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Message from the State Conservationist ...

Time marches on, and we again find ourselves in another contracting, planning, implementation season ...the busiest time of the year for us and those we serve. And as we gear up for another season of hard work, we do so with a new Farm Bill on the table.

This new legislation brings about many changes, but some things do remain the same. One constant is our passion for our work. What we do matters ... not only to ourselves, but to the residents of the state who reap the benefits of the very resources we protect. We're on the cutting edge of a very exciting time. More and more people in Connecticut (and worldwide) are recognizing the importance of what we do. They're embracing local foods, healthy soil, cleaner water, and wildlife habitat.

Office Locations

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Lisa Coverdale
State Conservationist

"...Today, almost 80 percent of Americans say sustainability is a priority when purchasing food. The promise of this kind of majority is that eating local can reshape landscapes and drive lasting change...." (NY Times)

These days, there may be more to do, but the rewards are there ...

- Farming in Connecticut and New England has grown.
- The health of our water is getting better.
- We have a larger, more diverse group of new and beginning farmers who are networking and getting excited to do all they can to provide sustenance to the residents of the state.
- More and more established farmers are showing an interest in the health of their soil.
- And more landowners are taking on the responsibility of providing wildlife habitat.

Please know I'm doing all I can to give you the tools needed that will allow you to alleviate some of the stress. Critical vacancies are being filled, volunteer contributions are at an all-time-high, and discussions with our core partners about leveraging our respective resources to build capacity are exciting. We are on a constant mission to develop better, clearer processes that will help you navigate what at times seems like a gauntlet of unfriendly change. And we need your feedback ...

(Continued on next page)

Federal Employee Viewpoint Survey (FEVS): You will soon (or may have already) received the Federal Employee Viewpoint Survey from OPM, by email. Please take some time to answer the questions...it is totally VOLUNTARY and ANONYMOUS, and one of many tools designed to gather employees' perceptions regarding their work life, what drives employee satisfaction, commitment, and workplace retention.

I want to make NRCS a "*best place to work.*" I'm proud to work with such highly dedicated and professional public servants, you are all so very committed to your jobs. Frankly, past FEVS results have been revealing: leadership can do better at communicating effectively, becoming better engaged with employees, and rewarding employees for jobs well-done.

Your answers will make a difference. The survey gives you a meaningful way to share feedback on your current work environment. This is done by collecting information about your experiences with leadership and management practices, agency and job satisfaction, supervisors and team leaders, your work unit, and work/life balance issues. It's your opportunity to influence change in the agency.

We will continue to hold sessions by group, and one-on-one, to 1) listen 2) provide feedback 3) increase awareness and develop strategies.

State Earth Team Coordinator: One more shout-out to Carol Donzella for her nearly 15 years of dedicated leadership to developing a strong and vibrant Earth Team Program! I wholly support the ETV Program and thank ALL of you for your leadership in this area, as well. We will be recruiting a new ETV Coordinator, which is a collateral position that requires up to 20% of an individual's time. Please consider, or support your staff who may seek your concurrence!

Healthy Soil, Resilient Soil: *Referring back to the 80% I mentioned in the beginning ...* In the face of climate change, high demographic pressure, shortage of prime agricultural land, and harsh environments, the *resilience* of our soil, and its ability to bounce back and recover makes our soil health efforts even more critical. In a joint effort with Farm Services Agency and our Conservation District partners, field offices will be gathering information as we develop a baseline cover crop inventory. A similar effort, "Cover Crops Crusaders" is one that engages our interns and Earth Team volunteers, using remote data and digital photos to document cover crops in the state. Soil monitoring will be done over the next 3-5 years in specific locations. And, please encourage staff and partners to attend one of several soil health workshops that are being scheduled this spring, summer, and fall. Our co-worker and friend, Ray Archuleta, will be returning in November to entertain and educate at an exciting multi-state, multi-stakeholder event to be held at DEEP.

There is so much to say I will close by reminding you to please **Remember Your Stakeholders** – the most important being 1) your family's; and 2) your team members and their families. I thank all of you, and I thank all of them.

Lisa

Nitrogen Fertilizer – A Focus on Soil Health

Contact Garrett Timmons (860) 887-3604, Ext. 302

There's a lot of great work going on in NRCS right now regarding soil health. In Connecticut, we've recently renewed our focus on nitrogen with the Haney Soil Test.

We know the impacts excess nitrogen can have on water quality. Much of our work is focused on that little nitrate ion and keeping it out of ground and surface water. But, we should also consider the effect of nitrogen fertilizers on our soil.

All fertilizers are not created equal – for example, let's take a look at urea:

1. When urea is added to soil, it is hydrolyzed into ammonia and carbon dioxide
2. The ammonia either escapes into the atmosphere or is converted to ammonium
3. The ammonium converts to nitrites and then nitrate

These conversions lead to problems:

- Reactions in both Steps 1 and 2 consume water. This causes local dehydration and can kill or inactivate soil life.
- In Step 2, the production of ammonium also produces hydroxyl ions. Short-term, this can raise the soil pH near the fertilizer to caustic levels. This again is a poor situation for soil life.
- Finally, in soil environments where nitrogen is a limiting element, the additional nitrogen can speed up bacterial consumption of organic carbon. (These effects were desired when urea was used in the construction/compaction of runways in World War II.)

