



Winter/Spring 2024

Morton County Soil Conservation District

Conservation News

Area IV Farm Research: Healthy Soil, Healthy Food, Healthy People

Healthy Soil, Healthy Food, Healthy People Initiative – an update

Editor's note: This is the first of three installments from the Northern Great Plains Research Laboratory's work on the Healthy Soil, Healthy Food, Healthy People Initiative.

Think about that first summer garden tomato. How is the taste comparable to store-bought tomatoes? The richer flavor in your garden tomatoes are from “**plant secondary metabolites**” called volatiles. Citral is an aromatic volatile produced by tomatoes and is used as a flavoring agent in manufactured foods and beverages. Linalool is a volatile oil and provides a sweet, floral taste. Tomatoes also contain dietary antioxidants which are important for cellular health. But, can we know that your tastier tomato is ‘healthier’ than one plucked green on the vine and trucked 2000 miles? The answer again may be **plant secondary metabolites**.

Simply put, **metabolites** are chemicals produced during plant growth and development, so they are a function of the plant. Metabolites already provide threads

between understanding the connection between soil dynamics, plant function, and human health. For example, proteins are plant primary metabolites used to measure grain quality because we need them to build and maintain muscle tissue. To further understand metabolites as a tool for making connections between healthy soil, healthy food, and healthy people, we are pursuing the analysis of plant secondary metabolites in ongoing and upcoming research threads at the Mandan ARS lab. Building on legacy effects of our Integrated Crop Livestock study (which ran from 1999-2019), we recently completed a 3-year study evaluating four wheat varieties (Bolles, Glen, Lang, and VitPro). Each varietal was grown under different management strategies (previously grazed vs. ungrazed; fertilized vs. unfertilized). We are processing the wheat for protein and mineral data in Fargo and plant secondary metabolites (i.e., flavonoids and tannins) in Beltsville, MDH with management strategies to increase the amount of pulse crops in their rotations while still supporting soil quality and improving nutritional quality.

This study will change by adding a tillage treatment as a management practice (not a recommended practice). We have decided to include tillage because it will help to answer more questions. Questions about how soil management influences the soil and plant function of different crops, and how management influences the quality

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and nutrient composition of the crops. We know how tillage changes soil: chemically, structurally, and biologically. We can now examine how management affects plant biochemistry. This will, in turn, help us better understand developing areas of metabolomic science.

Unraveling the relationship between soil, food, and human health is a unique and exciting challenge. It requires a lot of questions. It requires a lot of time. But, we are able to reduce some of the time by using long-term studies like the examples above. We will highlight some of these studies and results in a future article. There are a lot of plant secondary metabolites and they differ, in type and quantity, in every plant. This is a “taste” of what there is to discover as we explore plant secondary metabolites in understanding the healthy soil, healthy food, healthy people relationship.

If you have questions or would like more information, please contact technical information specialist seth.archer@usda.gov or Phytochemical Ecologist andrea.clemensen@usda.gov



AREA 4 SCD
Cooperative Research Farm

Cooperative Research Farm
Area IV Soil Conservation Districts*
USDA-Agricultural Research Service
Founded 1983

