



Farmer Profile

Patryk Battle, Living Web Farms

by Stephanie Campbell,
CFSA Outreach Coordinator

Chief of Passionate Gardening

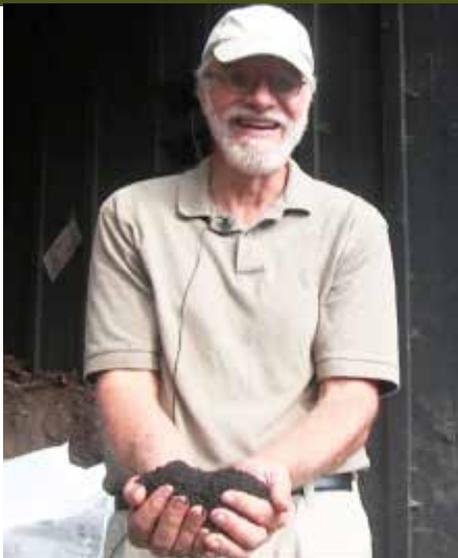
I caught up with Pat Battle on a beautiful August morning at Living Web Farms in Mills River, NC. Pat was sowing seeds for fall crops and had already been interrupted for advice needed about the mushroom cultivation, as well as for an issue with the black soldier flies. My interview was just one task among many for someone who is a farmer and the director, instructor, experienced wise elder, and Chief of Passionate Gardening!

"Farming is like that," he said, "trying to accomplish one thing and managing lots of others which 'crop' up."

Pat has been farming or gardening since he was a preschooler when he planted a corn patch by the fence in his yard. He was always planting seeds as a child and feels like he was meant for this career. He did not grow up on a farm and has no formal training but describes his education as attending the School of Passion, constant learning from others, and keen observation of the earth and natural processes.

More and more, what nature and his experience has taught Pat has made him a "champion of partnering with microbes" to promote healthy soils and people.

"Fifty to eighty percent of everything a plant photosynthesizes is sent below ground," Pat points out.



Pat Battle with compost from LWF,
Photo courtesy of Lisa Soledad Almaraz

"And 30-50% of that is exuded into the soil to feed the microbes. The plant 'knows' that it must feed the soil. We humans are 'learning' to feed the soil, not the plant."

Pat is interested in how human health and plant health are connected. The key is in the soil and the soil is alive.

Pat agrees that the single greatest leverage point for a sustainable and healthy future for the seven billion people on the planet is arguably immediately underfoot: the living soil, where we grow our food. ¹

Just as we have unwittingly destroyed vital microbes in the human gut through overuse of antibiotics and highly processed foods, we have recklessly devastated soil

microbiota essential to plant health through overuse of certain chemical fertilizers, fungicides, herbicides, pesticides, failure to add sufficient organic matter (upon which they feed), and heavy tillage. These soil microorganisms -- particularly bacteria and fungi -- cycle nutrients and water to plants, to our crops, the source of our food, and ultimately, our health.

These soil microorganisms do much more than nourish plants. Just as the microbes in the human body both aid digestion and maintain our immune system, soil microorganisms both digest nutrients and protect plants against pathogens and other threats. Thus the microbial community in the soil, like in the human biome, provides "invasion resistance" services to its symbiotic partner. We disturb this association at our peril.

"Someday (soon!) we will create a compost tea to control late blight," Pat says. "We have already done it, just not consistently!"

He shares the story of an Extension pathologist who looked at peppers growing at a Living Web Farm which Pat feared were suffering from *Phytophthora capsici*. The pathologist, however, doubted it could be *Phytophthora* because it wasn't totally wiping out the peppers as it invariably does.

Taking samples to the lab confirmed it was *Phytophthora* and the

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CFSA is on a mission to bring local, organic food to your table
from a farmer who shares your values

CAROLINA FARM STEWARDSHIP ASSOCIATION

CFSA is a membership-based organization of thousands of farmers, consumers, foodies, businesses and organizations in North and South Carolina. Our mission is to advocate for fair farm and food policies, build the systems that organic family farms need to thrive, and educate communities about local, organic farming.

