



*Alexis Mastromichalis, who has worked as a farm director on three international farms, believes she can gain more experience at Maple Spring Gardens, and perhaps someday help teach developing worlds how to produce organically grown food.*

# Improving the Farm Ecosystem

by Rocky Womack

**I**mproving the farm ecosystem isn't just talk at Maple Spring Gardens in Orange County, North Carolina. Owners Ken Dawson and Libby Outlaw rebuild the organic matter in the soil each day, whether they are planting produce and cut flowers or growing cover crops on part of their 61-acre farm, which they purchased in the summer of 1990.

"It was a worn-out, run-down tobacco farm like a whole lot of others in the area," Dawson says. "This farm was in a tobacco/wheat rotation when I bought it. The organic matter was not good. We couldn't find one earthworm on the farm. The soil was worn down. Fortunately, the soil conservation people had come in and laid out all the grass waterways and put in some terraces and so forth the year before I bought it."

"People told me that the year before they did the conservation work, there was a gulley down there you could hide a tractor in," Dawson says while pointing to bottomland on the farm. "I could tell from working the land that the soil had moved."

Topsoil from the land above eventually settled in the bottom, now filled with pond water. Dawson says, "We started digging, and the topsoil was 7 feet down there. We took 30,000 cubic feet of topsoil out of that hole and put it on some of the weaker areas of the field."

For the past 16 years, Dawson has worked to overcome the prior management history of the farm with its easy-working, sandy-loam soils. "It's growing some pretty good crops now," he says.

One of the first things he corrected was the low pH, which tested at about 5. To build pH to the desired level of 7, Dawson started using chicken litter from layer houses in his first two years on the farm. The chicken litter contained lots of lime to boost calcium in egg shells, he says. The pH climbed rapidly to above 7.2, and today, Dawson uses chicken litter sparingly, because his farm pH, calcium and phosphorous levels are all where he wants them.

### BENEFICIAL INSECTS

Dawson's efforts to improve the farm didn't stop with building the nutrients in the soil. His operation now includes a diverse and beneficial insect population that seeks out nectar in flowering plants. "I've done a lot of work to improve the soil," he says, "but the other big change is in the overall ecology of the farm. All the fields were planted in tobacco and wheat when we bought the place. There was not a lot of biodiversity here. Of course, with tobacco, they were using insecticides so the insect population was affected by that. Now, with all the different flower and vegetable crops that we grow, there's always something blooming. There are a whole lot more bugs on the farm than there used to be, but there are fewer pest problems. There are so many beneficial insects, they keep the pests in check."

Dawson remembers driving by one of his rye fields early one morning and seeing so many ladybugs that they seemed to be jewels glittering throughout the field. "They're feeding on aphids that are in the rye," he says, "but that's building up the ladybug population. Then they're over there in the vegetables, too. The first few years we had the farm, we were growing a lot of lettuce, and we had a lot of aphid problems there. We don't anymore. With ladybugs and lacewings all over the place, we haven't had enough aphids to worry about for eight or 10 years now. We never introduced ladybugs or lacewings. We just gave them a place they could live in, and they take care of aphids for us."

He recalls a couple of years ago when a graduate student from North Carolina State University in Raleigh compiled research on insect data from several local farms, including Maple Spring Gardens. The student studied the natural occurrence of beneficial insects in organic tomato production.



*Working on Maple Spring Gardens farm makes Sarah Blacklin feel grounded. She enjoys seeing fruits and vegetables grow from the time they are transplanted to their harvest and sale.*

"One of the things that he found was that of all the tomato fruitworm eggs that were on the tomato plants, 78 percent of them were parasitized by little wasps. This was naturally occurring — we didn't introduce the wasp, we just gave it a habitat that it could survive in. So, the fruitworms that were parasitized never hatched, and 78 percent of our

worm population was eliminated before it ever became a problem. For the worms that remained, we used *Bacillus thuringiensis* biological agents."

Although the couple have made great progress, the goal of improving the ecosystem continues. "I think it's going to be a lifelong endeavor," Dawson says. "We felt like we really turned the corner

after about six or seven years. The soil will never be completely where I want it to be. We will always be working to make it better. I feel like it's at a level where it's producing well. It will take a certain amount of effort every year to maintain it where it is, but it's easier to maintain it than to build it up from where it was."

"To really change the balance of the ecosystem takes at least as long as building up the soil," he adds. "It takes growing different crops, and it takes years for the insect population to become large enough to balance it. We still have some

bug problems, a lot of grasshoppers, for example, and there's a lot of potential for insect problems that could be out here. There's a certain level of damage that I just accept and don't worry about."

