



ADAMS COUNTY SOIL CONSERVATION DISTRICT



Summer 2020

A PUBLICATION TO KEEP YOU UPDATED ON CURRENT CONSERVATION ISSUES AND EVENTS

SCD and NRCS Happenings



**Adams County SCD is proud to award Michelle Witt
the 2020 Chris Christmann Scholarship for \$500**



Michelle is the daughter of Wendy Witt. Witt attended Hettinger High School where she recently graduated. While a student she participated in FFA, Band, and O.W.L.S. (Outdoor Wildlife Learning Site). Michelle has also worked in the agronomy department at the NDSU Research Center last summer and is planning to work there again this summer. Michelle's future plans are to attend Bismarck State College for Agriculture Industry and Technology. Best wishes Michelle from the board and staff of Adams County Soil Conservation District.



Employment Opportunity

District Manager

Full-time Position

Salary based on Experience

Position is multi-faceted working with producers, working with federal, state, and local programs and laws that affect conservation.

Work Duties included, but not limited to: Computer skills, district activities, tree design.

Employment Opportunity includes benefits of vacation and sick leave, retirement, and health insurance.

Contact Gail at 701-567-2462 ext. 3 or stop at the office at 609 2nd Ave N., Hettinger ND 58639 to pick up an application.

Send resume to: Adams County Soil Conservation District

P O Box 872

Hettinger, ND 58639

Applications due by July 20, 2020

Adams County SCD is an Equal Opportunity Employer.



Supervisor Election

Adams County Soil Conservation District will have one position on the ballot in the November General Election. The term for Soil Conservation Supervisor is 6 years. In order to be eligible for election to the Office of Supervisor of a Soil Conservation District, candidates must be land occupiers and physically living the district. Candidates must file a Petition/Certificate of Nomination containing signatures equal to not less than 25 nor more than 300 qualified electors of the district. Affidavit of Candidacy, Petition of Nomination and Statement of Interests must be filed with the County Auditor of Adams County. All forms are available at the Adams County Soil Conservation District Office at 609 2nd Ave N in Hettinger ND, Adams County Auditor's office, online at www.sos.nd.gov or by searching document SFN10172, SFN02703, and SFN02704.

The deadline for filing Affidavit of Candidacy, Petition/Certificate of Nominations and Statement of Interests for the office of supervisors of a soil conservation district is August 31, 2020 no later than 4:00 PM. Upon receipt of the Affidavit of Candidacy, Petition/Certification of Nomination and Statement of Interests, the county Auditor shall without fee place the name of the candidate so nominated on the no-party ballot ensuing general election to be held on **November 3, 2020**. Any land occupier living in the soil conservation district desiring to be a candidate for the Office of Supervisors at a district election and who has failed to file a nominating petition and statement of interests may campaign and be elected as a **write-in-candidate** for the office. If you are interested in filing for the office of Supervisor, you can contact Adams County SCD for more information at 701-567-2462 ext. 3 or stop at the office to pick up the candidacy forms.

WELCOME ALEESHA, FARM BILL SPECIALIST



My name is Aleesha Boelter and I am the Farm Bill Specialist located in Hettinger, ND. I was hired May 2020 and serve Adams, Bowman, Hettinger, and Slope counties.

I am originally from the Minnesota/Wisconsin area; however, I grew up all over and continued to travel after high school. I graduated in December 2019 with a Bachelor of Science in Environmental Science from Arizona State University – Lake Havasu.

Living in Arizona provided me opportunities working with animals and learning how to work with the environment to create a better living space for them. I worked under one of my professors researching burrowing owls by monitoring their populations and behaviors. I also was able to do a summer internship at Keepers of the Wild, a sanctuary that provided homes to animals such as lions, tigers, bears, wolves, monkeys, and camels.

When I am not working, I am out with my two amazing Belgian Malinois, Ammo and Gauge.

I am excited for the opportunity to work alongside landowners and producers using conservation practices to improve North Dakota's Natural Resources.



Conservation Scoop

Bringing You the “Dirt” on Conservation

Soil Health for Home Gardens

Volume 1 Issue 2

Soil health is a hot topic in the agricultural world, but what about in your home garden? The need for healthy soil encompasses all land where food is grown, no matter the scale. Management of a garden to improve soil health can have a number of positive benefits to you, your community, and the environment. Increased productivity, reduced work, and improved environmental stewardship are benefits you could gain by improving the health of your soil.