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From the Director

30 Years of the Sustainable Agriculture Conference

June 1986. That was when a cadre of the Carolinas' organic farming pioneers first organized what would become the CFSA Sustainable Agriculture Conference. They wanted an opportunity to share with one another lessons they'd learned cultivating a new vision for agriculture in the South. They were moved by a spirit of generosity and a consciousness that over-reliance on 'conventional' farming practices was stripping our soils of vitality, and depleting and polluting our waters. They knew that if more farmers didn't learn how to work in harmony with nature and still have successful farms, none of them would be successful in the end.

It was a small group, 200 or so, that first year and they met for a day and a half in Raleigh, NC. No one there could predict the future, but certainly some would have hoped that this kind of farmer-to-farmer organic education would grow and thrive.

Grow and thrive it has. That CFSA field day became an 'annual' event the next year, and established itself over time as the first such regular organic farming conference south of the Mason-Dixon.

As the Sustainable Agriculture Conference turns 30 this year, we see a local food and organic farming culture that is strong and growing, attracting new farmers and putting clean food on our neighbors' tables. The joyful peer learning environment at the conference is a powerful magnet for farmers and local food supporters, a place where we reconnect with old friends, make new ones, and share hard-earned wisdom. With 1,400 people participating in three days of activities, the conference unites the Carolinas' sustainable farming community and energizes us both to find solutions for our difficulties, and plant the seeds for new opportunities.

The conference reflects change in the sustainable ag movement beyond its growth in attendance. Major hotel and conference centers are able to provide banquets sourced completely with local and organic ingredients. Elected officials seek the opportunity to address the crowd. Dozens of university, Extension and soil & water folks will be there to learn and to seek connections with organic farmers.

The leaders making up the roster of speakers include greater numbers of women and people of color. This year we welcome talented writer, activist and culinary anthropologist Michael Twitty as our keynote speaker—remarkably, the first time in the 30 years we've featured an Af-



Roland McReynolds, Executive Director

rican-American in this role. And in this way the conference hopefully reflects acceleration in our slow progress here in the South to strengthen the 'socially just' leg of the sustainability stool.

This will be my tenth year participating in the conference, and one of the many, many people who is vivid in my mind as part of the conference for that entire time is Pat Battle, who is fittingly profiled in this edition of Stewardship News. Not only is he a leader in applying and teaching systems-based science in agriculture, but he appreciates and articulates the deep connections between how we farm and how we treat each other, and successfully champions community-scale cooperation to improve both.

This is the same appreciation and commitment that animated that first CFSA field day, when farmers turned to farmers for the support that ag educational institutions, then openly hostile to organic farming and local food (except for a handful of renegades at NC State and Warren Wilson College), could not provide.

Our community is built on values of community security and self-determination, respect for farmers and Nature, reverence for the Earth, and neighborliness. Those values pulse beneath the vibrant conversations and insightful presentations every year at the conference. That is why this conference, and gatherings like it, still mean so much in a world of virtual classrooms and YouTube.

Connections between people grow strongest when they can put their hands in the soil, literal and metaphysical, together. We treasure this chance to connect face-to-face with so many people and we're grateful for those visionary CFSA members who started this tradition 30 years ago. We look forward to seeing you there this year.

Association News

CFSA Annual Meeting

The Annual Meeting of CFSA is open to all members and will be held at the Sheraton Imperial Hotel and Convention Center, 4700 Emperor Blvd., in Durham, NC, on Sunday, November 8, at 12:45 pm (immediately following the Sustainable Agriculture Conference).

Recommend a Board Member

Do you know someone who would be a good candidate for the CFSA Board of Directors? Would you like to know more about serving on the Board? Contact Elizabeth Read, Communications and Development Director, Elizabeth@carolinafarmstewards.org. Candidate suggestions will be provided to the Board of Directors.

CFSA Board Chair named NCR-SARE Hero

Congratulations to CFSA Board Chair, Jerry DeWitt, for being honored as a 2015 NCR-SARE Hero! This recognition honors the leadership, vision, contributions, and lasting impact that Jerry has made in the field of sustainable agriculture.

Welcome New Staff

Join us in welcoming these new staff members to our team! Go to carolinafarmstewards.org/contact-us/ to learn more about their

education, experience and commitment to sustainable agriculture.

- Marianna Spence, Membership Coordinator
- Thomas Moore, NC Food Systems Coordinator
- James Cooper, Local Produce Safety Coordinator

Upstate Farm Tour a Success

The 9th annual Upstate Farm Tour in South Carolina, June 6-7, was a great success with 23 farms participating, 7 of these new to the farm tour, and 46 volunteers. 924 visitors made a total of 4,801 farm visits for an average of five farms per visitor. A big Thank You to Whole Foods for their corporate sponsorship of this event!

