



Helping People Help the Land

# Conservation Notes

USDA - Natural Resources Conservation Service - Michigan

November/December 2014

## Christmas Trees & Sheep, Good Combination

If you notice sheep and horses grazing among the Christmas trees on Dave and Donna Buechler's farm in Menominee County don't be surprised. The livestock and trees get along just fine.

"Their grazing system was really unique," said NRCS District Conservationist Craig Aho. "Typically grazing plans keep livestock out of forested areas."

Donna Buechler contacted NRCS about setting up a grazing system on the family's Christmas tree farm after reading about it being done in Europe. The Buechlers graze ten sheep and four Haflinger horses on 18 acres of land planted in Christmas trees. They utilize a grazing plan and received financial assistance through the Environmental Quality Incentives Program.

Grazing livestock on their Christmas tree plantation has been a three-way win, said Donna Buechler. They no longer have to buy hay, mow or spray for weeds.

"Grass is the worst enemy of Christmas trees," said Dave Buechler.

If not cut, tall grass will cause the lower branches of the trees to die. The only mowing they do now is to control weeds the livestock won't eat. Grazing has benefited the soil as well, they no longer need to fertilize and the soil ph has gone from 3 up to 7.5 in only three years. Dave Buechler estimates the grazing system is saving



*Dave and Donna Buechler used EQIP funds to build this covered manure storage facility. They have used EQIP assistance for other conservation improvements and their farm is environmentally verified through the Michigan Agriculture Environmental Assurance Program.*

them about \$1,000 a year from no longer mowing or needing to use pesticides or fertilizers.

Donna's family has raised Christmas trees on the farm for over 70 years after getting out of the dairy business. They sell their trees directly to customers both on the farm and off. Dave Buechler sells many of the family's trees at a lot in Palatine, Ill. near Chicago. He has lived on the lot from Thanksgiving until just before Christmas for the past 14 years.

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United States  
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## State Conservationist's Message

Awareness and concern about soil health has gone global with the United Nations declaring 2015 the International Year of Soils.

NRCS and its partners have promoted the protection our nation's soils for over 75 years. Soil erosion was the primary resource concern that led to the creation of our agency, and reducing it is still an ongoing effort. Today we are looking to not only prevent the loss of valuable soil, but also improve it.

The agency's soil health campaign has been hugely successful in educating people about how the health and function of soils can be managed. Producers have taken note, the use of cover crops is expanding with farmers experimenting with different varieties and combinations. Conservation tillage also continues to expand with more reduced tillage options available.

For people that make their living from the land, farming is still a bottom line occupation. Commodity prices and the cost of inputs like fuel and agrichemicals continue to fluctuate

wildly. Combining cover crops and conservation tillage shows great promise for improving soil fertility and reducing operating costs. Making changes carries risk, this is why programs like the Environmental Quality Incentives Program and the Conservation Stewardship Program are so valuable.

Financial assistance for implementing cover crops or conservation tillage allows a producer to try new growing methods with a smaller investment.

Farmers trying new practices to improve soil health must understand that it is not a short process. The benefits of cover crops and reduced tillage are not always immediately apparent and there are costs involved. Research has shown that the combination of cover crops and conservation tillage does provide many benefits both for farmers and the environment.



*State Conservationist  
Garry Lee*

### 2014 Michigan Retirees

Not every NRCS-Michigan retiree went riding off into the sunset like Steve Law, but we wish all of them the best in their future endeavors.

- Jay Blair, District Conservationist - Lapeer County, 30 years of service
- Tom Bourdon, State Hydrologist - East Lansing, 40 years of service
- June Grabemeyer, Agricultural Economist - East Lansing, 31 years of service
- Steve Law, EQIP Program Coordinator - East Lansing, 30 years of service
- Brian MacMaster, Assistant State Conservationist Programs - East Lansing, 33 years of service
- Gale Nobes, Soil Conservation Technician - Fremont, 26 years of service
- James Scott, State Resource Conservationist - East Lansing, 35 years of service
- James Snyder, District Conservationist - Ithaca, 30 years of service
- Amelia James Stevens, Area Management Assistant - Marquette, 10 years of service
- James Sweeting, District Conservationist - Baraga, 10 years of service



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## Sheep and Christmas Trees make Good Mix

It is an understatement to say that there's a lot going on at the Buechler farm besides Christmas trees. The farm could serve as a demonstration model for conservation and small farm capitalism. In addition to their unique grazing system, the Buechlers utilized EQIP assistance to build a seasonal high tunnel, a covered manure storage facility and a roof runoff system that helps provide water for their livestock.

