land value, allowing the next generation farmers to purchase the property at a farm value vs development value.

Through both the sale of the conservation easement and the sale of the underlying property to the farmer, the Fund will recover its entire investment and be able to revolve this capital from one farmland acquisition into the next, completing the buy-lease-protect-sell model.

Metro areas across the country face a great paradox: at the same time that demand for local, sustainably-produced food greatly outpaces supply, we are

rapidly losing farms to development. Aspiring farmers need additional support to succeed a retiring generation and establish viable farm businesses. There is significant investment being made to transform local food systems such that they are sustainable, connected, healthier, and socially just. But without protected and available farmland, these efforts will fail to achieve transformation at scale.



*Several farmers have already been selected to begin working with the Working Farms Fund. Farmers typically need to have already been operating successfully for at least five years and are ready to “scale up” their operation.*

The Conservation Fund hopes to eventually expand the Working Farms Fund model to metro areas around the country and has identified the larger metro Atlanta region as an ideal pilot location for this project, which was supported by a 2017 - 2018 NRCS Conservation Innovation Grant. In our target 30-county metro geography, there are over 50,000 acres of farmland at risk of conversion to

nonagricultural uses within the next five years. A small fraction of this land placed into working production would support new farm businesses, supply hundreds of jobs, and begin to build a robust pipeline of locally produced, healthy food.

In addition, Metro Atlanta has the right mix of markets, farmers, and partners necessary to lead a food systems transformation and become a model for other metro regions to emulate. An investment in farmland and farmers will catalyze this transformational movement, and The Conservation Fund is committed for the long-term with Working Farms Fund.

As Working Farms Fund launches, potential farmers and farmland are being sought for consideration to move this initiative forward and make the model a reality. The ideal farmer for this initiative is someone with previous farming experience and who is looking to scale up their production of local and sustainable food in the 30-county metro Atlanta region. Extension agents across the state can play an important role in helping farmers get connected with The Conservation Fund and can help strengthen and expand the Working Farms Fund potential by helping the next generation of farmers in our state access the land and support they need to grow our food. Stacy Funderburke is the lead contact for this initiative, and can be reached at [sfunderburke@conservationfund.org](mailto:sfunderburke@conservationfund.org).

*Stacy Funderburke & Orly Mansbach  
Working Farms Fund Initiative  
The Conservation Fund*

## Research

### *Proper Selection and Timing of Organic Fertilizer Applications*

Organic and sustainable vegetable farmers rely on cover crops, soil organic matter, composts, manures, and the addition of fertilizers to supply important plant nutrients. While the focus of these

systems is to build long-term fertility and soil health to feed plants, the seasonal application of commercial fertilizers is typically needed for good plant health and maximum yield. Organic fertilizers are composed of animal or plant byproducts like feather meal, blood meal, pasteurized poultry manure, and a wide variety of mixes. Similar to conventional fertilizers, fertilizer grades (N-P-K) are listed on organic fertilizer bags, but these organic products are very different from their inorganic fertilizer counterparts. As their name would suggest, nutrients in organic fertilizers are in their organic form, meaning they must be transformed by microorganisms in the soil before becoming plant available inorganic forms (Figure 1). This transformation, also known as mineralization, is especially important when it comes to plant available nitrogen. For organic fertilizers, how much and when the nitrogen listed on the bag will actually become plant available is dependent on the particular fertilizer and the conditions in the field at the time of application. With differences in rates and total mineralization in these products, matching nitrogen availability to plant demand in organic systems can be very difficult.

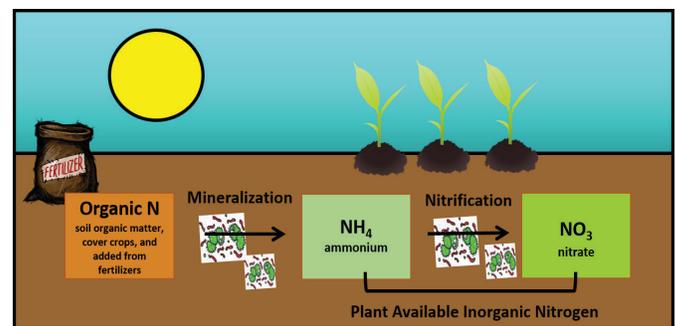


Figure 1. Schematic of the nitrogen mineralization process.