Eastern Triangle Farm Tour (ETFT) Cancelled Due to HPAI Risk

CFSA made the difficult decision to cancel the 10th annual ETFT in September in order to protect farmers' livelihoods and their poultry from a possible seasonal outbreak of Highly Pathogenic Avian Influenza (HPAI). We studied the facts, met with the state veterinarian, and consulted with our farmers before coming to the conclusion that the threat of an HPAI outbreak caused by a farm visitor unwittingly carrying the virus onto a farm on the tour was too risky. We look forward to the opportunity to re-open the ETFT next year.

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carolina farm
stewardship association

SUSTAINABLE AGRICULTURE CONFERENCE

30TH ANNIVERSARY

November 6-8, 2015
Durham, NC

Join us in showing appreciation to our conference sponsors:

Sustainers - Keynote Sponsors

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A group of friends enjoying an up-close visit with chicks at the Upstate Farm Tour, Harp & Shamrock Croft, LLC, in Duncan, SC

The Tool Shed

Harvesting and Storing Pumpkins and Winter Squash

by James Cooper,
CFSA Local Produce Safety Coordinator

Evidence has been found in caves in Ecuador and other parts of Central America that winter squash have been planted and harvested for at least 12,000 years. The Spanish explorer Francisco Pizarro discovered squash on his travels through Peru.

Winter squash are not only very nutrient-dense foods (containing high levels of vitamins A and C), but also have a long storage life and can be stored anywhere from one month (for the table queen variety), to six months for types such as Hubbard thus pro-longing the farmer's season by generating cash-flow into the off-season.

Winter squash have a wide range of uses and can be roasted and/or used as a puree in soups, breads, muffins, pancakes, puddings, and pies. They can also be used as a main ingredient in casseroles, as a substitute for pasta (spaghetti squash), or even as a replacement for potatoes to make fries.

Halloween Pumpkins and winter squash are harvested September through October. Sometimes harvesting may start in mid-August to early September which requires good handling and storage of the pumpkin fruit before selling to the public in October.

Even after they have matured and are removed from the vine, pumpkins and winter squash are still alive. The object of curing and storing them is to prolong the post-harvest life of the fruit.

Mature pumpkins and winter squash store better than immature fruit. When mature, winter squash such as Butternut, Acorn, and Hubbard, have hard skins that resist puncture from your thumbnail. The mature fruit has a dull and dry skin compared to the fresh, bright sheen of the skins of immature fruit.

TYPE	LENGTH OF STORAGE	RELATIVE HUMIDITY	TEMPERATURE CONDITIONS
WINTER SQUASH/HUBBARD	5-6 months	70-75%	50-55F
ACORN	5-8 weeks	70-75%	50F
BUTTERNUT, TURBAN, BUTTERCUP	2-3 months	50-75%	50F
PUMPKINS	2-3 months	50-75%	50-55F

Keep in mind that dead vines do not indicate maturity in pumpkin and winter squash. When vines die prematurely from disease or drought, for example, the fruits are probably immature and therefore will not store successfully.

All pumpkins and winter squash should be well matured and free from injury and decay when stored. They should be kept dry and provided with good air circulation. It is important to control the humidity since high humidity will enable decay and lower humidity will cause excessive weight loss. When winter squash are taken out of storage they should be marketed immediately.

The pumpkin fruit is harvested when it is uniformly orange and the rind is hard. Green immature fruits may ripen during the curing process but not after the vines are killed by frost. Handle the fruit with care as to avoid cuts and bruises.

Harvest the fruit by cutting it off the vine leaving 3-6 inches of the stem attached to the fruit. This makes the fruit look more attractive and more marketable and less likely to be attacked by fruit rot pathogens at the point of stem attachment. Make sure the fruits are well dried before setting into a shed to cure.

Butternut, Hubbard and other squash types do not need to be cured as the benefits are less compared to pumpkins, while curing is very detrimental in Acorn types as it leads to decline in quality.

Store the fruits in a cool dry place in a single layer with enough space in between the fruits to allow for good air circulation. Ideal storing of winter squash is off the ground on wooden pallets. The optimal storage condition is 50-55F with a relative humidity of 50-70 percent

because high humidity leads to settling of moisture on fruit surfaces, which increases decay of the fruit and low relative humidity may cause dehydration of the fruit.