The covered storage area for horse manure is his second favorite EQIP practice on the farm after their pasture fencing, said Dave Buechler. They used to stack the manure in a pile and a nearby ditch would run brown after a heavy rain, he said. That is no longer a problem, and they're better able to utilize the manure. They even provide manure to their neighbors who provide non-monetary compensation.

"We get suppers, we get desserts, the barter system is alive and well in the U.P.," said Donna Buechler.

The Buechlers built their "folk school" in 2010 as another way to produce income on the farm. The school includes a commercial kitchen so they can host all types of receptions, celebrations and classes. Some of the events they've hosted include a hunters' feast during deer season, a 90th birthday party, German language classes, various art and crafts classes and a "Summer on the Farm" event.

"We're a little on the unique side," said Donna Buechler. "We've done all kinds of stuff."



*The Buechler's grazing plan allows for their sheep and horses to graze around their Christmas tree plantings (above). The practice eliminates mowing and is improving the soil. The family built the Elmcrest Acres Folk School in 2010 (below) as a way to create more revenue on the farm. The school hosts a large variety of classes, celebrations and special events.*



## 2015 Michigan Family Farm Conference

January 17

Marshall High School - Marshall



## EQIP Helps Farmers Become MAEAP Verified

Tim Rumfield doesn't have a sign outside of his farm near Sunfield showing that his operation is environmentally verified, but he expects that to change before planting season.

Rumfield recently installed a new fueling facility and agrichemical containment building that will complete his final requirements for Michigan Agriculture Environmental Assurance Program verification. The availability of USDA financial assistance enabled Rumfield to complete the final conservation practices he needed to become verified.

The funding was provided through the Environmental Quality Incentives Program, administered by the USDA Natural Resources Conservation Service. NRCS targeted EQIP funds specifically for farmers who needed to install one or two conservation practices to become MAEAP verified, said NRCS State Conservationist Garry Lee. The Michigan Department of Agriculture and Rural Development along with the Michigan Technical Committee, which advises NRCS on conservation priorities, recommended that NRCS offer financial support to MAEAP participants.

Over the past two years, NRCS obligated over \$2.5 million in funding to help Michigan farmers become MAEAP verified. In 2014, the USDA allocated an additional \$1 million in EQIP funds to Michigan to support the MAEAP effort.

"USDA officials in Washington were impressed with how MAEAP is promoting conservation efforts in Michigan and thought this was a good use of conservation funds," said Lee.

Rumfield is a conservation minded farmer but he had not applied for USDA conservation assistance before utilizing the program to become MAEAP verified. With some technical assistance Rumfield is able to implement many conservation practices, like grassed waterways, on his own without financial assistance, he said.

"He's been a great producer to work with," said Jennifer Silveri who works for the Eaton Conservation District and serves as a MAEAP



*Eaton County farmer Tim Rumfield utilized EQIP funds to complete final conservation practices to become MAEAP verified, including his new fueling facility.*

technician for Eaton and Ingham counties. Rumfield could have already been MAEAP verified for his cropping system but he wanted to wait until he also completed his farmstead system, said Silveri.

Rumfield was already utilizing sound conservation methods before starting the MAEAP verification process. Since 1996, he has utilized no-till on his 1,000-acre farm, where he grows corn, soybeans, wheat and oats. Rumfield also does soil testing for nutrient management. About four years ago he began using cover crops to try and reduce his fertilizer costs. Rumfield was recently selected as the Eaton Conservation District's Cooperator of the Year for his conservation efforts.

"I made a few changes, but many things I was already doing," said Rumfield. "The MAEAP process made everything fall into place."

