

Sustainable Agriculture

Looking forward for this generation
and the next...

at **UGA** CAES

Summer 2009

Last June many of you attended our Sustainable Agriculture Summit at Fort Valley State University. At that meeting, the participants identified the critical priorities for advancing sustainable agriculture in Georgia. The top priorities centered on: education, developing infrastructure, and conducting place-based research. One of the concerns expressed at the Summit was that the information would just gather dust on a shelf. We are using that information and today I want to give you an update on what we have done in the past year to address the priorities you identified.

The top priority of the Summit was education, for young people, for consumers, and also for county agents so they can provide better technical support. We have a number of efforts on the education front. Many of these efforts are supported by Southern SARE. We have started the Organic Production Team, which will help address the need for better technical support. The Team consists of county agents and extension specialists from both the University of Georgia and Fort Valley State University, scientists from the USDA Agricultural Research Service, Georgia Organics personnel, and experienced organic farmers. We are conducting workshops and county agents will also be visiting various farms to increase knowledge about organic production practices. We hope that this hands-on learning will deepen everyone's understanding about practices that work here in Georgia.

We ran two workshops for farmers and county agents on how to sell products to specialty grocers, wholesalers, and restaurants. These workshops let farmers know about the types of vegetables and small fruits wanted, and about the paperwork and procedures they need to follow to sell in these markets. We also ran a workshop with students and county agents to teach them about grafting heirloom tomato varieties onto disease resistant rootstocks. We expect some of the people attending these

workshops will run workshops in their home counties to teach the technique to farmers.

The infrastructure problem is a difficult one. We have supported the development of these types of businesses through the Center for Agribusiness and Economic Development (CAED). Several studies have been conducted by CAED that have produced information on the feasibility of enterprises as well as basic information that can be used in economic or financial analysis. We also have a small research project led by Ray Hicks in Screven County evaluating the economic feasibility of producing organic cover crop seed. If successful, this project could encourage the development of seed cleaning and other related businesses.

Finally, we have ongoing efforts to obtain funding to evaluate crop rotations for vegetable producers in both the Piedmont and the Coastal Plain. Other researchers are busy developing and evaluating the best forages for grazing dairies, and still others are working on the best practices to transition to organic peanut production. All in all, there are many dedicated scientists at the College of Agricultural and Environmental Sciences as well as at our partners at Fort Valley State University and at the Agricultural Research Service who are working to develop better information for a more sustainable agriculture.

Wishing you a wonderful summer.

Julia

Julia Gaskin
Sustainable Agriculture Coordinator, UGA-CAES

See archived newsletters at
www.SustainAgGa.org

Earth Day Workshop Update

From Dr. Marc van Iersel, Horticulture Department



High tunnels at the UGA horticulture farm

High tunnels and organic production were the focus of an Earth Day workshop at the University of Georgia Horticulture Farm near Watkinsville. Organized by Dr. Marc van Iersel, speakers included Marc van Iersel, Andrew Ogden, Gerard Krewer, and George Boyhan, from the Horticulture Department, and Harald Scherm from Plant Pathology. Morning presentations were on high tunnels, blueberries, and vegetable production. After lunch, Robert Tate led participants on a tour of the UGA-CAES certified organic farm. Participants then gathered at the high tunnels at Woodland Gardens near Winterville where Celia Barrs, farm manager at Woodland Gardens, was the tour guide. The 60 people in attendance included county agents, students, faculty, farmers, and hobbyists from Georgia, South Carolina, and Mississippi. The beautiful weather assured that the tours were a highlight of the day.



Celia Barrs gives a tour of the high tunnels at Woodland Gardens

Teaching Update

From Dr. Doug Bailey, Head, Horticulture Department
Robert Tate, Program Coordinator

The Certificate Program in Organic Agriculture at the University of Georgia is an interdisciplinary program of study that was created in fall 2007. Similar to a minor for undergraduates, the Certificate Program utilizes faculty from various departments and colleges allowing students to combine theory and practice in the classroom and on the farm to increase their understanding of organic agriculture.

The center of the program is a certified organic farm at the Horticulture Research Farm in Watkinsville, Georgia. Many different vegetables, fruits, herbs and cut flowers are grown. Students in the certificate program spend a significant amount of time at the farm during class and also for their research projects.



Students grafting tomatoes

This year the AESC 3125, Organic Agricultural Systems class participated in two exciting events in addition to their normal farming duties - shiitake mushroom cultivation and heirloom tomato grafting. Students inoculated sweet gum logs with shiitake spores at the farm this spring. Last year's logs have been producing quite nicely says Dr. Peter Hartel, the class instructor. The tomato grafting workshop was a big hit with the students. Students spent time in the lab carefully grafting heirloom tomatoes onto disease resistant rootstock. Their grafts healed well and the plants are currently producing tomatoes in the field and in the high tunnels.

To complete the certificate, students take four required courses and choose 6 credit hours of electives from a long list of complementary courses. The Certificate in Organic Agriculture program currently has 32 students enrolled and



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has already had two graduates. The students in the program include majors in anthropology, public administration, geography, political science, cell biology, philosophy, horticulture, and accounting as well as non-traditional students who already received their degrees at UGA and have re-enrolled to complete the certificate program.



Student working in greenhouse

The Certificate in Organic Agriculture Program is open to students from all disciplines who are interested in the discourse and techniques of organic farming and gardening. <http://www.uga.edu/organic/index.html>

Grower's Corner

New Pumpkin for Georgia

Notes from Dr. George Boyhan

Last newsletter I wrote about controlling or ameliorating squash virus problems. Believe it or not, pumpkins are the same species as summer squash and suffer from the same problems including virus diseases. These virus disease problems are compounded for pumpkin producers because most pumpkin production is for the fall Halloween market during late summer and fall production when these insect-transmitted viruses are the worst.