In the soil, there is a HUGE volume of life varying in size and function called soil biology. From large, visible forms such as earth worms to beneficial bacteria so small they are only seen with a microscope, all play an important role in our soil. Like life above ground, each type of soil biology is responsible for a different component of the soil system and has different food and “housing” requirements. It is the collaboration of this massive pool of diverse soil biology that allows our topsoil to function the way it does. Soil biology turns living and dead plant material into organic matter which is the reason our topsoil is black. From supplying nutrients to crops to water infiltration, soil biology is responsible for it all.



High Tunnel Garden. Photo courtesy of NRCS

In the last issue (*Increasing Profits through Soil Health*, Vol 1 Issue 1), the five principles of soil health were introduced. These principles can be applied to any agriculture system, including a home garden. They are key to tailoring a management system that will improve the health of the soil and sustain a strong soil biology population. By adopting these principles in your garden, you can provide numerous benefits that will have your plants and your soil thanking you.

Principle 1. Use Diverse Plant Species to Increase Diversity in the Soil

Soil biology is fed through both living and non-living plant roots and vegetation. Each type of biology has different food requirements, which are provided by different plant types. The more variety of plant species in a garden, the more variety of soil biology there can be. Most home gardens already have a diverse plant community, but many lack consistent plant rotation within the garden from year to year. This is a good idea to prevent disease issues, but also to ensure the different biology types are fed across the entire garden.



Three Sisters planting

Photo courtesy of *The Old Farmer's Almanac*

Another great example of diversity is companion planting. Most plants have a beneficial companion plant that aids in building soil nutrients, attracting predator pests, or providing other benefits. The most common companion planting is the “Three Sister Planting” that combines corn, beans, and squash in the same area. Corn provides natural support as the beans climb the stalk. Beans fix nitrogen in the soil, which supports the large nutritional needs of corn. Squash plants spread out and cover the ground, providing weed suppression. Companion planting also maximizes the efficiency of your garden.

(Continued on next page)

Soil Health (continued)

Principle 2. Manage Soils More by Disturbing them Less

Tillage is one of the most damaging management activities to the soil and the beneficial biology it contains. Roto-tilling, a common method to “fluff” the soil before planting, is extremely detrimental to your soil’s health and productivity. A common belief is that tillage helps to loosen up and aerate the soil. This is true for a period of days to weeks following the tillage operation. However, over the course of the summer and years to follow, it will prove far more damaging to the soil than it is beneficial. Tillage destroys a soil’s aggregate structure and induces several types of soil erosion including sheet, rill, and gully erosion by promoting runoff. Soil structure and pore space are what allows it to hold and infiltrate water and air. Destroying these physical properties causes water to pool on the soil surface or runoff, typically taking topsoil and key nutrients with it. Surface crusting is a common symptom of poor soil structure and can mimic drought conditions below the surface and even delay or prevent seed germination. Tillage also reduces soil organic matter levels, destroys beneficial soil biology and its habitat, and encourages “non-desirable” soil biology to thrive. Reducing or eliminating tillage allows soil biology to flourish and creates a healthier, more resilient environment.



*Above: Good soil structure
Below: Poor, compacted soil structure
Photos courtesy of DRG News*



Principle 3. Keep Plants Growing Throughout the Year

Soil biology, much like above-ground biology, needs a steady food supply throughout the year. The primary food source of the soil food web is root exudates, a complex mixture of organic substances secreted by the roots of living plants. It can be difficult to keep a living root in the soil during the cold winter months, but it is possible to extend the growing season by filling dormant periods with a cover crop. Among numerous other benefits, a diverse cover crop mix provides food for the soil food web which in turn helps the soil aggregate formation process. A cover crop may be leftover seed planted after the harvest of your vegetable crop, or it could be a non-vegetable plant such as wheat, barley, or dozens of other potential species. Continually feeding soil biology improves soil functions and builds soil health.