USDA
Northern Great Plains Research Laboratory

Section 18

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Section 17

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Section 8

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Section 20

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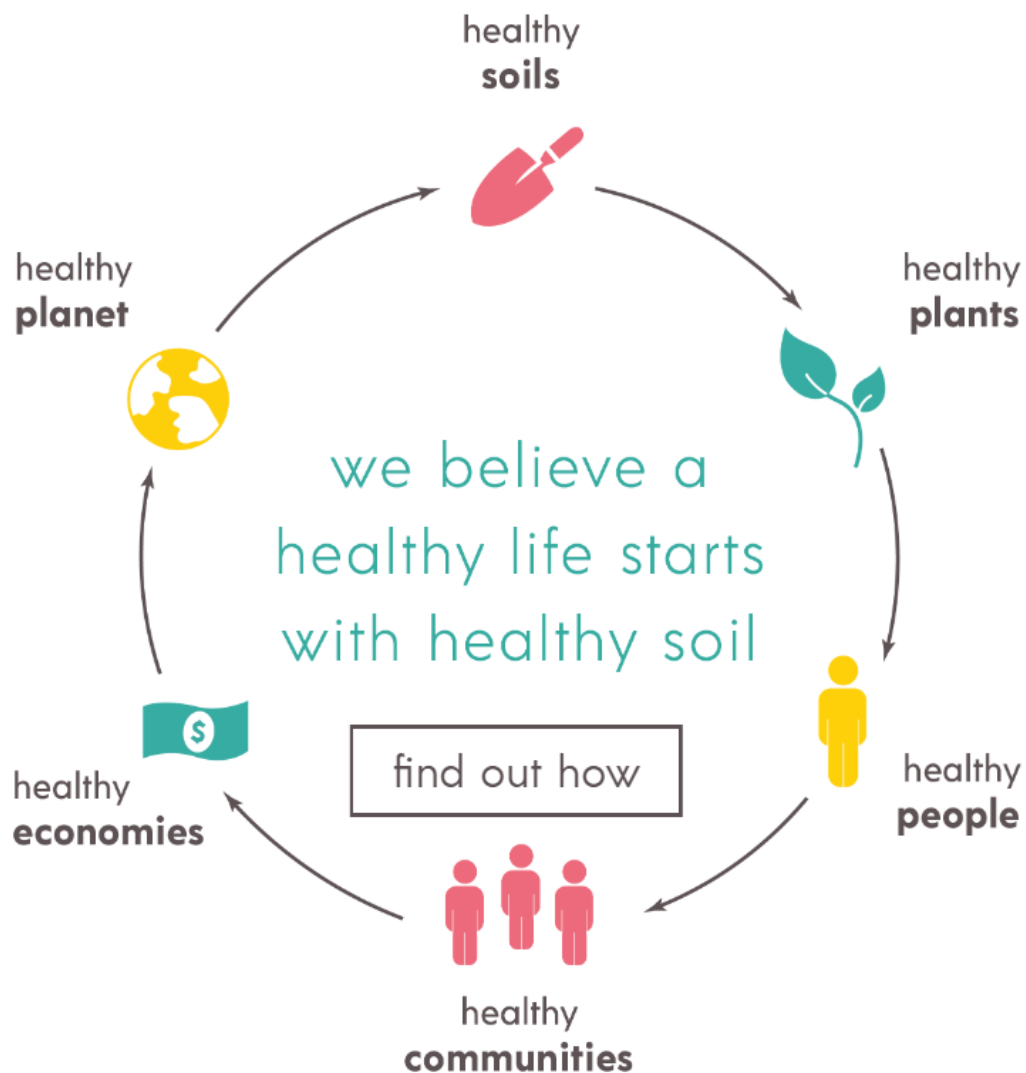
Developing Sustainable Food production Systems

- ✓ Long-Term Agro-Ecosystem Research
- ✓ Carbon and Nitrogen Cycling
- ✓ Dynamic Cropping Systems
- ✓ Production Economics
- ✓ Water Use Efficiency
- ✓ Cover Crops
- ✓ Soil Quality

*McIntosh County SCD, Burleigh County SCD, Oliver County SCD, West McLean County SCD, Stutsman County SCD, Emmons County SCD, Sheridan County SCD, Morton County SCD, Cedar SCD, Kidder County SCD, South McLean County SCD, & Logan County SCD

www.mandan.ars.usda.gov

701.667.3000 or 3001



<https://soillife.org> - a collaborative project between NRCS and the University of California, Davis

<https://www.ars.usda.gov/oc/utm/healthy-soils-healthy-food-healthy-people/>

<https://www.nrcs.usda.gov/conservation-basics/natural-resource-concerns/soils/soil-health>

Gather Around the Table

A recipe from our District Clerk, Malissa McKee

This is a recipe that my stepmother, affectionately known as mama C, has made for many years at family gatherings. It is a family favorite!