The most common practice keeping farmers from completing MAEAP verification is the farm's fueling facility, said Silveri. MAEAP requires a concrete pad for fueling farm equipment to prevent fuel from contaminating groundwater. A lot of producers would shy away from the cost without EQIP assistance, she said.

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## UN Declares “2015 International Year of Soils”

*Announcement from the Food and Agriculture Organization of the United Nations*

Healthy soils are critical for global food production, but we are not paying enough attention to this important “silent ally,” FAO Director-General José Graziano da Silva said on the eve of World Soil Day, celebrated on Dec. 5.

Healthy soils not only are the foundation for food, fuel, fibre and medical products, but also are essential to our ecosystems, playing a key role in the carbon cycle, storing and filtering water, and improving resilience to floods and droughts, he noted.

The UN has declared 2015 the International Year of Soils. The year will be kicked off tomorrow at events in Rome, New York and Santiago de Chile, in an effort to raise awareness and promote more sustainable use of this critical resource.

“Today, we have more than 805 million people facing hunger and malnutrition. Population growth will require an approximate increase of 60 percent in food production. As so much of our food depends on soils, it is easy to understand how important it is to keep them healthy and productive,” Graziano da Silva said, adding: “Unfortunately, 33 percent of our global soil resources are under degradation and human pressures on soils are reaching critical limits, reducing and sometimes eliminating essential soil functions.”

“I invite all of us to take an active role in

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## EQIP Helps Farmers Become MAEAP Verified

Since 2011, Silveri has done 209 risk assessments for farmers interested in becoming MAEAP verified. So far, there have been 77 MAEAP verifications, including 12,000 acres of land, in the two counties she covers. The length of time it takes to complete the MAEAP process varies greatly, Silveri said.

In order to apply for MAEAP-targeted EQIP

promoting the cause of soils during 2015, as it is an important year for paving the road towards a real sustainable development for all and by all,” he added.



2015  
International  
Year of Soils

### Soils - key resource at risk

FAO estimates that a third of all soils are degraded, due to erosion, compaction, soil sealing, salinization, soil organic matter and nutrient depletion, acidification, pollution and other processes caused by unsustainable land management practices.

Unless new approaches are adopted, the global amount of arable and productive land per person will in 2050, be only one-fourth of the level in 1960.

It can take up to 1,000 years to form one centimetre of soil, and with 33 percent of all global soil resources degraded and human pressures increasing, critical limits are being reached that make stewardship an urgent matter, Graziano da Silva said.

Calling soils a “nearly forgotten resource,” he called for more investment in sustainable soil management, saying that would be cheaper than

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## Nominations Sought for Beef Stewardship Award

Applications for the National Cattlemen's Beef Association 2015 Environmental Stewardship Award are due on March 6, 2015.

Now in its twentieth year, the Environmental Stewardship Award has annually recognized the outstanding stewardship practices and conservation achievements of cattle producers from across the nation. Regional and national award winners have been commended for their commitment to protecting the environment and improving fish and wildlife habitats while operating profitable cattle operations.

The common trait among all of the award winners is the desire to leave the land in better shape for future generations while also inspiring



the next generation of land stewards.

Any individual, group or organization is eligible to nominate one individual/business who raises or feeds cattle. Individuals and families may not nominate themselves. However, it is expected that nominees will be

involved in the preparation of the application.

Past nominees are eligible and encouraged to resubmit their application; previous winners may not reapply. Along with the application, one nomination letter and three letters of recommendation highlighting the nominee's leadership in conservation are expected.

For more information, go to [www.environmentalstewardship.org](http://www.environmentalstewardship.org).

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## International Year of Soils

restoration and "is needed for the achievement of food security and nutrition, climate change adaptation and mitigation and overall sustainable development."

At least a quarter of the world's biodiversity lives underground, where, for example, the earthworm is a giant alongside tiny organisms such as bacteria and fungi. Such organisms, including plant roots, act as the primary agents driving nutrient cycling and help plants by improving nutrient intake, in turn supporting above-ground biodiversity as well.

Better management can assure that those usually unnoticed organisms boost soil's ability to absorb carbon and mitigate desertification, so that even more carbon can be sequestered -- helping offset agriculture's own emissions of greenhouse gases.