### PLANTINGS

On the 61-acre farm of cropland and trees, Dawson utilizes 10 acres, including actual cropland, borders, roads and ponds as well as rotation cover crops of clover, fescue, grass, rye and wheat, which he mows down all for three to

four years. He develops the rotation covers into strips of about a third acre.

He follows the three to four years of rotation with two to four years of alternating cover crops, raising them in between the cash crops. Most of the field rows run about 300-feet long. On four to five acres of the 10 acres, he plants produce and cut flowers as cash crops.

Fruits and vegetables grown by Maple Spring Gardens include strawberries, blueberries, cantaloupe, watermelon, basil, asparagus, beets, broccoli, cabbage, Chinese cabbage, carrots, cauliflower,

## Successful Marketing Means Doing Your Homework

Improving the soil and balancing the ecosystem are part of the lure of organic farming. What unsuccessful farmers forget is that organic farming isn't just about raising the crops. They must also establish a market for what they grow, usually much earlier than they realize.

"I think you need to start with your markets and look back," says Ken Dawson. "Look at what your potential market is."

Attending conferences across the Southeastern United States allowed Dawson to hear how small-scale market gardeners and vegetable growers practiced successful direct marketing through farmers' markets, Community Supported Agriculture subscriber programs and other marketing initiatives. One important factor for all was that each was close to affluent communities or university towns, where citizens appreciated quality food and understood and supported local farm operations.

"If you live in the middle of Iowa, and it's 150 miles to the nearest town that has one stoplight, you can't do what we're doing," Dawson says. "It doesn't mean you can't grow vegetables, but you would be in a different kind of market altogether."

Selling retail rather than wholesale makes a difference, too. "If everything I was producing was being sold wholesale to a broker who was then going to move it two or three times before it eventually wound up in the supermarket, the price that I would be getting for a box of produce would be dramatically different than what it is," Dawson says. "I would have to farm a whole lot more acreage to make the same level of income."

### MARKETING STRATEGY

Dawson says a farmer's marketing strategies must evolve over time as conditions change. For instance, at the farmers' markets in Carrboro and Durham, North Carolina, especially the former, competition has spiked. "When I started selling there, it was a young, new market," he says. "We didn't have the customer traffic we have now, but we also didn't have such skilled vendors. We've got quite a few farmers at the market who have gotten pretty good at what they do, so it's tougher to stand out in the crowd than it used to be."

To compete, Dawson says that what he grows, how he presents his produce and cut flowers, and when he markets them have all evolved. "If you know that in July everybody and his brother has too many tomatoes, then you have tomatoes ready in June, and you're ahead of the game," he says.

Finding a specialty or raising products that customers can't find in the grocery store is extremely important for small farmers, suggests Karen McAdams, agricultural agent with the North Carolina Cooperative Extension Service in Orange County. "They need to find a niche," she says. "If you are growing green peppers, you can't compete with growers raising 100 acres in eastern North Carolina or in California."

McAdams credits Dawson for his willingness to try new things such as improved varieties and different marketing strategies. She says other small farmers just entering the organic field can learn from his expertise.

"You need to see what's profitable and what's not," McAdams says. "He's filtering through things that work in his system."

Despite the competitive environment at the farmers' markets, Dawson views the competition as a positive thing that keeps him and the other producers working to improve constantly, to change market strategies, and to offer more diverse selections of produce and cut flowers.

"I used to sell lettuce to a locally owned grocery store chain called Wellspring Grocery," he says. "Eventually, it was sold to Whole Foods, which is part of a large retail chain. I grew lettuce for them for years and years, but the last year I grew a crop of lettuce for them was in 2001. I sold that lettuce for the same price per head that I received in 1988. In 1988 I was making good money on it; in 2001, I wasn't."

"What had happened was that in 1988 the only organically grown lettuce available to Wellspring Grocery was what came from right here, from our farm. By 2001, organic lettuce was coming out of California by the train-carload cheaper than I could grow it. The market changed, so I had to change my approach along with it. You have to continually pay attention to markets that are changing or emerging and be willing to adapt to new conditions. If I tried to do everything the way we did it 20 years ago, I'd be broke now."

collards, sweet corn, cucumber, eggplant, fennel, garlic, kale, lettuce, onions, pac choi, snow peas, sugar snap peas, peppers, potatoes, radish, salad mix, snap beans, spinach, summer squash, winter squash, Swiss chard, tomatoes, turnips and zucchini.