Scalloped Corn

- 2 Large eggs**
- 1 Cup milk**
- 2/3 Cup saltine crackers, crushed**
- 2 cans whole kernal corn, drained**
- 3 tablespoons butter, melted**
- 3/4 teaspoon salt**
- 1/4 tablespoon sugar**
- 1 tablespoon onion, minced**
- 1 cup shredded cheddar cheese**



Preheat oven to 350. Grease a 8x8 baking dish.
In a large bowl whisk the eggs. Add milk and crushed crackers and mix well. Add the corn, melted butter, salt, pepper, sugar, cheese, and minced onion.
Bake at 350 degrees for 40 minutes.

VARIATIONS:

Frozen corn can be used in this recipe, just be sure to thaw and drain.

This recipe can be made in the crockpot too! Spray the inside of the crockpot and cook on high for 2-3 hours.

Chris Hart Organizes USDA and SCD Careers Session at Dickinson High School

*Submitted by Bonnie T. Twogood
District Manager, Stark and Billings SCD*

Chris Hart, Our Natural Resources Specialist associated with the Dickinson NRCS Field Office, organized a highly informative session for the students in the Careers in Government class at Dickinson High School. His organization extended beyond a mere presentation of opportunities within NRCS, Soils Survey, FSA, and Soil Conservation Districts. Mr. Hart, along with Brook Rogelstad, FSA CED, John Kempenich, Soil Scientist, and Ty Nordby, District Technician encouraged students to do a self-assessment process to discern their individual passions and the significance of active involvement through volunteering, job shadowing, and internships. Delving into intricate details such as job responsibilities, collegiate prerequisites, application procedures, and Benefit packages, the students were provided a holistic understanding of potential career paths with USDA and Soil Conservation District.



Source : Conservation Communicator - Winter Newsletter

<https://www.nrcs.usda.gov/about/careers>
NRCS job search

<https://www.fpacbc.usda.gov/careers/students-and-graduates/index.html>
Student and Graduate Programs, Internships, Tribal Scholars Program

<https://www.nacdnet.org/about-nacd/about-districts/>
National Association of Conservation Districts, terminology by state, for
Conservation Districts to search for their job listings

Rangeland Day Held at Mandan Hidatsa Arikara Interpretive Center

Submitted by Anna Bahnson
Outreach Coordinator, Bismarck SO

The Intertribal Agriculture Council (IAC) and Fort Berthold Land & Livestock Association hosted a Rangeland Day September 18th at the Mandan Hidatsa Arikara Interpretive center and invited multiple agencies to give an update or presentation on the areas of conservation that they work with on the Fort Berthold Reservation.

They asked Corey Bitner, Acting Tribal Liaison, to give a presentation with the Rain Simulator and Slake Test to show the difference between properly grazed land with a management plan and overgrazed land. Corey teamed with Jesse Baker of Tribal Natural Resources to collect samples from two rangeland units within the Reservation.

One had very short grass with one or two species of grass present and the other had grasses over 8 inches tall with multiple species of grasses and forbs inside.

Corey started the presentation sharing the benefits the range units would get with a prescribed grazing system and what is happening to the over grazed unit when

no management is being implemented. Beau LaSalle with IAC assisted in the presentation sharing his history with prescribed grazing on reservations in Montana.

Using the simulator, they poured water into the two samples and participants could see the runoff of the over grazed unit filling up the container with dirty water, this was described as runoff that would pollute local water streams and erode the ground. The sample with the grazing management plan held some water and the little water that did run off was cleaner. They discussed how the dirty water run off was unable to penetrate the ground due to compaction and with the lack of organic matter it couldn't absorb any before it ran off. The sample with the grazing management plan had over an inch of organic matter and was able to hold the water long enough where it could find the channels it needed to penetrate the soil and fill the container below.

After the rain simulator, Corey did a slake test with the same two samples. Before he put the samples in, the group was able to see the horizontal lines

of compaction that limited the water penetration and stopped roots from going down deeper from the over grazed sample. When the two samples were placed in the water the over grazed unit immediately started to fall apart, while the managed unit absorbed the water and stayed mostly intact. After a couple minutes he shook the samples and what was left of the over grazed unit sample fell apart more and the managed unit held together. Corey also shared handouts of NRCS's EQIP and CSP programs to producers.