Principle 4. Keep the Soil Covered as Much as Possible

Soil biology thrives under moderate temperatures. Consider how asphalt feels on a hot, sunny summer day. Imagine walking across it barefoot. The ground is so hot it burns your feet. Soil biology also suffers under extreme temperatures. Bare soil can reach temperatures well over 100 degrees Fahrenheit, which can cause the beneficial biology to go dormant or even die off. Applying and maintaining a thick layer of mulch helps shade

Mulch providing soil armor. Photo Courtesy of USDA soil from the extreme heat of summer, stabilizing soil temperatures and protecting biology. A thick layer of mulch applied after crop emergence can significantly reduce labor during the summer. It helps to smother weeds, sparing you much of the time spent weeding your garden. It also reduces moisture evaporation from the soil surface, allowing the soil to more efficiently hold water and reduces the need for frequent watering.

(Continued on next page)

Soil Health (continued)

Common forms of mulch include grass clippings, straw residue, and paper products. If using vegetative material, verify it is herbicide-free as residual chemicals can inhibit broadleaf growth. If you cannot guarantee your mulch is herbicide-free, there is a simple way to test for residuals. Mix a small amount of mulch with soil, place it in a pot, and try growing a broadleaf like peas or radish.

Principle 5. Integrate Livestock

Livestock byproducts, specifically manure, can be very beneficial to your garden. Manure is an excellent source of nutrients and organic material that can help beneficial soil biology thrive. All manure is not the same. Raw, or fresh, manure can contain high levels of nitrogen, ammonium and salts, which can harm and burn plants. It can also contain high amounts of viable weed seed likely to greatly increase time spent weeding. Harmful pathogens like E. coli are easily harbored and can cause serious disease and illness to humans. Many livestock owners compost or stockpile manure to age.



*Steam rises from composted animal waste
Photo courtesy of NRCS*

Both composting and stockpiling generate high temperatures that can kill most weed seeds. However, stockpiled manure is not the same as composted manure. Composting creates higher temperatures than stockpiling that can kill pathogens like E. coli and is the safest way to use animal manure in your garden. It is not safe to assume that pathogens in a stockpiled manure pile have been destroyed. Manure often contains more phosphorus than nitrogen. If applying manure as a primary nitrogen source, overapplication of phosphorus is very likely. Over time, this can lead to high levels of soil phosphorus and can have negative impacts on local water systems. To ensure safe manure application, it is important to test both the soil and the manure for nutrients. This will determine the appropriate amount that should be added to your soil. Garden soil test kits are available from NDSU extension.

Additional management techniques can be incorporated to help build the overall health of your garden. If you are interested in learning more about soil health, contact your local Natural Resources Conservation Service Office.

Conservation Planning for 2021 Projects

FINANCIAL ASSISTANCE
ENVIRONMENTAL QUALITY INCENTIVES PROGRAM

Now is the time to start thinking about your conservation goals and plans for next year. The NRCS is starting to conduct field work for Environmental Quality Incentives Program (EQIP) applications for potential FY 2021 funding. EQIP provides financial and technical assistance to agricultural producers to address natural resource concerns and deliver environmental benefits such as improved water and air quality, conserved ground and surface water, increased soil health and reduced soil erosion and sedimentation, improved or created wildlife habitat, and mitigation against increasing weather volatility. EQIP provides assistance with a variety of conservation activities, such as cover crops, reduced tillage, nutrient management, tree and grass plantings, livestock water systems, rotational grazing, and much more. If you have questions about projects on your ag operation, stop in and visit with us or call us at 701-567-2462 ext. 3. Due to COVID-19 safety procedures, please call and schedule an appointment if you wish to stop in.

Harmful Algal Blooms (HABs) for Ranchers and Pet Owners

Blue-green algae are simple plants that exist naturally in water and wet environments. They prefer warm, stagnant, nutrient-rich water and are found most often in ponds, lakes, and slow moving rivers.

- Dugouts, wetlands and lakes contaminated with fertilizer run-off or direct manure and urine contamination are prime places for algae to thrive.
- During periods of hot and dry conditions, rapid growth of blue-green algae may result in a "bloom". A bloom is a build-up of algae that creates a green, blue-green or white coloring on the surface of the water
 - Sometimes occurring as mats or scum.
 - It may look like a floating layer of paint.
- Windy conditions can concentrate algal blooms along water edges, increasing the risk for livestock to ingest algae when they drink.