### Mapping the earth

FAO has implemented more than 120 soil-related projects around the world and produced together with UNESCO the World Soil Map. Among the most urgent priorities is to update, standardize

and render accessible the world's knowledge of soil types and distribution.

Currently, data on soils is very often outdated, limited in coverage, and fragmented in nature. One of FAO's priorities is to establish a global soil information system that could assist with reliable data decision-making regarding soil management.

FAO has embarked on a host of initiatives, including launching the Global Soil Partnership, which has rolled out the Healthy Soils Facility as its operational arm.

### International Year of Soils Resources

- [UN Global Soil Partnership](#)
- [Soil Science Society of America](#)
- [SSSA's International Year of Soils Activities Page](#)
- [NRCS Soils Home](#)
- [Global Soil Biodiversity Initiative](#)

# Soil Health Test Examines CO<sub>2</sub> Expiration

by Ashley McFarland, Michigan State University Extension

Soil health is an increasingly popular topic in modern agriculture. Although it has long been agreed that organic matter is a critical component to the soil health equation, the role of carbon is less understood. Respiration of carbon; released as CO<sub>2</sub> in the soil from plants, bacteria, fungi and animals, is absorbed in soil through the humification (building humus) process. Declining humus and lowered rates of respired CO<sub>2</sub> strongly relate to the lack of food for soil microbes. This condition is often found in degraded agricultural systems where management practices do not support soil life. Improved management, potentially through the use of reduced tillage and cover cropping will support this key ecosystem process that is being well-accepted as an indicator of healthy soil.

The Solvita® test is a fairly new, cost-effective method to examine soil respiration in the field. A field-moist sample is placed in a sampling jar along with a Solvita® probe that includes a color-changing gel. The lid is placed back on the jar and screwed tight to minimize any respiration leakage. After 24 hours the color on the probe is matched with the Solvita® color chart, and the rate of respiration is determined. A digital color reader is also available and will provide the most accurate reading of the probes. The number from the probe (0-5) can be entered into the online calculator to determine the amount of CO<sub>2</sub>-C respired (ppm) and the amount of carbon sequestered (lbs/acre<sup>2</sup>) over the 24 hour period. The calculator will also provide you an explanation of whether or not your level is indicating a healthy, living soil.

## Putting Solvita® to practice

In the summer of 2014, the Michigan State University Upper Peninsula Research and Extension Center evaluated cover crops in a replicated trial that included eight different cover crop species (Annual Rye, Buckwheat,

Chickling vetch, Cowpeas, Ethiopian cabbage, Egyptian wheat, Collards and Sunn hemp), along with a diverse blend of those eight species. The objectives were to evaluate species suitability for the U.P. and potential species differences in soil respiration. The nine treatments were laid out in a randomized complete block design with four replications. In order to simulate a low-input farming system, no herbicide or fertilizer was applied to the plots. On September 24, 2014, soil respiration was measured on each plot. Visual assessments were taken on relative level of vegetation and ability to suppress weeds. On September 25, 24 hours after the samples were collected, the respiration rates were determined.

The Solvita® test was an efficient way to analyze soil respiration in the cover crop trial and was able to show significant differences between some of the treatments. Annual Rye on average had the highest CO<sub>2</sub>-C respiration reading, and was statistically significantly higher than Egyptian wheat, the diverse mix, Ethiopian cabbage, Collards, Cowpeas and Buckwheat. Success and results from this study, however, should be interpreted based on your goals for cover crop use. For example, Buckwheat, which produced a healthy stand and did the best at weed suppression, actually had the lowest average CO<sub>2</sub>-C respiration recorded. This may be due to the fact that the canopy from the plant shielded out any understory growth. This would explain why the higher yielding, weedy stands of other cover crop species (cover crop + weeds), actually had higher respiration rates, for example Sunn Hemp. As overall soil health interest increases, methodologies of identifying reliable soil indicators are increasing. The Solvita® test is one method that allows farmers to rapidly assess soil respiration and metabolism in the field.

