

Conservation Notes

USDA - Natural Resources Conservation Service - Michigan

May/June 2021

Farm Finds Success with High Tunnel Strawberries

Remember how your parents would entice you to eat your vegetables by offering you dessert? Brown Farms, near Davison in Genesee County, is using a similar strategy.

Jessica Brown owns and operates Brown Farms along with her husband Todd and daughter Leah. The farm sells a variety of fruits and vegetables including sweet corn, zucchini, apples, tomatoes and cucumbers; however the farm's main attraction is fresh strawberries.

"If we post on Facebook that we have strawberries ready we'll have a line of 10 cars in the morning," said Jessica.

The demand for fresh strawberries is so strong they limit sales to two quarts at a time so more people can buy them. The popularity of their strawberries helps to drive the sales of the other crops they sell at their on-farm stand, Jessica said.

Brown's family had title to their 60-acre farm since before Michigan became a state and Jessica is the third generation of women in her family to own it. They rented the land until 2013 when they "got serious" about growing vegetables to supplement their main income from wedding photography and a travel business.

It was tough going initially but they turned a corner



Genesee County farmer Jessica Brown in one her farm's three high tunnels, this tunnel is used only for growing strawberries.

when they began growing indoors in seasonal high tunnels. They built their first high tunnel, utilizing financial assistance through the NRCS Environmental Quality Incentives Program, in 2017. They qualified for an advance payment of 50 percent of their contract. Advance payment is available to beginning farmers, and other historically underserved producers. Typically, producers must install a practice before receiving a payment through EQIP. "The advance payment really helped, it cut our outlay in half," Jessica said.

The Browns were impressed enough with production from their first high tunnel that they added a second and third in 2018 and 2020. They have plans to build a fourth tunnel in the next year, with EQIP assistance like the others.

"We never had any luck outside," Jessica said about their vegetable and fruit production before adopting high tunnels. Damage from deer and other pests was a big problem. They grow about 10 acres of fruits and vegetables, still mostly outdoors. Less than half an acre is inside the high tunnels but they provide well over half of the farm's production, said Todd.

Currently one of the tunnels is planted with

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USDA - Natural Resources Conservation Service

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State Conservationist's Message

The importance of soil health to help to alleviate the effects of climate change is a priority of NRCS and should be for all agricultural producers. Already in the 2021 growing season many parts of Michigan have experienced an extended period of heat and dry weather along with large amounts of precipitation over short periods of time.

We know that healthy soils are better able to absorb and hold moisture. In recent years it has become more common for precipitation to arrive in major rain events. If this pattern continues, it will be important that agricultural land has good soil structure so that precipitation infiltrates the soil instead of running off or pooling on the surface and evaporating. In addition, increasing organic matter in the soil will increase its ability to hold moisture and help crops withstand long periods of hot and dry weather. The best way to improve soil structure and increase organic matter is to reduce tillage and plant cover crops. Soil testing is also important and new and more advanced testing is available to better judge the soil health of a particular field, forest or orchard.

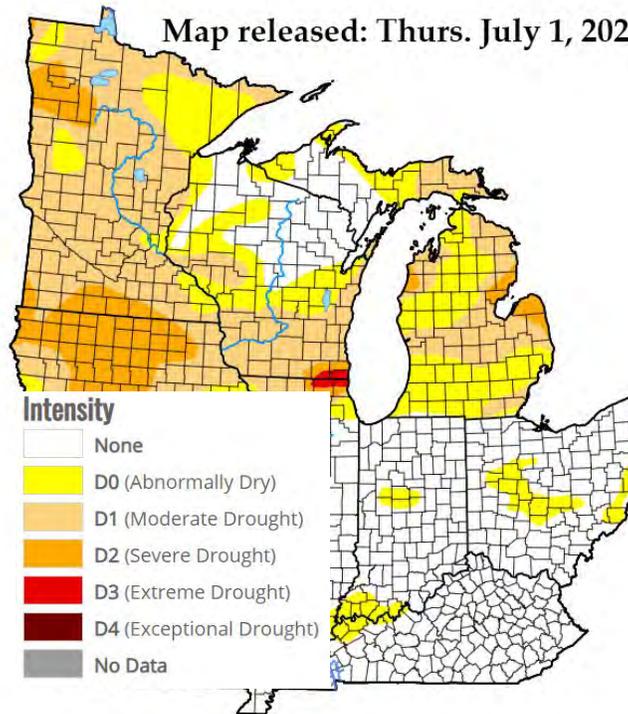
Recently, the USDA announced the availability of \$10 million in conservation funding to support "climate-smart agriculture and forestry." Michigan is one of 10 states eligible for these funds to help agricultural producers plan and implement voluntary conservation practices that sequester carbon, reduce greenhouse gas emissions and mitigate the impacts of climate change on working lands. In addition to supporting soil health, this initiative also promotes climate-smart practices for livestock and forest owners.