To better aid farmers using organic fertilizers, Dr. Miguel Cabrera, postdoctoral researcher Dr. Kate Cassity-Duffey, and collaborating researchers Julia Gaskin, Dr. Dory Franklin, and Dr. David Kissel from the UGA Crop and Soil Sciences Department have been measuring plant available nitrogen released from organic fertilizers thanks to a Southern Sustainable Agriculture Research and Education (SARE LS16-269) Grant under both laboratory and field conditions. From a laboratory study conducted

using 24 different fertilizers under “ideal conditions” (moist soil and warm temperatures that favor microorganisms), a wide range of nitrogen mineralization was determined.



Selection of 24 different organic fertilizers studied in the lab under “ideal conditions”.



Lab measurements of nitrogen mineralization were taken for each of the fertilizers in the study.

For the commercial fertilizers, plant available nitrogen released over 100 days ranged from 25 to 93% of the applied nitrogen (Figure 2). Nitrogen in blood meal and feather meal became rapidly available (over 80% of applied nitrogen) while products containing pasteurized poultry litter had a more moderate release (averaging 45% of the applied nitrogen). Products like bone meal (which is typically applied to meet phosphorus needs) and mustard meal had the lowest mineralization, releasing only 25% of applied nitrogen in the 100 day study.

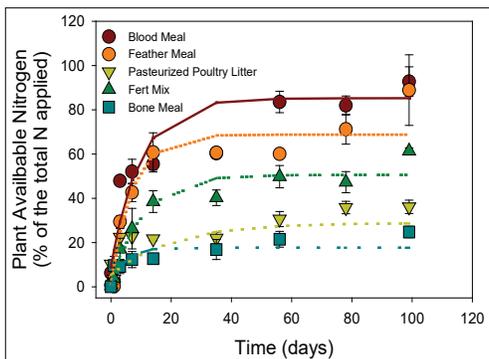


Figure 2. Plant available nitrogen release over 100 day period for various fertilizer sources.

Proper selection of organic fertilizers and the timing of application are important for optimizing plant health and yield while also decreasing the potential for environmental degradation. Seasonal soil tests give phosphorus and potassium recommendations, which will allow for the selection of materials with additional nutrients. If phosphorous and potassium levels are low, poultry litter products or mixes are the best option. If values are sufficient, selecting only N containing fertilizers, such as blood and feather meal, will prevent environmental degradation. After addressing other nutrients, farmers should base selection on nitrogen needs and release rates, where heavy feeders get the N supplied at time of optimal uptake. Side dressing or split application of these products may be beneficial dependent on the crop or the season. Please stay tuned for the release of our organic fertilizer calculator and new publications later this year.

Dr. Kate Cassity-Duffey  
Postdoctoral Researcher  
Crop and Soil Sciences Department  
University of Georgia

## Extension

*Georgia Agriculture Tour with the USDA Economic Research Service*

Agriculture is Georgia’s oldest and largest industry, contributing about \$73.3 billion annually to Georgia’s economy, which one in seven Georgians working in agriculture, forestry or related fields. Not only is it our largest industry, but Georgia agriculture is incredibly diverse, and runs the gamut from various production systems, to specific management strategies, right down to the unique and vastly different soil types that govern those systems and strategies. With partial funding from Southern SARE, the Sustainable Agriculture Program at UGA had the honor of collaborating with UGA faculty, Extension specialists, farmers, and county Extension agents from all over the state to host a week-long tour of Georgia agriculture this summer for a group from the USDA Economic Research Service.

The tour focused on the diversity of agriculture in our state. We visited seven farms, four UGA research stations, one farmers market, and one USDA research station. Each producer we visited had a different story to tell, but interestingly, regardless of their production system or management strategies, not one producer failed to mention the importance of soil health and conservation on their success and long-term sustainability



Farm manager Celia Barss of Woodland Gardens Organic Produce talks about the benefit of having movable high-tunnels as part of her system. The high tunnels are set on tracks and can be hooked up to a tractor and pulled back and forth throughout the year to expose the soil to the elements. She likes to plant cover crops in the exposed soil to not only give the soil a break from production, but to add nutrients and build soil organic matter over time.



Terry Chandler, owner/operator of Stillwater Farm, uses a rotational grazing management system in his cow/calf operation. He moves his cows from field to field using basic electric fencing that helps ensure the cows are receiving excellent nutrition each day. This system also helps maintain more evenly distributed fertilizer (manure) throughout the fields as the cows graze.



UGA faculty discussed the Living Mulch Project, which uses a cover crop, such as clover, that grows in between cash crops, such as corn pictured above. The clover is established first, then strips of clover are treated with an herbicide and corn is planted in those strips. As the corn grows the clover continuously fixes atmospheric nitrogen into the soil which the corn can use. The clover also provides a constant ground cover which helps stabilize the soil, by reducing erosion. This system is especially useful in the Piedmont, where soils are highly erodible.



