

# Sustainable Agriculture

Looking forward for this generation  
and the next...

at **UGA**

*Spring 2011*

## **Sustainable Agriculture – Quality of Life**

**P**illars is the metaphor I have used to help define the structure for sustainable agriculture - agricultural systems that can extend for generations without depleting natural and human resources while providing food and fiber for a rapidly growing population. In our past two issues, we've discussed two of the three pillars of sustainable agriculture. We first looked at the pillar of profitability and how this means more than just covering costs over the short term, but encompasses positioning the farm so that it is viable for the next generation. We also looked at the environmental pillar, and the complex trade-offs that often confront farmers. But with sustainable agriculture, how we can be moving towards farming systems that minimize environmental impacts and preserve natural resources. The third pillar of sustainable agriculture is quality of life for farmers, ranchers, farm workers and their community. This pillar takes into account the role meaningful work plays in our lives and the strong connection farmers have with their community.

Farming is hard work; there is no way around that. Farming is also a chosen way of life. For many people, working outdoors, the pleasure of nature and being self-employed are big factors in choosing to be a farmer. It can be a way of life where the work is never done, but everyone deserves and needs time for their family, themselves, for hobbies, or to participate in civic organizations, churches, or volunteer in schools. A truly sustainable agriculture is one where these things are possible. Although there are times of the year when farming is all-consuming with the tasks needed for crop production, we need to look for ways in the crop production system to manage time effectively and create operations that allow

“down time”. Some farmers deliberately build a rest time into their yearly cycle or even their week so they and their workers are ready to face the challenges of a new season or new week. These deliberate choices enhance their quality of life.

Farmers have traditionally relied on their neighbors as well as themselves. Loaning equipment or tools, swapping labor for certain tasks were part of the fabric of life in agricultural communities. This co-reliance enabled farmers to work through both good times and bad while developing bonds which created and maintained strong communities. Although this is still a hallmark of rural life, as our farms have gotten larger and more people have moved to urban or suburban areas, the ability of a community to maintain itself, its schools and its houses of worship is strained. Ideally, sustainable agriculture will increase a community's economic and civic well-being so these institutions can thrive, and young people come back or stay on the farm.

There are a growing number of alternative farms in Georgia. These farms are using methods to reduce environmental impacts and exploiting niche markets. These farms are providing a new layer of diversity in agricultural operations in their communities. They are creating jobs, some of which provide health insurance and are more than minimum wage. This new diversity can help strengthen community providing more opportunities for the community to thrive. With new interest in locally-grown, sustainable foods in metropolitan areas and throughout the state, we have an opportunity for our rural communities to improve their quality of life by building on their agricultural heritage.





### Quality Of Life Indicators For Farmers, Ranchers, Farm Workers, And Their Community

- Allows time for family, hobbies, and/or community participation
- Provides safe, nutritious food, fiber, and/or biomass energy
- Treats farm workers well
- Treats animals humanely
- Increases the surrounding communities economic and civic well being; i.e. provides the capacity for the community to support local schools, houses of worship, or other community institutions
- Contributes to the scenic beauty of community
- Contributes to farming/ranching being seen as respected professions
- Encourages involvement of the next generation

*Julia Gaskin  
Sustainable Agriculture Coordinator, UGA-CAES*

### Weather and Climate Information Can Help Sustainable Farmers



Farming is an inherently risky business, unique in that there are number of factors having a major impact on production and profitability that are beyond the grower's control. Not least of these is weather and climate. Sustainable and organic growers are in some ways vulnerable to variations in rainfall and temperature because of limits on tools available to them (e.g. seed treatments to protect against cold, damp soil), but in other ways these growers may be more resilient (greater diversity of crops; high levels of organic matter to retain water).

Though weather may seem entirely random at times, we do have predictive power, which is of course why we watch forecasts on TV (however

skeptically!). And climate, defined as the statistical summary of weather patterns over long periods of time, has a seasonal variability and decades-long trends that can be anticipated, perhaps more than you might expect. What sorts of predictions can we make, how does a grower access the information, and how can sustainable farmers benefit particularly?

At the day-to-day, local scale of weather, the best current information is from the more than eighty stations of the Georgia Automated Environmental Monitoring Network (AEMN), at [www.georgiaweather.net](http://www.georgiaweather.net). Over twenty variables such as temperature, precipitation, and wind speed are recorded every fifteen minutes. Short-term predictions are available from the National Weather Service at [www.weather.gov](http://www.weather.gov), and together these can inform decisions on things like planting, irrigation, hay-cutting, and disease control. For example, an organic grower needing to avoid seed rot and establish a quick, competitive stand may want to monitor trends in soil temperature, monitored at three depths continuously on the AEMN. Although this monitoring network has been free, it will be available by subscription in the future due to budget cuts.

