Some Notes on Organic Farming

The terms “organic farming” and “organic gardening” have been around since the 1950s. While these concepts may have traditionally had different meaning for different people, the USDA finally put its approval to the terms when the Organic Food Production Act was passed in 1990. Today the National Organic Program regulates organic food producers and processors nationwide with a certification program. Alabama is one of the few states that do not have an agency or organization within the state to certify organic producers but producers may become certified through Georgia, Florida, or Mississippi organizations or agencies.

Yet, we are seeing organic food sections in Alabama supermarkets and large retail outlets. Traditional Alabama farmers have not yet embraced the concepts of organic production because most traditional markets for cattle, cotton, corn, peanuts, soybeans, poultry etc. do not pay a premium price for organically produced products. However, some small-scale vegetable producers near urban markets have discovered the premium price that organically grown produce can bring. Others have tailored specific markets for their products. We are seeing increased interest among non-traditional producers in Alabama for information on organic production techniques.

From the perspective of traditionally trained scientists and avid gardeners, here are some of our thoughts on the positive, negative and indifferent aspects of organic farming and gardening.

**Positives**
*Certified "organic" fruits, vegetables, grains, and products demand a premium price at the market. This fact more than any other one is driving the move toward more specialized, organic production.
*Organic and natural production techniques favor small farm production and new opportunities for local producers.

*Organic production techniques are more suitable for local markets; this brings the producer and the customer closer together. The customer gets fresher produce, the producers get a higher price, and both understand each other as neighbors. This is especially evident in community supported agriculture (CSA) farms.

*Direct marketing venues and new farmers’ markets are opening up throughout Alabama.

*Organic farming is attracting many new, younger farmers into agriculture; many of these have no agricultural background. It is a growth industry.

*It is part of the new “green industry.”

*New technologies such as micro-irrigation, high tunnel culture, GIS technologies, row-covers, and web-based marketing of value-added products are adaptable to organic production.

*Most organic production techniques do not require any special license or training such as pesticide use permits; most producers learn by doing. However, there is a steep learning curve in the specific techniques and practices that make organic production easier.

*Very few pesticides may be used.

*Relies on "natural" pest control i.e. beneficial predators keep pests under control.

*Fewer calculations and equipment calibrations are necessary for fertilizer or pesticide rates to apply.

*Builds diversity in the soil/plant biosystem that helps to control certain pests.

*The producers and the customers have access to a greater diversity of crop cultivars. The producer is not tied into “technology fees” or limited to a few crop selections that the global market may demand.

*Often improves soil quality because organic techniques concentrate on soil building activities.

*Organic fertilization is by nature a slow-release N source. As soil organic matter builds up under organic production, so does the reserve of soil N.

Negatives

*There are few provisions for catastrophic pest outbreaks. You just have to take your losses.

*Aesthetic quality of the produce may be lower.

*Very labor intensive - especially mechanical weed control where problem weeds such as crabgrass, johnsongrass, nutsedge or common bermudagrass is a problem.
Long-term soil phosphorus buildup. While this may occur when excessive inorganic phosphorus is applied (e.g., 13-13-13), excessive P buildup is inevitable with organic fertilization. All organic nutrient sources contain P. Manures in particular have a nitrogen: phosphorus (N:P₂O₅) ratio of about 1:1. Plants, in general, take up these nutrients in a ratio of approximately 5:1. Therefore, to adequately provide organic N for a crop, excessive P is often applied. Soil P buildup in itself is not an environmental problem. However, when this excessive P runs off the land and gets into water, it is an environmental concern.

Federal and state requirements are very rigid as to what can and cannot be used on certifiable "organic" produce and products; it is also expensive to maintain certification. If you want to sell more than $5,000 as "organic", it must be certified.

Land where organic products are produced must be certified for a 3-year transition period before the products can be sold as "organic".

Nitrate leaching. Organic fertilization requires the mineralization of organic nitrogen (N from proteins and amino acids) into nitrates (NO₃⁻) before plants can take it up. Inorganic fertilization with a readily available source of N allows some control over N uptake by plants. With organic N sources (manures, composts, teas, etc.) one is at the mercy of Mother Nature to control how fast these are released into the soil. Nitrogen use efficiency (the percentage of applied N that is taken up by the plant) may be around 50% for inorganic fertilizers to around 10% for organic fertilizers. The rest could be leached into groundwater where excessive nitrates are considered a pollutant. Potential nitrate leaching could be a bigger concern here in the Deep South where nitrate mineralization may occur from organic fertilizers year round. Further north, cold or frozen soil prevents this biological process from occurring during the winter.

Product stability. Fresh fruits and vegetables may be more susceptible to bacteria and fungi which can rapidly deteriorate the products and reduce shelf life.

Many claims about organic farming techniques or the qualities of organic produce have not been researched.

Traditionally, there has been a gap between scientific agricultural research and organic production. Scientific researchers have been skeptical of organic farming claims and organic producers are leery of recommendations from the scientific community.

Taste. Although organic farming enthusiasts swear that organically produced fruits, vegetables, grains, and products taste better, there has never been any definitive, scientific proof of such claims. Fresh fruits and vegetables always taste better;

Health. Again, although organic farming enthusiasts swear that organically produced fruits, vegetables, grains, and products are better for one's health, there has never been any definitive proof of such claims. On the other hand, plenty of proof exists that eating more fruits and vegetables can lead to better overall health.

Organic production is sustainable.” This issue creates a lot of debate. In many circles, the terms “organic farming” and “sustainable agriculture” are used interchangeably. This is not necessarily true. Organic farming is not always sustainable and sustainable agriculture is not always organic. By definition, sustainable agriculture is a system that maintains or enhances
agricultural production, reduces the level of production risk for the farmer, protects natural resources, is economically viable, and is socially acceptable. Clearly, organic production as is popularly practiced in the U.S. and Europe could not produce the food and fiber necessary to sustain the human population on the earth. Because of the unbalanced aspect of organic fertilization, there are some questions as to whether or not it could contribute to nutrient enrichment of surface and groundwaters. It is certainly not globally sustainable.

In the U.S. today, people are living longer, healthier lives than ever before in the history of human civilization. If anything, we are over nourished. On the other hand, evidence exist that most Americans do not eat enough fresh fruits and vegetables. Organic production also will allow more locally grown, fresh eggs, poultry, milk, cheeses, and even grass-fed beef into the market. Organic production can reunite Americans with their agricultural roots and provide us with a local supply of fresh fruits, vegetables, dairy, and animal products that otherwise would not exist in today’s global market. Regardless of whether or not it is sustainable, this system of growing and marketing agricultural products is a reality of 21st century agriculture in America and in Alabama.

For more information about organic farming in Alabama, visit the following websites.

National Organic Program home page:
http://www.ams.usda.gov/nop

Auburn University’s Organic Vegetable Production in Alabama research page:
http://www.ag.auburn.edu/aaes/organicveg/covercrops.php

Alabama Sustainable Agriculture Network:
http://www.asanonline.org/index.html

Prepared by:
Charles C. Mitchell, Extension Agronomist-Soils & Professor
Roland S. Roark, Regional Extension Agent, Wedowee, AL