Bulb and cut flowers grown include tulips, daffodils, Dutch iris, peonies, iris, bachelor buttons, larkspur, sweet William, feverfew, yarrow, agrostemma, campanula, godetia, saponaria, ammi, calendula, snapdragons, coreopsis, asters, lisianthus, zinnias, marigolds, celosias, gladiolas, deep purple millet, tuberose, cosmos, sunflowers, ornamental peppers, dahlias, dried flowers and ornamental corn.

### HARVEST MARKETING

Dawson works full time on the farm while his wife is employed off the farm for four days a week. During harvest, they hire from three to five employees, who experience what it is like to grow and harvest organic produce that is in demand by the public. Dawson sells most of his produce and cut flowers at the Carrboro Farmers' Market, and his wife sells at the Durham Farmers' Market, both on Saturdays.

The Carrboro Farmers' Market allows only vendors and family members who grow their own produce to display and sell their products, so they can communicate directly with customers about how the product was raised, says Sheila Neal, market manager for the past three years. All vendors live and grow their farm products within a 50-mile radius of the farmers' market, which is owned by the vendors. They pay \$50 in annual dues, and its 80 members elect the board of directors, made up of vendors.

Farmers growing both sustainable and conventional products display at the Carrboro Farmers' Market. To be successful vendors, Neal says that farmers must develop a niche, as Dawson has done, either selling vegetables or fruits earlier than others or raising a fall crop that no other vendors have.

Selling strictly organic also entices customers to Dawson's booths at both markets, because they know it is fresh and safer than products sprayed with insecticides.

Dawson has proven his ability to sell, as have many of the other producers at the Carrboro Farmers' Market. "I think one of the reasons Maple Spring Gardens has been successful is they have a

## Produce Harvest Schedule on Maple Spring Gardens Farm

Crop	March	April	May	June	July	Aug	Sept	Oct	Nov
Strawberries			•						
Blueberries					•	•			
Cantaloupe					•				
Watermelon					•				
Basil					•	•	•		
Asparagus		•	•						
Beets			•	•				•	•
Broccoli			•	•				•	•
Cabbage			•	•				•	•
Chinese cabbage								•	•
Carrots			•	•				•	•
Cauliflower			•	•				•	•
Collards								•	•
Sweet corn					•				
Cucumber			•	•					
Eggplant					•	•	•	•	
Fennel			•	•					
Garlic					•	•	•	•	
Kale			•	•				•	•
Lettuce	•	•	•	•			•	•	•
Onions				•	•	•			
Pac Choi		•	•					•	•
Snow peas			•						
Sugar snap peas			•						
Peppers					•	•	•	•	
Potatoes				•	•	•	•	•	
Radish	•	•					•	•	•
Salad Mix	•	•	•				•	•	•
Snap beans				•			•		
Spinach	•	•	•					•	•
Summer squash			•	•	•				
Winter squash							•	•	•
Swiss chard			•	•				•	•
Tomatoes				•	•	•	•	•	
Turnips		•	•	•				•	•
Zucchini			•	•	•			•	•

Chart information courtesy of Maple Spring Gardens farm



Photo by Rocky Womack

contains an average of \$22 worth of produce, while a smaller-household share consists of an average of \$15 worth of food. A cut-flower share for 18 weeks costs \$90, entitling the subscriber to a \$5 bunch of flowers each week.

### BACK TO THE FARM

Working and harvesting most of the produce that either goes in those CSA boxes or is sold at farmers' markets are seasonal employees who desire to return to a simpler way of life. From his three-year employment at Maple Spring Gardens, Stuart White, originally from Easton, Maryland, has decided that he wants to start his own organic farm in the Chapel Hill area, where he can practice the many job and intellectual experiences that the lifestyle has to offer.

"There's so many different jobs to fill," White says. "You have chemistry, biology, carpentry, different sorts of theology and how to deal with plants. That's what really got me into it. There's so much to learn. In my mind, I'd like to have a variety of jobs to choose from, and this covers all the jobs I like."

In the past, White has worked in hotel management, shared history with the public, and practiced photography in New York City. During the winter, he still practices his photographic craft in the Chapel Hill area.

"I haven't found a job that I felt really satisfied in doing," he says of his employment history. "This is the first job I've felt I can put my all into. I find farming more satisfying than anything else, because you have your fingers in everything. There's always something new to do — it never becomes an old grind. You're always figuring out new ways of doing things."

White enjoys working outside with his hands, and farming fits his need to work closer with the earth and to learn more about the soil and how to preserve it. He also appreciates the precious things about nature. He recalls one day while staking tomatoes, when he eyed a spider above, spinning its web. "All of a sudden the web just ballooned like a parachute, and the spider went off into the trees. I'd never seen that before," he says.