Of course in many situations, the benefits from nitrogen fertilizer will far outweigh the damages. And just as different forms of fertilizers have

different effects on soil life, so do different fertilizer rates. The proper form and rate of fertilizer will improve plant and soil health.

Changing fertilizer regimes is not something to jump into. There are complex systems at work, and adjustments in most cases need to be gradual and based on soil and tissue tests. But it's good to keep in mind that extra nitrogen added as *insurance* may not be helping your efforts for soil health. Always ask the question, "Does nature approve?" The answer isn't always yes.

So how does nature provide nitrogen? Well, 78% of the atmosphere is nitrogen. That means that above every acre there are 37,000 tons of the stuff! We know legumes help get nitrogen into the soil system, but that's only part of the story. Legumes do partner with *Rhizobia* bacteria which can fix atmospheric nitrogen into plant-available forms. But other soil bacteria do the same thing! *Azotobacter*, *Azomonas*, *Klebsiella*, *Frankia* and many others fix nitrogen, and often they do it independent of plants. What's even more interesting is that many of these nitrogen fixing bacteria also occur on the *phylloplane* (the leaf surface)!



It is never too late (or early) to learn more about farming!

News From Partners ...



Conservation District Gets New Director

NRCS Welcomes Dan Mullins!

The departure of Eastern Connecticut Conservation District Executive Director Scott Gravatt brings with it a new face – that of Dan Mullins, who hit the ground running April 14, 2014.

Mullins brings with him more than a decade of experience spearheading a project in Willimantic to restore the Willimantic River and its migratory fish, while creating an urban whitewater facility for recreational boating. Through his work leading the Willimantic Whitewater Partnership (WWP), Mullins has developed a network of partnerships that dovetails nicely with ECCD's existing family of partners.



Dan Mullins

Mullins founded WWP while a freshman at the University Of Connecticut School Of Law where he focused his studies on environmental law, serving year-long internships at the Connecticut Fund for the Environment (CFE), Trout Unlimited, and the University Of Connecticut Office Of Environmental Policy. His work at CFE focused primarily on tracking down violators of the Clean Water Act. For Trout Unlimited, he researched statutes governing water law in 10 states. And while at UConn's Office of Environmental Policy, he was involved in a wide variety of issues ranging from aquifer protection and low-impact development to integrated pest management. Upon leaving UConn, he served on the university's Water and Wastewater Advisory Committee, as well as the Board of Trustees of Joshua's Trust (a land conservation trust in Eastern Connecticut).

For the past seven years, Mullins has worked for a regional education service center developing and implementing environmental education programs and science workshops for science teachers. His diverse experience in education, environmental issues, and public outreach will serve ECCD well as he takes over at the helm of one of the most respected conservation districts in the state.

Mullins can be reached via email at dan.mullins@comcast.net or at (860) 887-3604, Ext. 402

NRCS Participates in CCNR Event at UConn

Several members of the NRCS staff took time out of their schedules to be a part of the 7th Annual Connecticut Conference on Natural Resources, a multi-disciplinary conference held at the University of Connecticut.

The event brings together individuals working with natural resource and environmental management in the state to share research, information, and ideas. It features a mix of professional and informal forums to promote information exchange, networking, a sense of community regarding the state's natural resources, and to recognize achievements of dedicated individuals and groups.



NRCS display at the CCNR event.

While members of the soils staff manned an informational booth, several others (current and former) were recognized for their work in the area of forestry. Receiving the very prestigious Two Chief's Award (signed by the Chief of the Forest Service and the Chief of NRCS) were State Resource Conservationist Nancy Ferlow, former State Conservationists Jay Mar and Doug Zehner, Connecticut's State Forester Chris Martin, and UConn's Tom Worthley. Several other NRCS and Connecticut Department of Agriculture employees received awards, as well.



Forestry award winners.

EARTH TEAM

NRCS and the Earth Team: A Volunteer's Perspective

By Emily Kading

After my experience as an Earth Team volunteer with NRCS, a drive around Connecticut will never be the same.

Working with NRCS gave me a hands-on opportunity to work in agricultural areas throughout southeastern Connecticut. What has changed my drive is my new found attention to the many fields that make up our landscape, primarily the slope found within the fields and their proximity to waterways. Though those riding in the car with me do not seem to share this new appreciation for this field, I get excited pointing out, "Look at how steeply that field drains into that pond. I think that is a 12% slope!"



My Earth Team volunteer work was completed as an internship through the University of Connecticut through the College of Agriculture and Natural Resources. During my time with NRCS, I was able to gain experience in many fields. I especially enjoyed working on different projects in the field of hydrology; including predicting storm water runoff paths, how slope contributes to soil erosion, agricultural related water quality issues, and the study of wetlands. I also worked in conservation science, seeing how NRCS worked with local farm owners to minimize impacts on land and water, and to conserve resources whenever possible.