*This article was published by Michigan State University Extension. For more information, visit [www.msue.msu.edu](http://www.msue.msu.edu).*



## Invasive Species Smart Phone App Available

The Midwest Invasive Species Information Network, led by researchers at Michigan State University, has launched a smart phone application. The new application allows the public to report occurrences of invasive species to a regional data base.

The MISIN Invasive Species reporting smart phone application was developed by the Applied Spatial Ecology and Technical Services Laboratory at Michigan State University. The application is available on both Android and Apple platforms.

The purpose of the MISIN app is to aid in the collection of Midwest invasive species observations, plant and animal, in support of early detection and rapid response efforts. Contributed data will be added to a growing online database of invasive species observation data for the top invaders in the region. This data can be browsed through the [MISIN website](#) and is used by land managers to help make informed decisions regarding the control and impact of invasive species.

## NRCS-Michigan Staffing Update

### New Hires:

Kendrick Flowers, District Conservationist  
Lapeer, moved from Monroe

Tyler Roeder, Area 2 Soil Scientist, Gaylord

### Departures:

Ken Chaltry, Farm Bill Specialist, Scotville,  
retired Jan. 2

John Foldesi, Civil Engineering Technician,  
Parchment, retired Jan. 2

Elaine Gerona, Office Automation Assistant,  
Rose Lake Plant Materials Center, retired Dec.  
31

Michelle Canfield, Budget Analyst, East  
Lansing, retired Dec. 31

## LaDuke to Keynote Small Farm Conference

Winona LaDuke, a former vice-presidential candidate for the Green Party and an activist for sustainable development and Anishinaabe issues, will kick off the 2015 Northern Michigan Small Farm Conference.

LaDuke is the keynote speaker for the conference reception event on Jan. 23 at the Hagerty Conference Center in Traverse City. She lives on the White Earth reservation in Minnesota where she works on a variety of issues including sustainable development, renewable energy and food systems. Her keynote is titled "Seed Sovereignty."

The conference itself will begin on Jan. 24 at the Grand Traverse Resort in Acme. The conference features workshops on a wide variety of topics including beekeeping, hoophouse/seasonal high tunnel food production, community supported agriculture, livestock grazing, soil fertility and many others.

Gary Zimmer is the Saturday keynote speaker. Zimmer operates Otter Creek Organic Farm in Wisconsin and is a pioneer of 'mineralized balanced agriculture,' which has farmers growing their own fertilizers and using farming practices that encourage beneficial organisms living in the soil.

The conference also includes a trade show from 8:30 a.m. to 5:30 p.m. The trade show features over 70 vendors offering a wide variety of products and services for small-scale agricultural producers.

The registration deadline for the conference is Jan. 19. To learn more about the conference and to register online go to [smallfarmconference.com](http://smallfarmconference.com).

## Conservation Notes - November/December

### Upcoming Events - Upcoming Events - Upcoming Events - Upcoming Events

#### January

- 13 Farm Energy Conservation: Impact on the Bottom Line, Michigan State University Extension Workshop, 10 a.m. to 3 p.m., DTE Energy North Area Energy Center - Cass City, for more information go to [home.anr.msu.edu](http://home.anr.msu.edu)
- 14 Farm Energy Conservation: Impact on the Bottom Line, Michigan State University Extension Workshop, 10 a.m. to 3 p.m., Smith Hall - St. Johns, for more information go to [home.anr.msu.edu](http://home.anr.msu.edu)
- 15 Farm Energy Conservation: Impact on the Bottom Line, Michigan State University Extension Workshop, 10 a.m. to 3 p.m., Olive Township Hall - Holland, for more information go to [home.anr.msu.edu](http://home.anr.msu.edu)
- 17 Michigan Family Farms Conference, Marshall High School - Marshall, for more information go to [www.miffs.org](http://www.miffs.org)
- 23 Northern Michigan Small Farm Conference - Pre-Conference and Keynote, Hagerty Center at Northwestern Michigan College - Traverse City, for more information go to [smallfarmconference.com](http://smallfarmconference.com)
- 24 Northern Michigan Small Farm Conference, Grand Traverse Resort - Williamsburg, for more information go to [smallfarmconference.com](http://smallfarmconference.com)

**Happy New Year from  
NRCS - Michigan**

**2015**

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