Sarah Blacklin, another three-year Maple Spring Gardens employee from Chapel Hill, prefers outside employment to sitting behind a computer desk. A graphic designer during the winter months, she appreciates the down-to-

*Ken Dawson of Maple Spring Gardens bites into one of his organic-grown strawberries.*

lot of product diversity," Neal says. "They offer a lot to a wide range of people. If you have a diverse mix, you tend to sell more. And he's a good farmer!"

Orange County agricultural Extension agent Karen McAdams agrees. "He's smart, hard working and dedicated. He does an excellent job of marketing. He's in a locality where there's a large demand for organic and naturally grown vegetables."

McAdams says that about five certified organic farmers operate in the county, and about 15 more practice organic farming methods but are not certified due to the excessive and daunting paperwork. Dawson notes that he was once certified but isn't now because he detested the mounds of paperwork involved. Years of interaction with loyal customers have assured them that Dawson produces crops grown organically, so he feels he no longer needs the certification.

### PRODUCE SUBSCRIBERS

In addition to selling at the farmers' markets, Dawson offers produce and cut flowers through his Community Supported Agriculture subscription program.

He first offered the program in 2004 to 65 members, who signed up and paid an annual fee. They could then pick up weekly supplies of produce and cut flowers — either at the farm or at drop-off locations in the Chapel Hill, Carrboro,

Durham and Hillsborough areas. Subscriptions have increased since then. In 2005 membership jumped to 105, and in 2006 Dawson capped off the number of subscribers at 125.

"The interest is definitely out there for more," Dawson says. "I'm not really looking to increase the amount of produce we're selling, though. We're doing as much as we want to do financially."

Dawson has discovered definite advantages in the subscriber approach. "Starting the CSA has allowed us to cut out the wholesale stuff that we were doing. It's more profitable. The produce is going out at a retail price instead of wholesale. The crops that we were growing for wholesale were mostly lettuce and tomatoes. Rather than relatively larger amounts of lettuce and tomatoes, now we have a greater amount of a lot of different crops in smaller quantities. That just increases overall diversity in what we are doing."

"Another big advantage of CSA is that it's all presold," he says. "Members pay for it before we even deliver the first box. On a week when it's a rainy day at the market and sales are not as good as we'd like, CSA boxes are already sold. It's a real good balance for what we're already doing."

This year, the membership fee for 22 weeks of produce is \$485 for a regular share and \$330 for a smaller-household share. Each weekly regular share box



Photo by Rocky Womack

*Stuart White, an employee at Maple Spring Gardens, prepares fresh-picked strawberries for sale.*

earth benefits of farm life in the summer.

“The appeal of working here for me is seeing a process from start to finish,” she says. “It is really hard to find jobs within our age group where you actually transplant the seed, grow the crop, harvest, market, see the people, and interact with the people. It’s the kind of relationship that I feel is dwindling. We don’t get that a lot nowadays. We work with our e-mails and sound-bite information, and we don’t see a lot of things from start to finish. It’s nice to be part of something that people are supporting in the local area and that is continuing the ethics of years ago. This place helps me feel like I’m grounded at times.”

Blacklin appreciates the opportunity at Maple Spring Gardens to present ideas on different ways of doing things, as Dawson encourages his workers to express such ideas. “There’s more than one right way of doing things, so you’re always bringing something new to the table, which is nice,” she says.

First-time Maple Spring Gardens employee Alexis Mastromichalis of Raleigh isn’t new to farm life. She previously served as a farm director in Chile in South America and worked on three international farms to absorb a global perspective on farm life. Mastromichalis graduated with a degree in international development from George Washington

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University in Washington, D.C. Working on various farms, including organic ones, has given her a different point of view on agriculture.

“The most important thing I’ve found is that even though people grow the same things, they do it in very different ways,” Mastromichalis says. “I came into organic farming because I think it’s extremely important. If you’re trying to help the developing world, it’s really important to know how to grow food that is high in nutrition and is healthy.”

“I am more interested in the sustainable life skills that organic farming has to offer,” she continues. “Especially working on Ken’s farm, I am introduced to the abundant and essential parts of the earth which provide us nutrients and medicine — from the farm’s medicinal herbs, vegetables high in iron and vitamins to his pollinating bees. Ken demonstrates a life of sustainability and care for the earth.”

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The Carrboro Farmers’ Market has a website at [www.carrborofarmersmarket.com](http://www.carrborofarmersmarket.com), and the Durham Farmers’ Market website is at [www.durhamfarmersmarket.com](http://www.durhamfarmersmarket.com).