Dr. Dennis Hancock holds a slip of a hybrid bermuda grass, pointing to the rhizomes and stolons which is how the grass spreads. This hybrid grass is excellent in grazing systems and helps keep a solid cover year round. The root system penetrates the hard clay soils, which creates space for air, water and other beneficial soil microbes.



Burke County Extension agent, Peyton Sapp, talked about the cover crop research being done at the Midville Research Station. Here he stands in a field of peanuts. The research contains treatment plots that have no cover crop alongside other plots that contain different types of cover crops and cover crop mixtures. Peyton believes it's important to demonstrate this sustainable production practice over several years in order for farmers to understand the multitude of benefits cover crops have in a row crop production system over time.



The Georgia Small Ruminant Research and Extension Center (GSRREC) is the largest facility of its kind east of the Mississippi River and is recognized as a national leader in goat research. Carlton Green took us on a tour of the small ruminant dairy, where we learned that contrary to previous beliefs, goat milk cheeses can be frozen, stored, and marketed later during the off-season which helps goat farmers maintain steady income streams throughout the year.



Ben Copeland, owner of Super Sod, talked about the varieties of sod that are being researched and grown with specific traits, such as drought, pest and disease resistance.



Terrell Hollis, the Meat Plant Manager, took us on a tour of the Meat Goat Tech Center. This small abattoir is open to the public for processing goats, sheep, cattle and swine for small-production farmers and individuals.



Super Sod also produces an OMRI listed compost made on-farm in large windrows, composed of excess grass clippings from their turf grass operation, excess manure from a local dairy, and wheat straw.

Since 1986, GSRREC scientists have studied reproductive performance, embryo transfer technology, forage utilization and nutritive efficiency, lactation physiology, and gastrointestinal parasitology in goats. The Research facility also offers demonstrations, seminars and workshops for small ruminant producers, county Extension agents and farmer advisors. They also offer training programs about food safety and Hazard Analysis and Critical Control Points (HACCP).



At Pearson Farms, we learned that growing peaches is incredibly time-sensitive work, because the time frame for harvesting all your ripe peaches, cleaning, packaging, and distributing them on time before they go bad is a very short window. Georgia is ranked third nationally in peach production - behind California and South Carolina, but still maintains momentum due to early harvests and high quality. Though the Georgia peach industry has slowly dwindled over the years, we can certainly still claim to grow the sweetest peaches of all!

These were only a few of the highlights from the Georgia agriculture tour, but the overarching take-away was that for all our challenges in the southeast climate, the diversity of agriculture in our state is undeniably impressive, and whether we realize it or not, we all have a vested interest in the success of agriculture in Georgia.

*Emily Cabrera  
Sustainable Agriculture Program Assistant  
University of Georgia*

## **Grower's Corner**

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*Georgia Organics Conference Returns to Athens, Georgia in 2020*

**G**eorgia Organics is a member supported, non-profit organization connecting organic food from Georgia farms to Georgia families. With the belief food should be community-based, not commodity-based. A sustainable local food system is critical to

the future of Georgia's health, environment, and economy. Recognizing this vital need, Georgia Organics builds supply through grower education and outreach, and grows demand on the consumer and business end by encouraging market opportunities for local food.

The annual Georgia Organics Conference & Expo is about fostering community – a community of farmers on the path toward prosperity, and a community of Georgians interested in supporting healthier foods, farms, and families. As we move our conference around the state, we help grow a united good food movement. We learn and share challenges and solutions, and we showcase and celebrate the transformational work of the people in our movement. The South is home to some of the most innovative farmers and ranchers in sustainable and organic growing. Our two-day conference convenes these leaders alongside chefs, environmentalists, educators, foodies, home gardeners, and community organizers.



*2019 Conference in Tifton, GA. Photo credit: Jodi Cash*

For our 2020 conference, Georgia Organics is returning to Athens, Georgia. Conference will include farm tours and field trips that highlight growers, artisans, and local food champions, as well as in-depth workshops, educational sessions, and our famous Farmers Feast. On February 7 and 8, we will unite approximately 800 attendees to learn new skills, network with good food movement peers, feast on incredible local food, celebrate achievements, and recommit to building a better food future. To learn more about the conference and expo, visit <https://conference.georgiaorganics.org/>

*Ashley Dowling  
Events Manager  
Georgia Organics*