At the seasonal scale of climate variability, the Climate Prediction Center ([www.cpc.noaa.gov](http://www.cpc.noaa.gov)) provides multiple map displays for anticipated temperature and precipitation patterns out to three months, as well as drought information and predictions. We in the Southeast are heavily influenced by the phenomenon known as the El Niño-Southern Oscillation (ENSO), defined by sea surface temperatures in the equatorial Pacific Ocean. This can predict winter and early spring growing conditions months in advance. At the [AgroClimate.org](http://AgroClimate.org) website, abundant information and tools on likely temperature, rainfall, and yield perturbations due to ENSO are available for locations throughout Georgia. A sustainable grower may, for instance, decide to avoid a certain cultivar or utilize a fertile but low-lying field knowing a dry La Niña spring is likely.

Weather and climate can be frustrating in their variability, but resources like these can help you minimize risk and even take advantage of your situation as an organic or sustainable farmer. Please contact your county agent with any questions on how to use them.

*Mark A. Boudreau  
Public Service Assistant*

## **Research**

### **Small Farms and Farmer's Markets Food Safety Survey**

It is spring and farmer's markets, farm stands, CSAs, and buying clubs will be getting into full swing providing fresh, local produce. This year, Congress passed major new food safety legislation called the Food Safety Modernization Act. This new legislation was passed in response to foodborne illness outbreaks from eggs, peanut butter and spinach. The Act contains an exemption from these federal regulations for small farms, defined as <\$500,000 in sales, selling low risk products directly to the consumer. In this case, direct sales are defined as selling to consumers or restaurants within state or within 275 miles from the farm. The details of this will be worked as the federal regulations are developed.

The increase in local foods and in food safety led researchers from the University of Georgia, Clemson University, and Virginia Tech to conduct a survey of small farms and farmer's market managers to see how they were dealing with food safety issues. The survey found many farmers were using practices to reduce the risk of foodborne illness, but there was also room for improvement. For example, a little less than half of the farmers said they used animal manures like cattle manure or poultry litter as a fertility source. About half of those who used manures, waited 120 days or more after manure incorporation before they harvested crops. This waiting period is required by the USDA National Organic Program for Certified Organic growers and is also used as a standard by Certified Naturally Grown farmers. The waiting period allows any potential pathogens in the manure to die before crops are harvested. A large majority of farmers also reported they used

tested well or municipal water to wash produce before market. The survey of farmer's market managers found most were interested in more information on food safety practices, but did not have any educational programs for their farmers currently.

The survey is the beginning of a project that is developing a food safety checklist for small farms and farmer's market managers. The checklist will allow folks to see areas that need improvement and will be accompanied by pamphlets that give practical, economical options for practices that will reduce the risk of contamination. Stay tuned for further information.

*Judy Harrison, Professor FACS  
Julia Gaskin, SAC CAES*

## **Extension**

### **Managing Pigweed in Conservation Tillage Systems**



Rolled cereal rye residue helps control pigweed. (Photo Jeremy Kichler)

Managing weeds is one of the biggest challenges in any production system. Since the introduction of glyphosate-tolerant crops, many farmers relied heavily on this herbicide for weed control. Over the past few years, a type of pigweed – Palmer amaranth, has become resistant to glyphosate and has become increasingly difficult to kill. Because the Palmer amaranth produces millions of small seeds, letting a few plants live and set seed, quickly causes a problem where the weeds outcompete crops and reduce yields.

Macon County has been the center of glyphosate resistance for a few years now. Research with the help of UGA Weed Science is being conducted to help find ways for growers to manage glyphosate-resistant Palmer amaranth in conservation tillage.





This research has shown that Palmer amaranth has three potential weaknesses. These include a shallow emergence depth, a relatively short seed life, and a light requirement for germination. These characteristics are being used to reduce Palmer amaranth weed pressure. Many growers have looked at using tillage, including deep turning to move the seeds deeper in the soils so they cannot germinate. This method exploits the shallow emergence depth characteristic of the seed and the fact that 80% seeds buried deeply in the soil die after three years. Although this tillage practice works for conventional growers, many growers using conservation tillage do not want to deep turn the soil. These growers are relying on heavy residue cover crops in order to reduce light for germination for Palmer amaranth emergence. In the past few years, we have looked at different cover crops in Macon County and cereal rye seems



Jeremy Kichler illustrates the amount of cereal rye needed to help suppress weeds.

to be the best because it produces the most biomass. Some research has shown heavy residue cover crops can suppress weed growth for four to six weeks. We are currently conducting on-farm trials to evaluate how cover crops can be best used to help manage the Palmer amaranth problem.

*Jeremy Kichler  
Macon County Extension*



## ***Grower's Corner***

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### **Fort Valley State University Makes New Publication on Organic Fruit and Vegetable Available**

We at the College of Agricultural and Environmental Sciences try to work closely with our sister institution, Fort Valley State University (FVSU) on sustainable agriculture issues. Fort Valley State University has just issued a beautiful new publication on organic fruit production – *Grow Your Own Organic Small Fruits*. This publication was written by Mr. Jerry Larson, based on his long-time work on organic production of small fruits. It gives production information and varieties that perform well in Georgia. You can find information on: strawberries, blackberries, blueberries, figs, and muscadines. Contact FVSU for a copy of this publication or look for it at: [www.SustainAgGA.org](http://www.SustainAgGA.org) under Resources, Organic Production.

*Remember to check out our  
website  
[SustainAgAg.org](http://SustainAgAg.org)  
for current events and new  
information.*