The Fort Berthold Land and Livestock Associations council members thought this was such a great demonstration they talked with one of the members from the MHA Tribal Council and they invited Corey to give the council a demonstration. He worked with Jesse Baker to create a video demonstration for the October Council meeting. After viewing the video, the council voted to study their grazing practices to improve their tribal lands.

Tree of the quarter—Scotch Pine

(*Pinus sylvestris*)

This medium to large tree has orange-brown peeling bark. The tree likes full sun, does not tolerate flooding, is not very drought resistant, but requires a well-drained site. The largest Scotch Pine in North Dakota is 46 feet tall with a canopy spread of 34 1/2 feet.

The root system is shallow but forms a tap root on dry sites. Cold hardiness to USDA zone 3. Soil pH from 5.0 to 7.5. Prefers moist, well drained soils, but will tolerate drier sites.

The scotch pine is utilized for farmstead or field windbreaks, as well as nesting sites and winter cover for wildlife. Its wood is not used for lumbar. The pinus species are used to treat bronchitis, skin diseases, wounds, and as source of pinosylvinean, an antibiotic. The scotch pine is also used as an ornamental landscape tree for homes, public grounds, as well as Christmas trees.



Emerald Ash Borer

District Technician, Ethan Gress

It has been just under a year since the Emerald Ash Borer (EAB) was found in Moorehead Minnesota, and as we get closer to the spring it's time we talk about what it is and how it could affect your trees. The Emerald Ash Borer (EAB) or *Agrilus planipennis*, is the cause of death for tens of millions of ash trees in over half of the United States. EAB was introduced into our country in the early 2000's and is originally native to Asia. It is believed to have started in the Detroit, Michigan area. Luckily we have not detected the pest in North Dakota yet, but it is getting closer than ever with the pest being found in Sioux Falls, SD, Winnipeg, Manitoba, Canada and the previously Stated Moorehead, MN.

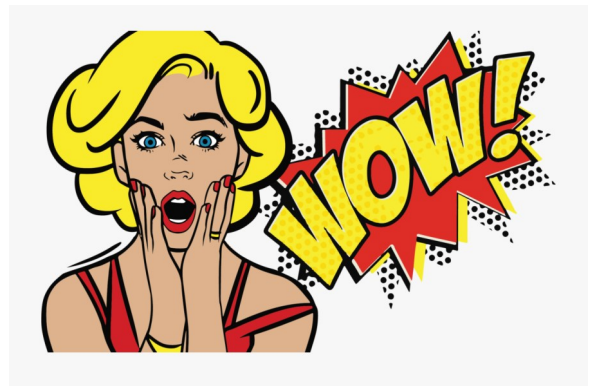
The Emerald Ash Borer is a small pest that burrows its way into Ash trees and lays its eggs in the bark of the tree. It is actually these eggs when hatched into larvae that are responsible for the death of the tree. The larvae will tunnel their way beneath the bark and feed on the tree. This disrupts the flow of nutrients for the tree and will result in death in as little as two years. Trees can be treated however this can be expensive and will need to be repeated annually. Some things you can do to help prevent the spread of EAB is to check your ash trees and report any signs of damage that could be linked to EAB, and do not bring firewood into the state from outside of North Dakota.



DID you know.... Morton County Agriculture Facts

- ND is 9th in the nation for beef cow inventory with 984,000
- Morton County is 14th in the nation for beef cow inventory, #1 in ND, with 63,000 beef cows
- ND Cattleman's Group is only one in the country utilizing EPA 319 funds for cost share programs
- The US produces 11% of the world's pork, approximately 1% is from ND

Thank you to Scott Ressler, Stockmen's Association, for the ND cattle statistics.



Rental Equipment of the SCD

-Watershed Coordinator, Chance Porsborg

Howdy Everyone! It has come to the end of our rental season here at the Morton County office for our manure spreader, no-till drill, and tiller. These pieces of equipment are available for your use throughout most of the year from thaw until freeze. They are all available for three days of use per producer at a time with rental rates varying per piece of equipment.