My work on obtaining slope was to be used for implementation of Comprehensive Nutrient Management Plans for local dairy farmers. To find slope, I worked with another volunteer and the "go-to tool" a clinometer. During the semester, Andrea and I went from novice slope finders to a well-trained duo, employing strategy and logic in getting the right measurements. Each day we went out to fields in places like Sprague and Salem and thoroughly analyzed the fields to answer the question: "If a raindrop fell, where would it go?"

Slope finding was not the only agricultural work I did. I also got experience doing surveying at a beef farm. Though the conditions were mucky, requiring thigh high waders, I gained a great appreciation for the mind of a surveyor. Working with an engineer from the Norwich Office and a veteran surveyor from another office; we utilized a surveying laser and a prism to take hundreds of measurements along a severely eroded road on the farm. We worked in a field alongside a herd of approximately 35 curious cows that providing both entertainment and the occasional scare (and they were certainly disappointed with our lack of food provisions!).

Work done at a horse farm in central Connecticut taught me the cooperation that goes on through multiple levels in the name of conservation. Not only is the horse farmer working with NRCS, there are also other agencies like the Connecticut River Coastal Conservation District that the horse farmer interacts with. The mix of agencies combined with the private owners' focus on their own needs can cause confusion, but also can result in a stronger network. Each agency and individual provides their own expertise to the situation resulting in better knowledge and understanding for all.

The time I spent as an Earth Team Volunteer has given me a new appreciation for conservation as it relates to working lands. My eyes have been opened to how anything you put on the ground will find its way to a watershed as a function of slope. The insight and knowledge I gained working with NRCS will be helpful in any career path I go on to, but especially useful with my major in Agriculture and Natural Resources. I am grateful for everyone that I worked with for their assistance and the wisdom they passed on to me during my time as an Earth Team Volunteer.

Volunteers Recognized

Contact Carol Donzella (203) 287-8038, Ext. 100

NRCS staff recently had a chance to officially recognize the group who won the National Earth Team Group Volunteer Award at the Operations Team Meeting. 12-TOL Pedon Team members on hand to receive their awards included Michelle Ducharme, Devin Spector, and Aaron Parsons. State Conservationist Lisa Coverdale was also on hand to receive the national award for Connecticut.



Connecticut volunteers recognized for an amazing year.

The Pedon Team is made up of students from the University of Connecticut, Central Connecticut State University, and Eastern Connecticut State University. Their mission is to enter pedons from historical soil survey manuscripts that were not yet entered in the National Soils Information System (NASIS).

There are over 400 soil series within the 12-TOL Soil Survey Region, with an estimated 400 to 28,000 pedons to be entered. To date, the team has entered over 300 pedons!

Also recognized was Jessica Rebholz, who received a special award for contributing over 200 hours of time to the soils staff (although not as part of the Pedon Team).



**State Conservationist
Lisa Coverdale.**



Soil Scientist Marissa Theve

Just what is the Soil Pedon Team Working On?

Contact Marissa Theve (860) 871-4018

To prepare for Soil Data Rejoin Correlation (SDJR), soil scientists must update and enter all available soil data so the resulting new map units reflect the most representative soil properties across each major land resource area (MLRA). This process includes updating existing pedons to reflect laboratory results, as well as entering typical pedons described in manuscripts but not yet entered into the database. Here is where 12-TOL's Earth Team Volunteers (ETVs) come in.

At the beginning of the Spring 2013 semester, the Soil Survey Office put out a flyer to local colleges and universities with soils, geology, and environmental science/natural resource departments inviting students to volunteer to enter pedon data. Most students gain course credit for their work through their respective universities, but some simply use the experience to learn about soils, boost their resumes, and help out.

To facilitate the data entry, students download the PedonPC Program, receive individual training on their personal laptops, and are given a reference guide to help populate the fields. From there, the volunteers take prepared pedons and work from home or school. Most volunteers come to the office once a week in order to share the completed data and pick up new pedons to enter.

"With relatively little exposure to pedology, I was able to get a head start in understanding how to classify soils taxonomically," said volunteer Dan Grondin. "This helped me later in the semester as I was introduced to more in-depth studies of soil sciences during a geomorphology class – everything from mapping and understanding how soils formed, along with the practical application in agricultural, engineering, geological, and soil scientist's perspective. I plan on staying with NRCS to help when I can and further my understanding of the topic."

This overwhelming success shows that with a simple flyer and a little training time, NRCS staff is able to attract exceptional volunteers and accomplish a lot of work. The 12-TOL staff looks forward to new and continued university relationships, and hopes to attract more students in need of college credit and experience throughout the SDJR process.

My Winter and Spring with NRCS

By Andrea Brendalen, Earth Team Volunteer

My time as an Earth Team Volunteer with the Norwich field office was full of new experiences.