The most common species of blue-green algae in North Dakota associated with poisoning are *Microcystis*, *Anabaena*, and *Aphanizomenon*.



Photo Courtesy of ND Division of Water Quality

- *Microcystis* is the most common bloom-forming genus and is often toxic.
 - **Microcystis** blooms are a greenish, thick, **paint-like** (sometimes granular) material that accumulates along shores.
 - Scums that dry on the shores of lakes may contain high concentrations of microcystin toxin for several months, allowing toxins to dissolve in the water even when the cells are no longer alive or after a recently collapsed bloom.
- **Anabaena** may form **slimy** summer blooms on the surface of lakes and reservoirs.
- **Aphanizomenon** look similar to **grass clippings** and are slender, straight filaments that can be observed separately or in clumps.

Blue-green algae toxins are released when algal cells are damaged and die in the water. This can occur when water is treated with an algacide such as copper sulfate or when ingested water reaches the animal's digestive tract and algal cells are disrupted, releasing the toxins. Pets and livestock are most at risk when drinking contaminated water or cleaning algae from fur/hair coat. Most animals exposed to blue-green algae toxins die acutely and are often found dead very near the water source.

Symptoms

Some algae produce potent neurotoxins (toxins that affect the nervous system) that cause:

- Muscle tremors, difficulty breathing, seizures, profuse slobbering, diarrhea, and rapid death within minutes to hours.

Other algae can produce hepatotoxins (toxins that affect the liver) that can cause:

- Death quickly or a more delayed onset of death after signs of liver failure develop.
- Photosensitization, a skin condition causing white (light or non-pigmented) areas of skin to peel, can occur in animals that survive the acute stages of liver damage.



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701-328-5210 www.deq.nd.gov

Treatment

The only treatment is supportive care and medications to alleviate the symptoms.

2020 Services & Price List

Hand Plants:	
Conservation size	\$2.00/tree
Larger size	\$4.00/tree
Grass Drill:	\$6.50/acre
<i>Down Payment required</i>	
No-Till Drill:	\$10.00/acre
<i>Down Payment required</i>	
Tree Planting w/tree:	0.30/ft
Weed Badgering:	
1st time	\$60.00/hour
2nd time	\$50.00/hour
Mowing/Tilling:	\$60.00/hour
Weed Wiper:	\$25.00/day
Weed Barrier fabric:	\$0.30/ft
500 foot roll	\$150.00/roll
Weed Barrier installed	\$ 0.60/ft
Plantskydd:	Prices vary
Tree Tubes:	\$6.50/each
Flags:	\$0.06 each
Staples:	\$0.15 each
Mileage:	\$3.00/mile

USDA Office-COVID-19 Update

The NRCS and ACSCD offices are now in Phase II for the reopening of the offices. The office remains locked and visitors are allowed by appointment only. Visitors will have to answer three screening questions about health, exposure, and travel. Masks are encouraged, but not required. Social distancing will be observed.



Tree Planting 2020

The 2020 Tree Planting had a few challenges with the winter-like conditions going into Spring. Trees were planted with cost-share programs of Outdoor Heritage and EQIP. The 2020 tree crew were Randall Raasch, Mark Baker, and Chris Upton. Weed barrier fabric was applied to all plantings by Bob Klein and the Stark and Billings Soil Conservation Tree Planting Crew.

Thank you to the tree planting crew and the weed barrier crew for helping with conservation.



DISTRICT SUPERVISORS

Hayden Evans
Jamie Enerson
Seth Hofland
Anthony Larson
Kathy Vliem
Cheryl Hoerauf, Advisor
Sean Weinert, Advisor

Adams County Soil Conservation District
PO Box 872 - Hettinger, ND 58639 - 701-567-2462

NRCS EMPLOYEES

Kate Motzko, District Conservationist
Katherine Brackel, Soil Conservation Technician

DISTRICT EMPLOYEES

Gail Froelich, District Clerk

PARTNER EMPLOYEES

Aleesha Boelter, Farm Bill Specialist

ADAMS COUNTY SOIL CONSERVATION DISTRICT

P.O. BOX 872

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Conservation Client Gateway is a web-based system that allows you to interact with your NRCS plans and contracts. You can E-Sign documents, track payments, submit requests for assistance and more. Find it at:
www.nrcs.usda.gov/clientgateway



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