Although Georgia is a large fresh vegetable producing state, we produce relatively few pumpkins, just under 500 acres according to the 2007 Vegetable Farm Gate Report, with the majority produced in north Georgia counties. A visit to most retail grocery stores and garden centers in the fall will find large quantities of pumpkins for sale. These pumpkins are largely brought into Georgia from other states. With this in mind, we have been working for several years to introduce a pumpkin more suited to Georgia's and the Southeast's conditions. Last year we introduced Orange Bulldog, a pumpkin with a greater level of virus resistance.

Orange Bulldog is a related species to regular pumpkin. Its color ranges from a salmon to a burnt orange color and fruit are about 10 pounds when fully mature. It has an open cavity which is suitable for carving. In the immature state the fruit are bright yellow and can be picked and prepared just like summer squash. The vines are very aggressive, growing as much as 15-20 feet. Along with virus resistance, the foliage has good tolerance to other diseases. We think it has a good fit for growers with roadside markets and pick-your-own operations where good vine cover is important, particularly where a pumpkin patch is going to be 'reseeded' with new pumpkins each night.

For information on producing these pumpkins the University of Georgia has several publications that may be helpful. These include 'Commercial Production and Management of Pumpkins and Gourds, Bulletin 1180', 'Commercial Organic Vegetable Production, Bulletin 1300', and 'How to Convert an Inorganic Fertilizer Recommendation to an Organic One, Circular 853'. For fall production (September and/or October), Orange Bulldog should be sown or transplanted the end of June or beginning of July. *Go Dawgs!*

Seed are available from the Georgia Seed Development Commission website at: <http://www.gsd.com/>. Click on the link for 'Orange Bulldog Pumpkin', which will take you to more information about this pumpkin as well as an order form. Download the order form, fill it out, and send it in. Seed are available as both treated and untreated. Certified organic growers should order untreated seed.



Upcoming Event – The University of Florida will host the **Small Farms Alternative Enterprises Conference** August 1-2 in Kissimmee, FL.
<http://smallfarms.ifas.ufl.edu/floridasmallfarmsconference/index.htm>



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Grower's Corner, continued

Managed Grazing Improves Efficiency

Notes from Dr. Dennis Hancock

Take a moment to think about how much of the forage that is grown in your pastures will actually make it into the mouth of your cattle. Of the total forage that is produced, what percentage do your cattle actually use? This percentage is referred to as forage use efficiency.

The first step in getting more out of your forage is to exercise more control over the animal's grazing behavior. If cattle are allowed to freely graze one or two large pastures (i.e., "continuous stocking"), they will select certain areas, avoid other areas, and ultimately create a scenario where relatively little of the forage is actually consumed (**Table 1**). The key is to ration out the forage. Rotational stocking requires the farmer to put animals in and take animals out of a pasture in a relatively short amount of time. Simply splitting large pastures into several smaller pastures (or paddocks) and regularly rotating the animals between them can dramatically increase the efficiency of the forage system. Producers who allot daily strips for their cattle (strip or frontal grazing) can increase their efficiency even more, often rivaling our most efficient mechanical methods of harvesting.

Table 1. The range in forage use efficiency of selected grazing and mechanical harvesting methods.

Method	Efficiency*
Grazing	
Continuous Stocking	30-40%
Slow Rotation (3-4 paddocks)	50-60%
Moderate Rotation (6-8 paddocks)	60-70%
Strip or Frontal Grazing	70-80%
Mechanical	
Hay	30-70%
Silage	60-85%
Green Chop	70-95%

* Efficiency is defined here as the relative amount of forage production (or that could be produced) that will actually be consumed by the animal.

Because of this increase in efficiency, it is possible to increase the stocking rate and carrying capacity of the land. Stocking rate increases of 35-60% have been reported in the scientific literature. As a general rule, however, stocking rates should only be increased by 10-25% during the first few years, to allow the pastures as well as the forage

manager's skills to improve. In the meantime, any excess forage production can be harvested as hay or mowed and returned to the soil.

It is important to note, however, that intensively-managed grazing is unlikely to improve the performance (i.e., gain, lactation, etc.) of individual cattle. Forcing the grazing animal to consume forage to a predetermined height eliminates their ability to selectively graze, sometimes reducing individual animal performance (daily gain per head). This is particularly important when animals with high nutrient requirements like stocker cattle or replacement heifers are rotationally grazed on relatively low-quality forages, such as bermudagrass or bahiagrass. Though individual animal performance is reduced, remember that it is the increase in stocking rate that results in higher gain per acre. For producers grazing animals with lower nutrient requirements, like mature cows, this can be a great advantage. In a three year study conducted in central Georgia, rotational stocking improved cow-calf stocking rate by about 38% and improved calf production per acre by 37%. Individual cow or calf performance was not affected in this study (**Table 2**).

Table 2. Effects of rotational stocking on performance of beef cattle grazing bermudagrass and endophyte-free tall fescue in central Georgia.

Item	Continuous	Rotational	Difference*
Cow weight at calving, lbs	1037	1017	NS
Cow weight at weaning, lbs	1090	1071	NS
Stocking rate, cows/acre	0.50	0.69	+38%
Pregnancy rate, %	93	95	NS
Weaning weight, lb	490	486	NS
Calf production, lb/ac	243	334	+37%

* NS = not statistically significant

Covering all the aspects of setting up and implementing an efficient grazing system is beyond the scope of this article. However, there are a number of websites, publications, and books that provide specifics on how to set up more intensively managed grazing systems. The UGA's Management-intensive Grazing website (<http://www.caes.uga.edu/topics/sustainag/grazing/index.html>) is a good starting point and serves as a clearinghouse for more information on this subject.



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