Store the fruits away from apples or any other fruits producing ethylene gas as they ripen which speeds up the ripening process. Check the fruits regularly and remove the ones that are rotten, as they will spread pathogens in the storage area.

Often it is not feasible to harvest pumpkins and winter squash early and store them until they can be marketed therefore they must be stored in the field. If vines and fruit are healthy, storage in the field can be successful for a few weeks. If the vines die back, damage to the fruit from sun, disease and insects is more likely. Even if it is difficult to provide the ideal conditions, storing the fruit in a shady, dry location, with fruit off the ground is preferable to leaving the fruit out in the field.

As you plan for storage and marketing, keep in mind that the market for pumpkins and winter squash seems to get earlier every year. Fall decorative displays include pumpkins and winter squashes, and those begin showing up after Labor Day.

Happy Harvesting!

You can contact James about our "Good Agricultural Practices (GAP)" trainings and mock audits at: james@carolinafarmstewards.org



PERENNIAL Givers Guild



Join today – it's simple and easy!

CFSA is pleased to announce the establishment of our Perennial Givers Guild.

You are invited to join this group of loyal members who, like the perennial plants the guild is named for, consistently support the work of CFSA.

Your gift, of any size, will ensure your donations go even further to help us build a regional food system that is **good for consumers, good for farmers and farmworkers, and good for the land.**

Because we value CFSA's commitment to local, organic food in the Carolinas, we have chosen to include CFSA in our monthly work place giving. As an accountant and former CFSA Treasurer, the significant value of a consistent stream of financial support to a not-for-profit organization is clear.

Rather than experiencing the highs and lows of volatile funding, through steady, monthly funding, CFSA can better plan for its future, retain high quality staff, and strive towards its mission – to help people in the Carolinas grow and eat local, organic food.



*We hope that you will join us as perennial givers!
Tom and Sue Krebs*

CFSA's commitment to farmers of all ages, but especially to young farmers, is of particular interest to us. We are dedicated to the new generations of farmers participating to build community with clean, high-nutrient-dense, local and organic food.



We have become perennial givers because of CFSA's strong advocacy, education, and support of farmers throughout the Carolinas. Your ongoing support will provide CFSA with a more stable income to carry out this work.

*Please join us in the Perennial Givers Guild.
Charlie and Cindy Sydnor
Braeburn Farm*

How to Join the Perennial Givers Guild

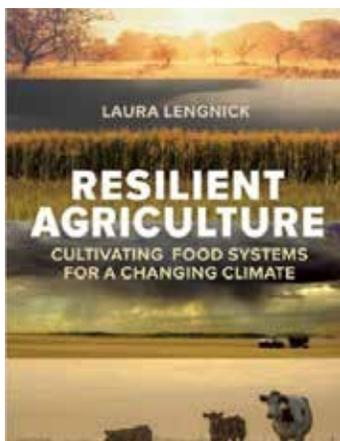
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or call Marianna at 919.542.2402

BOOK REVIEW

*by Laura Stewart,
CFSA Education Director*

We consistently hear from our farmers that increasing their adaptivity to changing weather patterns –including unpredictable rainfall, early and late frost, and extreme cold snaps - is a growing priority commanding more of a farmer's time and infrastructure investments. The long-time CFSA member, board member emeritus, and highly regarded author, educator, farmer, and climate scientist Laura Lengnick has published *Resilient Agriculture: Cultivating Food Systems for a Changing Climate*, which highlights the work of 27 award-winning sustainable farmers and ranchers from across the U.S., including CFSA member farmers Ken Dawson of Maple Springs Gardens in Cedar Grove, NC, Alex and Betsy Hitt of Peregrine Farm in Chapel Hill, NC, and Tom Trantham of Happy Cow Creamery in Pelzer, SC.

As Lengnick wrote in an article for WNC Woman: "Climate risk is the increased uncertainty caused by weath-



er-related disruptions to normal plant development—germination, flowering, pollination, fruit and grain development—caused by more variable spring weather, hot summer nights, heatwaves, and extreme temperature swings. Climate risk also includes complex secondary effects, such as changes in weed populations and other agricultural pests in response to warmer winters and longer growing seasons, more frequent and intense flooding, and disruptions in the supply of crucial agricultural inputs such as water, fuel, fertilizer, and electricity."