- I worked mainly under District Conservationist Javier Cruz, but also helped the field technicians. Early on, I took pictures to document that conservation practices were being performed as written in contracts.
- Next, I assisted Javier in assessing and recording the exact locations of New England Cottontail brush piles using a Trimble handheld computer with GNSS. The brush piles we were working with were part of the New England Cottontail Initiative, which is part of the Environmental Quality Incentives Program (EQIP).
- I also, completed two Natural Diversity Database (NDDDB) applications for conservation plans submitted by the field technicians in the office.
- The latter part of my volunteering included using a clinometer to find average slopes of fields for the purpose of preventing erosion through certain management practices that are developed for each field. A fellow Volunteer and I performed most of the clinometer fieldwork together as it is much more efficient with two people. We also used the Trimble handheld unit to find the exact location of a boundary to calculate the exact acreage included in a forestry management plan. NRCS needs to ensure that the acreage figured by the forester is the same as what we measure using the Trimble GPS unit and is written into the contract.

I feel that I had a well-rounded experience as an Earth Team volunteer. The amount of trust Javier had in my skills to complete tasks alone using expensive field equipment really gave me a hands-on, real-world experience and I felt I was part of the NRCS team.

While I mostly enjoyed the fieldwork, using the office computers and filing system for things like maps and soils was useful and necessary in order to complete the fieldwork.

What I took away from my time as an Earth Team volunteer is the amount of dedication and the tireless work that each and every person in the office put into their jobs. The conservationists, engineers, and office staff with whom I worked in Norwich really furthered my desire to work for the environment and strengthen the connection that people have with the places they live.

NRCS and the Green Village Initiative

By Jackie Goodwin, Intern

The Green Village Initiative began in Connecticut as a movement concerned with local food production, education and sustainability paired with community building. The group has been thriving since its formation in 2008, initiating valuable new scientists, students, non-profit activists and others to its board of twenty dedicated people as well as expanding geographically to Bridgeport, Ridgefield and New Haven.



Green Valley Initiative site

Over the years, Green Village Initiative has found resources and funding partners in order to make these ideas a reality. Since its development in Westport, the community has wholeheartedly supported the actions of Green Village Initiative, including Staples High School, the Westport Public Library, and the Westport Historical Society. The City of Bridgeport has also understood the importance of the program and contributed similar resources. The Green Village Initiative has many goals, one of which is having a garden in every school in Bridgeport – they are currently at a third of that goal with 36 running gardens. Also located in Bridgeport is an urban farm that serves the community in a number of beneficial ways.

Since breaking ground for the community garden – located on the corner of Reservoir Ave and Yaremich Drive in Bridgeport – crime has decreased significantly in the area. This corner was reportedly known as an area of high activity for drug deals. However, since the farm has been in production, more members of the community have come together to make it a better place. Neighbors can come and have a raised bed to grow nutritional and fresh vegetables for themselves.

To address the GVI goal of healthy schools, the farm sends the fresh vegetables to local school cafeterias, contributing to a healthier inner city diet. It is this kind of dedication that could one day be spread nationwide to better feed America, and a strong social movement.

The farm is run by Monique Bosch, who has seen it through every step of its growth, including its interaction with NRCS. Hoping to have improved production during the winter months, Bosch worked with NRCS to obtain a seasonal high tunnel. The implementation of this technology has helped the GVI have a better crop yield for the schools.

Other than the members of the community who manage their own plots, the farm relies heavily on volunteers and interns some local from Staples High School and Fairfield Preparatory High School, and some not so local from the University of California at Berkeley, and Tufts University.

The GVI believes that having edible gardens in such a densely populated city will help with issues such as food justice, health, and employment. Also, by appealing to younger generations, GVI is helping kids become more interested in growing their own healthy foods—something that can later be passed on and ingrained into the city's culture.



This seasonal high tunnel helps lengthen the growing season at GVI.

Because this farm has been so successful, GVI has proved they are a valuable asset. Their morals of good health, strong education, and an impermeable community are reflected in every property they run and every child who eats the food they produce.

The NRCSer's Guide to Pollinator Week: June 16-23, 2014

Contact Sally Timmons (860) 779-0557, Ext. 106

June is right around the corner, and you must be asking yourself, "How can I make Pollinator Week 2014 THE BEST EVER?!" The general public's interest in the plight of the bee has exploded, and whether you work in the field or the office, it is beneficial to have a little pollinator knowledge under your belt.

The Basics

- Although important to agriculture, honeybees were introduced to the U.S. and are not considered in native pollinator conservation efforts.
- Native pollinators are more efficient than honeybees – some pollinate for twice as many hours. According to an Enfield farmer, "Native bees work longer hours, even in bad weather, for less pay! Honeybees are fair weather pollinators."
- Native bees are diverse in size, color, and behavior. Bees may nest in the ground or in cavities in trees or wood, separating eggs in cells sealed with leaf material or mud. Most native bees are solitary, though native bumble bees are communal like honeybees.
- Don't forget wasps, butterflies, moths, flies and beetles – many species are native pollinators too! Beetles were prehistoric pollinators, and moths are important specialist pollinators.
- Wildlife species depend on pollinators for the production of their food; some native plants depend on just one species for pollination. Pollinating insects themselves are an important food source for many species of birds.