Feds Feed Families

2021 marks the 12th annual government-wide Feds Feed Families food drive, which encourages employees from all federal departments and agencies to give in-kind contributions -- food, services, and time -- to food banks and pantries. This year's campaign highlights a summer of giving in June through August, along with seasonal reminders to donate throughout the year.



State Conservationist
Garry Lee



The U.S. Drought Monitor is a map released every Thursday, showing parts of the U.S. that are in drought. The Drought Monitor has been a team effort since its inception in 1999, produced jointly by the National Drought Mitigation Center at the University of Nebraska-Lincoln, the National Oceanic and Atmospheric Administration, and the U.S. Department of Agriculture.

The 2021 campaign focuses on online donations and virtual food drives, while also providing guidance for in-person donations and events as appropriate. Federal employees can go to the website, the [FFF Hub](#), to find out how and where to donate online or in-person at food banks and food pantries, how to organize virtual food-drives, how to find field or warehouse gleaning opportunities, and how to share donation success stories.

Since Feds Feed Families launched in 2009, this campaign has collected more than 99 million pounds of food for donation. In 2020 alone, federal employees donated more than 7 million pounds. USDA is the designated lead agency for the National Feds

Feeds Families campaign for the U.S. government nationwide.



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Farm Finds Success with High Tunnel Strawberries

vegetables including lettuce and tomatoes, a second has strawberries and raspberries and a third is dedicated completely to strawberries. When completed, the fourth tunnel will also be used to grow strawberries. There is skepticism in some circles as to whether strawberries are suitable for high tunnels but on the Brown Farm they're a success. The Browns harvest an average of 24 pounds of strawberries every three days and have picked as many as 90 pounds in a single day. They are able to harvest their berries about six weeks earlier than when they grew them outdoors. "You have to offer something that's not the norm," said Todd.

Farming is an ongoing learning experience for the Browns like other farm families. An important addition was cold storage to reduce waste. They started a small orchard to grow apples and peaches. The orchard may be the most profitable part of the farm based on hours of labor, Todd said. Last year was the first year they sold apples.

Farming in Genesee County, they benefit from being near the Flint Fresh Food Hub. When they have too much produce to sell at one time they can sell to Flint Fresh which distributes produce to local restaurants and other businesses. They estimate they sell about 10 percent of their harvest to Flint Fresh.

Jessica Brown (center) with her daughter Leah and husband Todd at their on-farm produce stand near Davison. (above right) Leah and Jessica Brown in one of their farm's three high tunnels, this one dedicated to strawberries. (middle right) The Brown Farm includes outdoor production in addition to three high tunnels. (below)



Field Work Completed for Study on Impacts of Conservation Tillage

by Matt Bromley, Grand Rapids MLRA Soil Survey Office Leader

Over the course of 16 field days in the fall of 2020 and spring of 2021, the Grand Rapids MLRA Soil Survey Office (12-GRR), along with assistance from Michigan NRCS area and field office staff, sampled and recorded soil health measurements for an intensive tier DSP (dynamic soil properties) project.

State Soil Scientist Martin Rosek proposed the project in 2020 to find out the extent to which conservation tillage practices were improving the soil health of loamy glacial till soils in central Michigan. This study focused on comparing soil properties that can change depending on land use and management (i.e., DSP), and targeted three different states: conventional tillage cropland, long-term no-till cropland (more than 30 years old), and a forested reference state.

Important dynamic soil properties and health measurements assessed included surface infiltration, soil compaction, bulk density, organic carbon content, earthworm populations, aggregate stability, beta-glucosidase and other enzymes, plant available phosphorous, total nitrogen, saturated hydraulic conductivity, and more. The main soil series evaluated was the Conover series (fine-loamy, mixed, active, mesic Aquic Hapludalfs) that formed in loamy glacial till parent material on the large till plain landscape in central Michigan. Similar, somewhat poorly drained soil series



Multitasking: central and satellite pedons are sampled while worm counts and Amoozemeters are recorded (above).



A reference site in northern hardwoods forest is described and sampled.(above).