Our most popular piece of equipment is the manure spreader, a Kuhn Knight 160. We require a \$350 deposit for the use of the spreader, followed by \$350 per day with a maximum use of three days. Permitting the spreader is returned CLEAN and in good condition the \$350 deposit will be applied to your bill for the use of the spreader. Part of the rental agreement is that the spreader is returned clean and in good condition. If there are any small repairs that are needed to be completed, or any larger issues or repairs that need to be completed, the office is to be contacted immediately to be notified of the situation. In terms of cleanliness, the spreader must be returned with the box cleaned and the beaters free of all debris, manure, and twine/ net wrap. The reason for this is to help eliminate the chance of cross contamination for diseases or spread of any noxious weeds. If the spreader is not returned in a clean and working condition, the deposit will be kept and not applied to the overall bill.

The Truax no-till drill is another commonly rented item. This is used for personal projects or NRCS/ 319 plantings. The rental rate for the drill is half of the estimated bill or planting, with a minimum charge of at least \$100. The SCD does offer the option for deliver and planting for you, depending on the office workload. Different seeding and delivery rates would apply. The drill has three different seed boxes, which allows it to be able to accommodate different seed types and mixes.

Last but certainly not least is our tiller. This along with the other two pieces of equipment have the same rental time frame of three days, and like the drill can be delivered or the work can be done by the SCD office dependent on workload. The tiller, although small at approximately 5' wide, can have a large impact on tree plantings. This is one of the key components to site preparation for you tree plantings to help insure the best chance of survival for your trees!

If you have any questions about the equipment or would like to rent it, please give us a call. Our office is open Monday—Friday, 8-4:30 CST. 701-667-1163 x3



Sheep Fact: Out of the approximate one thousand different sheep breeds in the world, only 47 of those are found within the United States.

Morton Co Soil Conservation District Annual Report 2023

- January—** 319 Big Muddy Watershed continued funding presentation, DEQ
SCD board reorganization meeting
SCD staff attend Soil & Water Leadership Academy II, Watford City
- February—** USDA Northern Great Plains Research Lab Focus Group Meeting, ARS
KFYR Living Ag Classroom, Bismarck Event Center
- March—** Farming & Ranching for the Bottom Line/Grazing Summit, Bismarck State College
Burleigh SCD Garden Series, Bismarck State College
NDCDEA District Annual Meeting, Baymont Inn & Suites, Mandan
ETHOS workshop, USDA Northern Great Plains Research Lab
Meeting with Tina Harding, Project Wet for Waterfest planning
DART training webinar
- April—** Tree storage workshop, Minot
Radio spot for Earth Day, Rock 101 (101.7 FM)
- May—** Burleigh SCD Garden Tour, Bismarck State College
Morton County Ag Day, Dakota Centennial Park
Women's Ag Night, Baymont Inn & Suites
Tree pick up at nurseries; Lincoln Oaks, Towner, Big Sioux
Handplant pick up at New Salem shop
Machine tree plantings began
- June—** Additional handplant pick up dates at New Salem shop
Surplus tree sale
Burleigh SCD Garden Tour, Menoken Farms
End of NWQI Big Muddy Watershed assessment
Machine tree plantings finalized—total of
- July—** Big Muddy Grazing Show, Glen Ullin
National NACD meeting, Bismarck Hotel & Convention Center
Friends & Neighbors Day, Area IV Research Farm, Mandan
Burleigh SCD Garden Tour, Menoken Farm
Fabric on machine tree plantings finalized
- August—** Mill Levy request submitted
Burleigh SCD Crops, Covers, and Cows, Regan
Burleigh SCD Garden Preservation
NRCS technical assistance agreement training
- September—** Mill Levy budget hearing meeting
Oliver County SCD Eco Ed
Leadership Academy Focus Group meeting
Area IV Research Farm, Friends and Neighbors planning meeting
- October—** Area IV Region SCD meeting, Washburn 4H Camp
Lewis & Clark Envirothon, Washburn 4H Camp
Handplant order form available for orders, insert in newsletter and on website
- November—** Northern Plains Regional SCD Employees Leadership Conference, Deadwood SD
Burleigh SCD Appreciation Mixer, Bismarck Elks
NDASCD annual convention, Bismarck Hotel & Convention Center
- December—** TREES Program, Tom Gibson, Morton County Schools
Area IV SCD Research Farm meeting
Investing in the Future, Baymont Inn & Suites
Handplant order deadline end of month