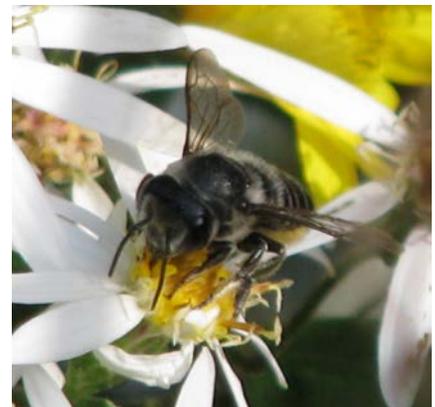
Early successional habitat often provides excellent habitat for native bees. Flowering native plants and shrubs and patches of bare ground are ideal

Threats to Pollinators

- Habitat loss and fragmentation, including loss of native host plants
- Introduction of invasive species, disease, and the pressures of a changing climate
- Environmental pollution-pesticides such as *neonicotinoids* have made headlines for their devastation of bees. Genetically modified crops have reduced the need for some pesticides, but have wiped out native host plants on hundreds of millions of acres of treated fields.

Three Steps to Success

1. Protect existing native bees and bee habitat
 - Ground nesting bees love sunny slopes and sandy, undisturbed (no-till!), sparsely vegetated, well-drained soil. Planting a dense pollinator planting in these bare areas may look pretty, but it will drive away ground nesting bees!
 - Cavity nesting bees love snags and shrubs with pithy stems like brambles, elderberry, and sumac
 - Consider preserving flowering hedgerows and *weeds* outside of production areas



Although honey bees are not native pollinators, they remain important to agriculture in the state.

Continued on next page

2. Adapt land management practices

- Reduce tillage as much as possible to protect ground nesting bees
- Choose pesticides carefully and spray when winds are low and bees are not active. Provide field buffers to reduce pesticide drift. Choose granular or soluble (versus dust and powder) formulations.
- Plant cover crops beneficial to pollinators, such as buckwheat or clover. Avoid planting flowering plants for perennial cover in frequently sprayed systems such as orchards and berry crops.

3. Provide habitat for native pollinators

- Plant native plants with diverse flowering periods to ensure food is available throughout the season. Consider plants that also host butterflies or moths, such as milkweed.
- Install bee boxes and tube bundles, or create snags to attract cavity nesters
- Set aside field margins or natural areas for ground nesting bees, or create sand piles

TAKE ACTION!

- Connecticut's State and Field Offices have a supply of the newest pollinator poster, as well as the *Be a Friend to Pollinators* brochure. The public is invited to stop by any of the offices to pick some up.
- NRCS field staff should consider completing or simply distributing Pollinator Habitat Assessments (available at [The Xerces Society](#) and on the sharepoint) when visiting farms.
- Visit [Pollinator Partnership](#) and [The Xerces Society](#) to learn more.



Things to Do in Litchfield County this Spring and Summer ...

Contact Aimee Fusco (860) 626-8258, Ext. 111

If you're looking for something special to do this spring or summer, consider making a visit to the northwest corner of the state ...

- Visit **21 different birds of prey** at [Audubon Raptor Center](#), in Sharon. Birds include a bald eagle and great horned owl
- Visit a **model solar system** that spans six miles built to scale at the [John J. McCarthy Observatory](#) in New Milford.
- Go **geocaching** at the Little Pond Loop Trail, see a live snake habitat or fluorescent rock cave, or hike along a boardwalk trail through a wetland environment at [White Memorial Nature Center](#), in Litchfield.
- Spend a Saturday afternoon **touring** the lovely [Arethusa Dairy Farm](#) in Litchfield.
- Take the little ones to **story hour** at the [Litchfield Hills Farm Fresh Market](#), in Litchfield, then shop at the comprehensive outdoor market for local fresh produce along with local jams, granola, salsa, bread, etc.
- Walk a **7-circuit labyrinth** at the [Wisdom House](#) in Litchfield.
- Spend the day rafting down the scenic Housatonic River with [Clarke Outdoor River Guides](#)
- Go on a drive-through safari at [Action Wildlife](#). Drive through the 50 acre fenced-in exotic wildlife park. Keep an eye out for zebra and buffalo.
- In July, visit more than 50 Alpacas and their new babies at [Southwind Farms](#) in Watertown during the Daylily Alpaca Fest
- Kayak or canoe around scenic [Lake Waramaug](#)
- Hike to the top of [Kent Falls](#)
- Visit a replica of a pioneer cabin as described by Eric Sloane in 1805 at the [Sloane-Stanley Museum & Kent Iron Furnace](#)
- Take the kids to splash in the East Aspetuck River at [Pratt Nature Center](#) in New Milford
- Hike up to Lookout Tower and enjoy the view at [Mount Tom State Park](#); then take a swim at the sandy beach on Lake Tom
- Go spelunking at [Tory's Cave](#) in New Milford
- Check out thousands of sunflowers at [Waldingfield Farm](#) in Washington
- Volunteer for a day at [Judea Garden](#), a garden grown for the community, in Washington
- Pick your own strawberries and blueberries at [Ellsworth Hill Orchard and Berry Farm](#) in Sharon

2012 Census of Agriculture Reveals New Trends in New England Farming

USDA Reports Record Sales Moderated by Rising Expenses; Agriculture is Increasingly Diverse; Farming and Marketing Practices are Changing

By National Ag Statistics Service



There are now 57,493 farmers operating 34,877 farms on 4.2 million acres of farmland across New England, according to the *2012 Census of Agriculture*.