(Crosier, Metamora, and Capac) that formed on the same landscape were also evaluated.

Conover soils are among the more agriculturally productive, high-acreage soils in this part of the state. Map units dominant in the area are “Conover loam, 0 to 4 percent slopes” and “Metamora-Conover complex, 0 to 3 percent slopes.” The results obtained for these soils can be used to estimate properties for other fine-loamy till soils throughout the MLRA.

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Insect Irruptive Cycles are Among Nature's More Conspicuous Events

by Bill Cook, Retired MSU Extension Forester/Biologist

Major forest insect outbreaks generally occur in cycles. Environmental factors favor the explosion of a population, then natural controls knock that population down, which may take a season or two. Then all remains calm for a decade, or longer, until another irruption.

A few notable examples include the forest tent caterpillar, spruce budworm, jack pine budworm, and European gypsy moth. The first three are natives. Gypsy moth has become "naturalized" in that it now responds as a native.

Then, there are scads of other more frequent outbreaks, such as eastern tent caterpillar, various sawflies, scales, and the list goes on. Then, there's the 17-year cicada which spends most of its time

as an underground nymph. So, the burst of mature cicadas appears much like an irruption.

Of course, we also have an increasing number of alien insects that are beginning to tear-apart forest diversity. Emerald ash borer has claimed most of the ashes. Asian longhorned beetle threatens maples (and many other tree species), and the woolly hemlock adelgid has been killing eastern hemlocks for decades, although it's a fairly recent Michigan problem.

Alien diseases have also taken their toll with mournful losses in chestnut, elms, oaks, butternut, bitternut, and this list goes on and on, too.

However, this story focuses on the intriguing insect

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Field Work Completed for Study on Impacts of Conservation Tillage

Field work for this project needed to be completed after crops were removed in the fall and/or before they were planted in the spring. Given the limited timeframe, the amount of work needed, and a calendar full of competing tasks, help from local field and area offices was essential. A total of 12 non-MLRA staff, from

3 area offices and 7 different field offices, assisted as they were available. Without their assistance, this project would have taken us much longer and we greatly



The end of a cold day of sampling in April. Left to right: Greg Schmidt (12-GRR ecological site specialist); Angel Domenech and Dan Ufnar (area resource soil scientists); Jonathan Diaz Cruz, Erin Segar, Cheyanne Boucher, and Norlando Veals (soil conservationists, Clinton County); and Matt Bromley.

appreciate each of them taking time out of busy schedules to join us. We hope the field office staff feel that they learned a thing or two about soil description, soil health measurements, and sampling techniques along the way.

We look forward to analyzing and summarizing the results. Once all of

the lab results are available, a summary report will be written to provide local data that demonstrates the soil health benefits of conservation tillage.

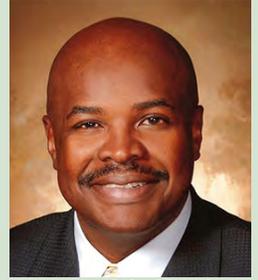
Terry Cosby Appointed as NRCS Chief

Effective May 24, Acting NRCS Chief Terry Cosby officially became NRCS Chief Terry Cosby. Prior to his appointment Chief Cosby served as state conservationist in our neighboring state of Ohio.

Cosby began his career with USDA in 1979 as a student trainee in Iowa. Cosby was raised on a cotton farm with his eight siblings in Tallahatchie County, Miss. The farm, now in his family for three generations, was purchased by his great-grandfather in the late 1800s. Over Cosby's 42 years

with the agency, he has served in numerous capacities including in Missouri and Idaho.

Cosby holds a Bachelor of Science degree in Agriculture Education from Alcorn State University, the first Black Land Grant college established in the United States. He resides in Ohio with his wife Brenda and their four children.



NRCS Chief
Terry Cosby

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Insect Irruptive Cycles are Among Nature's More Conspicuous Events

cycles, which are among nature's more dramatic and interesting phenomena. Disaster, yes perhaps, but they also sow the seeds of regeneration.

This summer, gypsy moths have been defoliating large swaths of oaks and aspen (and other species) across portions of the northern Lower Peninsula. In many areas, June and July look like late October. So, let's briefly examine this as a case in point.

Gypsy moth populations began to build in 2019 and 2020, leading to a forecast of a major outbreak this year. The fortune-casters were on the money. Armies of gypsy moths have been seen on their daily migration up and down tree trunks, with foraging hoards migrating across roads to the point that they present a slipping hazard for cars. Each morning was greeted with larvae poop everywhere, like a sprinkling of manna on nearly every flat surface.