Regional Partners—NRCS

Greetings,

The Natural Resources Conservation Service (NRCS) has technical and financial assistance available to producers in Morton County. We would love to work with you through our planning process to develop a conservation plan that fits you. We hope to provide technical assistance and facilitate a program that will help you improve the resiliency of your resources and operation. There are many programs with cost share available, including but not limited to: EQIP, EQIP-CIC, and CSP.

EQIP is a program for a wide array of needs of Morton County producers.

It allows for cost share of practices on cropland such as grass seedings, cover crops, nutrient and residue management, no-till conversion, ag waste systems, and much more. On range and pastureland, practices such as livestock water developments and fencing to allow for better grazing management are common. These contracts can be anywhere from 1 to 10 years long.

CSP is an all-encompassing program that takes your current conservation practices and builds upon them. This is a 5 year program that focuses on more intensive levels of conservation on your operation. It includes yearly payments on your existing conservation practices and management payments for newly adopted ones.

EQIP-CIC bridges the gap between CSP and EQIP and is focused on specific management practices such as prescribed grazing, nutrient management, soil health testing, saline and sodic management, and wildlife habitat management. This 5 year program allows for yearly payments for management practices as well as cost share for structural and vegetative practices helping facilitate better management.

The FY 2024 EQIP program cutoff date for FY 2024 applications was September 22, 2023. These applications will be ranked by February 2, 2024.

The FY 2024 EQIP ACT NOW program has a continuous signup and 3 rounds of ranking deadlines. March 15, 2024, April 12, 2024, and May 10, 2024.

The FY 2024 EQIP-CIC program cutoff date is March 1, 2024, and has 3 rounds of ranking deadlines. March 15, 2024, April 12, 2024, and May 10, 2024.

The FY 2024 CSP Classic program cutoff date is March 1, 2024. These applications will be ranked by March 22, 2024.

The FY 2024 CSP ACT NOW program has a continuous signup and 2 rounds of ranking deadlines. April 5, 2024, and May 3, 2024.

We would love to work with you and look forward to a call so we can visit about different program options. We will listen to your challenges, goals, and ideas and work together to put them into action. We will work hard to develop a conservation plan that benefits you and future generations on your operation.

Best Regards,

Landon Weiser
District Conservationist

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Phone: 701-667-1163 ext. 3

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■ American Family Insurance	Farm Credit Services	Pheasant's Forever
■ Baymont Inn & Suites	Farmer's Union Insurance	Railway Credit Union
■ BEK Communications	Margi Engelter	Security First Bank
■ Big O Tire's	Fitterer Gas & Oil	Southwest Mutual Insurance
■ Capital Credit Union	Gartner Seed Farm	Starion Bank
■ Chesak Seed House	Hirsch Florist	West River Telecomm
■ Comfort Inn & Suites of Mandan	L&H Manufacturing	
■ Dakota Community Bank	ND Farm Bureau	

UPCOMING EVENTS:

MCSCD Board meeting are generally the 2nd Thursday of the month & are open to the public. Check Facebook for dates and time.

January:

15—MLK Jr Day, holiday offices closed
29—MCSCD Board Meeting
30-31—Soil & Water Leadership Academy, Heritage Center

February:

13-14—Living Ag Classroom, Bismarck Civic Center
19—Presidents Day, holiday offices closed
20—Hebron Dakota Community Bank Club, SCD & NRCS present cost share programs
21-22—Bottom Line Ag Summit, BSC

March:

11-13—District Annual Meeting, Fargo

SUPERVISORS:

AARON STECKLER
GEORGE FERDERER
ROCKY BATEMAN
RICHARD TOKACH
STEVE TOMAC
THOMAS OSTERBAUER
KENT BELLAND
JONATHON MOSER

DISTRICT PERSONNEL:

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FARM BILL SPECIALIST
(OPEN POSITION)