Census data provides valuable insight into U.S. farmer demographics, economics, and production practices. Some of the key findings include:

- While total land in farms at 4.2 million acres is up 4% from 2007, total crop land decreased 10% to 1.4 million acres.
- Total farm income totaled \$3.1 billion dollars. Of this amount, \$2.8 billion came from the value of agricultural products, \$246 million came from farm related income (timber sales, agri-tourism, rent, etc.), and \$43 million came from government payments.
- New England producers spent \$2.75 billion on production expenses – a record high.
- Eighty percent of all farms had sales of less than \$100,000, producing only 3% of the total value of farm products sold.
- Top commodities in New England where
 - Milk - \$804 million
 - Nursery, greenhouse, floriculture, and sod - \$581 million
 - Vegetables (including potatoes) - \$355 million
 - Fruits and berries - \$296 million
 - Poultry - \$128 million
 - Aquaculture - \$125 million
- Sales of agricultural products for human consumption sold directly to consumers totaled \$126.7 million.
- 24% of New England farms sold agricultural products for human consumption directly to consumers
- 13% of New England farms sold directly to retail outlets including grocery stores, restaurants, schools, and hospitals.
- Organic sales were growing, but accounted for just 5.1% of the total value of New England agricultural production. Organic farmers reported \$143.9 million in sales in 2012, up from \$103.0 billion in 2007.
- New England farmers employed 61,629 full and part time workers, up 8.6% from 2007. Full time workers (those employed 150 or more days) accounted for 39% of the workers. Part time workers (those employed fewer than 150 days) accounted for 61% of the workers.
- Young, beginning principal operators (under 35 years old and less than 10 years of farming) increased 25% from 1,244 to 1,552 between 2007 and 2012.
- 2,173 farms produced on-farm renewable energy.

Conducted since 1840, the Census of Agriculture accounts for all U.S. farms and ranches and the people who operate them. The Census tells a story of how American agriculture is changing and lays the groundwork for new programs and policies that will invest in rural America; promote innovation and productivity; build the rural economy; and support our next generation of farmers and ranchers. For more information visit www.agcensus.usda.gov

The Naturalist's Niche

Contact Charlotte Pyle (860) 871-4066

THE INDESTRUCTIBILITY OF SOIL AND OTHER MYTHS

The little trail we followed from the old, isolated cabin came to a rushing stream. I made some comment about it being too bad that the bridge was in ruins. My companion told me that it really hadn't been a bridge. Rather, it had been an outhouse..."because, there was nobody else living around here, and, "he turned to me and said with confidence, "water purifies itself in a mile, you know."

In 1909, Milton Whitney (Chief of the Bureau of Soils) wrote with presumably equal confidence some sentences in the Bureau of Soils Bulletin #55 that inflamed Hugh Hammond Bennett (the progenitor of the USDA, Soil Conservation Service which later became the Natural Resources Conservation Service). Whitney said, "The soil is the one indestructible, immutable asset that the nation possesses. It is the one resource that can not be exhausted; that can not be used up." Today, anyone who has seen 1930s photos of the Dust Bowl, or more close to home, observed erosion where the terrace escarpments have given way in the Scantic River watershed, or seen sheet erosion take noticeable amounts of topsoil off a recently cleared area might reasonably question this.

Another notion from the same 1909 source was, "From the modern conception of the nature and purpose of the soil it is evident that it can not wear out, that so far as the mineral food is concerned it will continue automatically to supply adequate quantities of the mineral plant foods for crops." You perhaps have observed that this is not the case in your garden without some careful tending of the soil.

Rather than looking at the question of whether or not soil is indestructible, let's think about why some people say it is a renewable resource. Renewable resources are "any natural resource that can replenish itself naturally over time." In contrast to things like coal, diamonds, natural gas, and gold, the soil, water, animals, plants and air can reproduce themselves or they are involved in natural cycles that renew them. Soil, water, plants, animals, and air are considered renewable because they are replenished or renewed by natural processes that we can observe on a human time scale.

People calculate soil renewability in terms of tons per acre. To get a mental picture of tons per acre, it helps to

know the relationship of weight to depth. An acre-inch of soil refers to the soil in a layer one inch deep across an acre. In the USA, people consider the weight of an acre-inch of soil to be (on the average) 167 tons per acre. The number 5.6 tons/year that you may have once learned as the acceptable per year erosion rate comes from the assumption that it takes 30 years to develop an inch of soil ($167/30=5.667$).

How quickly soil regenerates is a function of how warm and how wet an area is, what type of rock or other soil parent material is present, which plants and other living organisms are available to interact with the parent material, and the shape of the landform underlying the site (with soil forming processes generally going faster in hot, humid climates on readily weathered parent material). Thirty years to develop an inch of soil is a generous estimate. In Connecticut, our State Agronomist Jim Hyde tells me it would involve a high level of inputs that encourage bio-chemical activity in the soil as well as ongoing careful management of the soil. Other estimates of the time it takes to regenerate an inch of soil range from 100 to 1000 years (with an estimate of 588 years in a forested watershed in New Hampshire). Some of these numbers perhaps are estimates of what it would take for the material at the interface of soil and parent material to weather in place into soil on unmanaged sites.