For this year, the feeding frenzy lies mostly behind us. The last of the caterpillars have pupated and the moths should soon be appearing. Eggs are laid, as well as plans for next year. If you want to have a little fun, toss a couple of gently squashed females through the cracked-open windows of a friend's car.

Will the trees die? That's hard to tell at this point. Doubtless, there will be some mortality. Maybe a lot. However, before winding-up the old chainsaw, watch for a second leaf flush. Might even want to

wait for next spring to witness the final verdict.

Normally healthy trees can take a few punches before they're knocked-out.

One encouraging sign has been the presence of dead caterpillars hanging from twigs, often in an upside-down "V". This is evidence of NPV and/or Entomophaga fungus.

Gruesome. The caterpillars are eaten from the inside out, right from a science-fiction drama.

NPV (aka Nuclear Polyhedrosis Virus) becomes especially prevalent with large larval outbreaks, like the one in the NLP. Entomophaga maimaiga fungus populations also swell with host populations but can also be more of a factor in smaller outbreaks.

So, this is a typical boom and bust forest insect cycle. A larval population booms, trailed by booms in parasites and predators. Remember the lemming stories from grade school? Sorta like that.

But this is not the end of the story. Some of the historical outbreaks have swept across large swaths of eastern North America, killing tens of thousand of acres of forest. All that dead wood creates a high wildfire risk and, sometimes, the subsequent weather patterns have manifested huge fires.

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Gypsy moth larva on oak leaf (above left) Gypsy moth larva killed by Nuclear Polyhedrosis Virus.

- photos provided by Michigan Forest Pathways



Upcoming Events - Upcoming Events - Upcoming Events

July

- 15 Michigan State University Extension Field Crops Virtual Breakfast: Drainage Water Quality with Ehsan Ghane, 7 - 7:30 a.m., for more information go to www.canr.msu.edu/events
- 25 Eco Expo, noon to 4 p.m., Woldumar Nature Center - Lansing, for more information go to www.inghamconservation.com
- 25 Sail Lake Superior with Inland Seas, 1:30 p.m. to 5:30 p.m., Houghton, for more information go to www.canr.msu.edu/events
- 27 Hillsdale Conservation District Field Tour Series: Focus on Cover Crops, No-Till & Irrigation Management, 6:30 p.m., Finegan Farms - Jonesville, for more information call 517/849-9890 or email hillsdalecd@macd.org

August

- 1 Sail Lake Superior with Inland Seas, 8 a.m. to noon, Marquette, for more information go to www.canr.msu.edu/events
- 5 MSUE Field Crops Virtual Breakfast: Insect Update with Chris Difonzo, 7 - 7:30 a.m., for more information go to www.canr.msu.edu/events
- 7 Sail Lake Superior with Inland Seas, 1 p.m. to 5 p.m., Sault Ste Marie, for more information go to www.canr.msu.edu/events
- 11 Lenawee Center for Excellence Field Day, more information when available at www.lenaweeconservationdistrict.org

August ctd.

- 12 MSUE Field Crops Virtual Breakfast: Late Season Alfalfa Harvest with Kim Cassida, 7 - 7:30 a.m., for more information go to www.canr.msu.edu/events
- 17-18 AgroExpo, 8 a.m. to 5 p.m., 5605 N Findlay Rd. - St. Johns, for more information go to www.theagroexpo.com
- 19 Hillsdale Conservation District Field Tour Series: Focus on Cover Crops, Nutrient Management with Drone Applications, 8:30 a.m. to 2:30 p.m., 14031 Broom Rd. - Waldron, for more information call 517/849-9890 or email hillsdalecd@macd.org
- 24 2021 Drainage Tools Workshop, 9 a.m. to 3 p.m., Online via Zoom, for more information go to www.canr.msu.edu/events
- 26 MSUE Field Crops Virtual Breakfast: Getting the Most from Late Manure Application with Brook Wilke, 7 - 7:30 a.m., for more information go to www.canr.msu.edu/events

September

- 2 MSUE Field Crops Virtual Breakfast: Wheat Planting with Dennis Pennington, 7 - 7:30 a.m., for more information go to www.canr.msu.edu/events
- 9 MSUE Field Crops Virtual Breakfast: Scouting for Weed Escapes and Management with Christy Sprague, 7 - 7:30 a.m., for more information go to www.canr.msu.edu/events

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