Resilient Agriculture highlights many practical changes farmers and food stakeholders can take to make their

businesses more adaptive and resilient, walking through 13 steps of whole-farm planning that minimize the impact of a weather-related event to recover more quickly. The book also explores ways our food system can better support the needs of farmers including the roles of food sellers, how chefs and home-cooks can "add resilience to the menu and how a soil-to-soil food management approach can strengthen our food system while bolstering many aspects of the ag industry."

Come hear Lengnick speak at the 30th Annual Sustainable Agriculture Conference in Durham, NC, November 6-8, in the Big Ideas track, where she will weave the climate adaptation stories of innovative sustainable farmers and ranchers with the latest climate science to explore the resilience of sustainable agriculture and food systems in these challenging times.

Bring your own copy or purchase a copy at the conference and have it signed at **Book-Sign-A-Ganza**, Saturday, November 7, 2015 at 5pm.

Come Join Us!



Fall Fun Festival

Local Food and Live Music
on the Farm

Saturday, October 24
3:00-6:00 pm

Elma C. Lomax Incubator Farm
3445 Atando Road, Concord, NC

Enjoy a fall afternoon with local food and live music and tour the educational organic farm:

- Meet the Farmers-In-Training who are learning how to grow vegetables as a career,
- Members of the Cabarus Homebrewers Society (CABREW) will show off their hops towers,
- Beekeepers will talk about pollination, and
- Congregants from Central United Methodist Church will share about their efforts to make more fresh vegetables available to those in need.

\$25.00 for CFSA members
\$30.00 for non-members

Tickets are available at:
[carolinafarmstewards.org/
lomax-festival/](http://carolinafarmstewards.org/lomax-festival/)

Association News (continued)

Grant Awarded for High Tunnel Outreach and Education

CFSA is pleased to be the recipient of a SCDA Specialty Crop Block Grant to study seasonal high tunnel outreach and education. The grant will help provide on-farm high tunnel production training and publish the SC Organic Seasonal High Tunnel Production Guide and the High Tunnel Micro Irrigation Guide on CFSA's website.

Organic Certification Field Day – Pelion, SC

Join CFSA and SC experts on October 15, 8:45am-4:30pm, at Pelion High School and WP Rawl Farm. Learn about organic certification and regulations and observe a mock inspection. Registration \$10 at [carolinafarmstewards.org/
events/](http://carolinafarmstewards.org/events/)

What to Do About GMO's?

By Jared Cates, Community Mobilizer



A battle is raging over labeling foods that contain genetically modified organisms (GMOs). There is broad consumer demand for labeling these products and a federal court has determined that states that require such labeling are likely doing so legally. Biotech and grocery store industries, though, have turned to the federal government to give them what consumers and the current law won't: a stop to efforts to label these products.

GMOs are found in almost all processed foods. On July 23, 2015, the U.S. House passed H.R. 1599, the "Safe and Accurate Food Labeling Act," a bill that would eliminate all state laws that require GMO products to be labeled. The U.S. Senate has yet to take up the House bill or develop its own bill. If the House bill is passed by the Senate and signed

into law, it will make it so difficult for consumers to understand what is in their food that opponents call it the DARK Act (Deny Americans the Right to Know Act.).

In addition to overriding current or future state laws requiring labels on food with GMO ingredients, the bill also requires the Food and Drug Administration to provide a "FDA Natural" certification that will likely be affixed to products with GMO ingredients. Not only will this give GMO products the government's seal of "natural," it is likely to undermine the USDA Organic certification that many of our farmer and food company members rely on to distinguish their products in a competitive marketplace (USDA certified organic foods cannot contain GMOs).

The Environmental Protection Agency recently decided to allow the use of Enlist Duo (a product containing two herbicides: 2,4-D and glyphosate) in controlling weeds in GMO corn and soybeans. Herbicide use on GMO crops has increased rapidly of late and further sharp increases are expected to continue in the near future. New

scientific evidence about the harm herbicides can cause to human health raises concerns that we don't know enough about their impact to be sure they are safe to use in such high amounts.

A study released by the World Health Organization determined that glyphosate is a "probably human carcinogen" and 2,4-D is a "possible human carcinogen."¹ Herbicide manufacturers conducted studies of the safety of their products in the 1980s and 90s and failed to take into account their impact on children or the human endocrine system.