Perhaps Whitney was right in 1909 when he said soil cannot be "used up," but it certainly can be lost from a site. With regard to soil depth, whether or not soil is a renewable resource is affected both by how fast it is lost and how fast new soil can regenerate. Land use strongly affects the rate of soil loss. In the 2010 National Resources Inventory summary report, the average estimated soil loss for cultivated cropland in Connecticut was 5.36 tons/acre (with an error estimate of plus or minus 1.95 tons/acre) while on pastureland, it was 0.10 tons/acre (+0.06).

In the world that we live in today where there is heavy use of resources (and the solution to pollution is no longer dilution), management is key. How we manage the soil, water, animals, plants, and air is the primary factor in determining whether or not they are renewable resources. We can manage in ways that allow for renewal or we can, in effect, treat the resource as something that is non-renewable in our lifetimes. The importance of monitoring the results of our management is becoming increasingly obvious.

Getting the Word Out on Pollinators

Contact Charlotte Pyle (860) 871-4066

NRCS Landscape Ecologist Charlotte Pyle recently did her part to get the word out on pollinators as a featured speaker at one of a series of Saturday workshops at Sprucedale Gardens Nursery, in Woodstock. Pyle's talk was titled, *Creating a Healthy Environment for Butterflies and Bees*.

Pyle discussed why pollination is essential for agriculture and wildlife, the importance of caterpillar host plants, and a series of harmful effects on butterfly and bee populations (insecticides, loss of vegetation, and even usual weather). Pyle pointed out that while weather can't be controlled, we can help control food, shelter, and protection from insecticides.

Participants learned that buffer plantings around nectar plants are recommended for places where insecticides are likely to drift in on the air coming from sprayed fields, and saw examples of good nectar and pollen sources that focus on much needed early spring and late fall sources.

The audience was treated to a lesson in the behavior and habitat choices of all types of bees, and given recommendations in order to more fully understand how they work, where they live, and how to ensure the safety of both themselves and our delicate pollinators.



Sprucedale Gardens provided a beautiful backdrop of pollinator plants for Pyle's presentation

Looking to visit your local farmers market?



Go to the Connecticut Department of Agriculture's website for a [complete listing](#) ...

NRCS PROGRAMS*

NRCS offers voluntary Farm Bill conservation programs that benefit both agricultural producers and the environment.

Financial Assistance Programs

NRCS offers financial and technical assistance to help agricultural producers make and maintain conservation improvements on their land.

Environmental Quality Incentives Program

EQIP provides financial and technical assistance to agricultural producers in order to address natural resource concerns and deliver environmental benefits such as improved water and air quality, conserved ground and surface water, reduced soil erosion and sedimentation or improved or created wildlife habitat.

Conservation Stewardship Program

CSP helps agricultural producers maintain and improve their existing conservation systems and adopt additional conservation activities to address priority resources concerns. Participants earn CSP payments for conservation performance—the higher the performance, the higher the payment.

Agricultural Management Assistance

AMA helps agricultural producers use conservation to manage risk and solve natural resource issues through natural resources conservation. NRCS administers AMA conservation provisions while the Agricultural Marketing Service and the Risk Management Agency implement other provisions under AMA.

Easements

NRCS offers easement programs to eligible landowners to conserve working agricultural lands, wetlands, grasslands and forestlands.

Agricultural Conservation Easement Program

(formerly the Farm and Ranch Lands Protection Program, Grassland Reserve Program, and Wetlands Reserve Program) ACEP provides financial and technical assistance to help conserve agricultural lands and wetlands and their related benefits. Under the Agricultural Land Easements component, NRCS helps Indian tribes, state and local governments and non-governmental organizations protect working agricultural lands and limit non-agricultural uses of the land. Under the Wetlands Reserve Easements component, NRCS helps to restore, protect, and enhance enrolled wetlands.

The Healthy Forests Reserve Program

HFRP helps landowners restore, enhance and protect forestland resources on private lands through easements and financial assistance. Through HFRP, landowners promote the recovery of endangered or threatened species, improve plant and animal biodiversity, and enhance carbon sequestration.

Partnership

NRCS works with partners to leverage additional conservation assistance for ag producers and landowners in priority conservation areas.

Regional Conservation Partnership Program

RCPP promotes coordination between NRCS and its partners to deliver conservation assistance to producers and landowners. NRCS provides assistance to producers through partnership agreements and through program contracts or easement agreements.

*The 2014 Farm Bill was enacted on February 7, 2014. Some programs will be available immediately, while others will require limited time to be set up within the agency.

Calendar of Events

May

- 17 **CONNECTICUT STATE FFA CONVENTION**
Rockville High School, Vernon
<http://www.ctffa.org>
- 18 **CONNECTICUT FOREST AND PARKS ASSOCIATION ANNUAL MEETING**
Rocky Neck State Park, Niantic - 4-6:30 PM
\$20 - RSVP by May 12th - (860) 346-2372
<http://www.ctwoodlands.org/2014AnnualMeeting>
- 20 **ARCHAEOLOGY OF NATIVE AMERICAN SETTLEMENTS IN THE LOWER NAUGATUCK VALLEY AREA with State Archaeologist Nicholas Bellantoni**
Kellogg Environmental Center, Derby - 7 PM
Donna Kingston (203) 734-2513 donna.kingston@ct.gov
- 21 **SOIL HEALTH AND COVER CROP WORKSHOP**
Jones Family Farm, Shelton - 6-8 PM
RSVP (by May 7) Nazy Fayaz (203) 287-8038 ext. 109 nazy.fayaz@ct.usda.gov
Rain Date May 28
- 22 **ENVIROTHON**
Tolland Ag Center, Vernon - 7:30 AM - 2 PM
Barb Kelly (860) 875-3881 ctenvirothon@snet.net
- 24 **ETHNOBOTANY – How Native Americans Used Local Plants for Food, Medicine, and Building Materials**
Meigs Point Nature Center, Hammonasset Beach State Park, Madison - 2:00 PM
Russ Miller (203) 245-8743 rangermpnc@gmail.com

June

- 6 **PREPARING FOR THE NEXT MAJOR STORM**
Milford Town Hall - 8:30 AM - 12:30 PM
<http://clear.uconn.edu/events/coastalstorm.htm>
- 7 **SWARMING THE STATE: ANARCHY APIARIES: ALTERNATE HIVES FOR ALTERNATE MINES**
Lockwood Farm, Hamden - 9 AM – 3 PM
<http://ctbees.com/meetings/>
- 7 **A SOIL HEALTH APPROACH: PERMACULTURE**
Tolland County Agricultural Center and Urban Gardens, Vernon - 9AM-4PM
RSVP (by May 30) to Raymond Covino 860-779-8038 ext. 102, raymond.covino@ct.usda.gov
- 14 **OPEN HOUSE DAY FARM TOUR**
Fairvue Farms, Woodstock - 12-3 PM
<http://www.thefarmerscow.com/events.html>
- 14 **RAISING CHICKENS ON A DIVERSIFIED FARM**
Millstone Farm, Wilton - 1-3 PM
Stephanie Berluti (203) 308-2584 stephanie@ctnofa.org
http://ctnofa.org/events/OnFarmWorkshops/2014_On-Farm_Workshops.html
- 14 **CONNECTICUT OPEN HOUSE DAY**
Dinosaur State Park, Rocky Hill - 9 AM – 4:30 PM. Free admission all day
Margaret Enkler Margaret.enkler@ct.gov

- 14 **ALL ABOUT BEES, OUR GREAT POLLINATORS – with State Beekeeper Michael Creighton**
Kellogg Environmental Center, Derby - 10:30 AM
Donna Kingston (203)734-2513 donna.kingston@ct.gov
- 18 **SOIL BIOLOGY**
Community Farm of Simsbury - Time: TBD
http://ctnofa.org/events/OnFarmWorkshops/2014_On-Farm_Workshops.html
- 19 **CELEBRATING WOMEN IN CONSERVATION AWARD CEREMONY**
Old Judiciary Room, Legislative Office Building, Hartford - 9 AM – 12 PM
petra.volinski@ct.usda.gov
- 21 **SUMMER HIVE MANAGEMENT WORKSHOP**
Massaro Farm, Woodbridge - 9 AM – 12 PM
<http://ctbees.com/workshops/>
- 21 **CREATING BIRD FRIENDLY COMMUNITIES IN CONNECTICUT**
Massaro Community Farm, Woodbridge - 10:30 AM
http://ctnofa.org/events/OnFarmWorkshops/2014_On-Farm_Workshops.html
- 21- **HARTFORD BLOOMS GARDEN TOUR**
29 Admission \$10, Various locations (view website)
<http://www.hartfordblooms.org/2014-garden-tour/>
- 22 **PICNIC AND TOUR OF WHIRLWIND/MOORE’S HILL FARM**
Sharon - 12-2 PM
Presented by Connecticut Farmland Trust - \$30/lunch provided
(860) 247-0202 ffoos@ctfarmland.org
- 28 **ENJOY MILK IN JUNE FARM TOUR**
Mapleleaf Farm, Hebron, CT - 12-3 PM
<http://www.thefarmerscow.com/events.html>

July

- 16 **BUTTERFLY WALK**
Session Woods, Burlington - 10-11:30 AM
Laura Rogers-Castro (860) 675-8130 laura.rogers-castro@ct.gov

August

- 3 **PIGLETS TO FEEDERS: RAISING PIGS**
Community Farm of Simsbury - 1 PM
http://ctnofa.org/events/OnFarmWorkshops/2014_On-Farm_Workshops.html
- 16 **DINOSAUR STATE PARK DAY**
Dinosaur State Park, Rocky Hill - 10 AM – 3 PM
Margaret Enkler (860) 529-5816 margaret.enkler@ct.gov

October

- 7 **Invasive Plant Symposium, Student Union, University of Connecticut, Storrs**
www.cipwg.uconn.edu or (860) 486-6448