We think that it is not yet the time for Congress to weigh in on the issue of GMOs. We are learning more about their impacts with each passing month, and the news is often alarming. Visit our website at carolinafarmstewards.org/safe-and-accurate-food-labeling-act/ to learn more about this bill, for links to additional research around GMOs and pesticide use, and for some simple steps you can do to take action around this harmful bill.

¹<http://www.iarc.fr/en/media-centre/iarcnews/pdf/MonographVolume112.pdf>

Farmer Profile
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researcher was impressed that the plants were “resisting” the disease. Although many plants died, it took the whole summer of 2013 to kill two thirds of the peppers, a year when extremely wet conditions favored Phytophthora. The pathologist attributed this relative disease suppression to soil health. She referred to Living Web soil vitality numerous times in the discussion.

Pat gleefully shares that we are making progress and that is what gets him excited about sustainable agriculture!

Sharing the Passion . . . and the Power

Pat is a natural teacher and is always sharing what he has learned with others – this is his favorite thing to do (besides gardening!). In 1994 he began to do a lot of teaching and he is well known for his work at the WCQS radio garden call-in show, the Organic Growers School in Asheville, Mayland Community College, Virginia Tech’s farmscaping program, and is a favorite presenter at CFSA’s Sustainable Agriculture Conference.

As the conference turns 30 this year, Pat remembers attending all but one or two of the conferences. It has been instrumental in his own journey and he is a passionate proponent of both the learning and the connections which happen there.

“The conference is about knowledge AND inspiration,” Pat says. “It’s about learning in the classroom AND in the hallway. It’s about coming together after a long year of work, with people who are dealing with the same things you are, and getting inspired and re-energized together.”

Pat was a significant contributor to CFSA’s policy approach to food safety. He beams when he remembers the bank of computers provided at the conference to give farmers the opportunity to comment on the proposed Food Safety Modernization Act (FSMA) and the real positive changes which were a direct result of this work together.



Pat and team leading a tour for agricultural educators and extension agents at the Mills River Educational Farm; photo courtesy of Lisa Soledad Almaraz

This is where, Pat insists, we are able to “feel our power, renew our power, and network our power.”

He’s looking forward to this year’s conference and eager to both contribute to the learning and to learn from others, as well as be part of the “buzz” which is making a real impact and changing the future of agriculture and our world.

Pat’s Major Crop is the Future

Pat is a self-described activist. In the late 1960’s and early 70’s his cause was the Vietnam War. Now he is an activist about sustainable farming and food. Pat sees food as a way to connect with everyone, as an ultimate and universal truth, and because of its universality food is one of the most effective ways to build community and the world we want to see.

At Living Web Farms, Pat is busy learning, developing, teaching and sharing practices such as thermophilic composting, multi-species cover crops integrated with mob grazing and no-till methods, farmscaping/beneficial insectaries, biochar production, black soldier fly production, sustainable ranching, and permaculture. A calendar of workshops as well as links to videos and resources are available at Living Web Farms’ web site: livingwebfarms.org.

Pat is excited about the future of farming and feels privileged to be working on figuring out systems of regenerative agriculture, focusing especially on its potential to maximize soil fertility and thereby sequester critical amounts of carbon.

Pat will be presenting at the Sustainable Agriculture Conference with Gred Gross, of the **Southeastern Permaculture Gathering**, on *Cost Effective Deer Exclusion Strategies*. He is looking forward to the opportunities to network with CFSA members who are learning together, making leaps to new technologies and processes, and creating a future that ensures a safe, healthy and sustainable food system - now and for future generations.

Living Web Farms, Mills River, NC

“Mr. Ed” – the Mills River Educational Farm – includes greenhouses filled with seedlings and a variety of plants, the Naturally Grown Preschool with a commercial kitchen, vegetable gardens, a pond, pasture, wood-fired oven, meandering stream, solar installation and even a few miniature ponies.

The Grandview Farm is filled with the activity of animals including a beautiful flock of heirloom bred chickens, cows, pigs and a donkey.

¹Healthy Soil Microbes, Healthy People; The Atlantic, June 11, 2013.

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The Food & Farm
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**SUSTAINABLE
AGRICULTURE
CONFERENCE**

30TH ANNIVERSARY

**Nov. 6-8, 2015
Durham, NC**

