



COLORADO SWCS

CHAPTER NEWSLETTER

C O L O R A D O S W C S

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By: Dawn Jackson



It is near the end of the year and the end of my term as President of the Colorado Chapter. I have enjoyed my time in office and would like to take this opportunity to express my appreciation for all the hard work of the board and committee members. They are a fantastic group of volunteers!

In this newsletter are several articles on the activities that the board, committee members, and other SWCS members have organized. I hope you will take time to read about these activities, especially on the Soil Health Tour that was held in August in the San Luis Valley.

Upcoming events for the Chapter are our Annual Meeting and Technical Conference. We hope that you can join us in November for this event. It is a great opportunity to hear from the education and research community, as well as network with members of the soil and water conservation community. I hope that all of you are taking advantage of the Conservation Newsbrief that SWCS introduced in June this year. This is a weekly news e-newsbrief that delivers timely, relevant news about soil and water conservation research and policy directly to your inbox every Thursday. To learn more or subscribe, go to: http://www.swcs.org/en/communications/conservation_newsbriefs

Enjoy the rest of your year!

SHERRI BRANDT—
NEWSLETTER EDITOR



Soil Health Driving Tour

By: Cindy Crist

The Colorado Chapter of the Soil and Water Conservation Society and the Natural Resources Conservation Service hosted a Soil Health Driving Tour and BBQ in the San Luis Valley On August 2, 2011. More than fifty participants gathered at the Monte Vista Service Center to tour several farms where conservation cover crops and other practices were being implemented to improve soil health.

The San Luis Valley is a high desert at nearly 8,000 feet in elevation and receives only 7 inches of annual moisture. Farmers on the Valley floor have traditionally grown potatoes and barley in a two year rotation. Vegetables such as lettuce, spinach and carrots are also grown. Most farms are irrigated with center pivots using water drawn from the underlying unconfined aquifer. The soils are derived from coarse alluvium and are highly erodible. Soil organic matter is naturally low due to the harsh dry climate in the Valley and is depleted further through conventional tillage.

Diverse cover crops provide a huge source of organic matter that encourages the growth of a diverse population of soil micro-organisms. In the Valley, most cover crops are chopped using potato harvesting equipment and incorporated into the soil as green manure. On some farms compost applications are also used to build organic matter and inoculate the soil with a large population of micro-organisms. Where feasible, cover crops are used for livestock forage which incorporates the organic matter as manure. Cover crops require significantly less water than grain and potato crops reducing the amount of water pumped from the already depleted unconfined aquifer and lowering farm energy costs. Some cover crop species mine nitrogen and phosphorous that would otherwise be lost in the soil profile. Cover crops also protect the highly erosive soils from wind erosion.

Farmers hosting the tour have been meeting monthly over the past year to discuss ways to improve soil health. They planted cover crops this year in an effort to improve soil health, increase production of future crops, and reduce the amount of water being pumped from the unconfined aquifer.

The first stop on the tour was the Eric Bothell Farm. After harvesting potatoes last fall, Mr. Bothell planted field peas in April, chopped and disked the peas in June and planted a sorghum sudan/Brassica mix cover crop. His plans are to incorporate the cover crop as green manure and plant potatoes again in the spring of 2012.



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SOIL HEALTH FROM PAGE 2

At Rocky Farms, Brendon Rockey discussed the benefits of his cover crop consisting of sorghum/sudan, radishes, turnips, buckwheat and peas that he incorporates as green manure followed by compost applications. He uses the cover crop in rotation with potatoes. His use of compost,

compost teas, and green manure cover crops has resulted in high yields of potatoes and reduced his costs for fertilizer, water and other inputs.



At the certified organic JC Potato Farm, participants observed a grazed cover crop of winter rye, oats, and sweet clover. The rooting system of rye and sweet clover mine escaped nitrogen in the soil to depths exceeding 3 feet. The sweet clover also fixes atmospheric nitrogen.



At the next stop, Lyle Nissen and Patrick O'Neil of Agro Engineering discussed planting various species of cover crops including oil seed radish, tillage radish, Ethiopian cabbage and turnips. Cover crop yields have exceeded 7 tons per acre of dry matter with only 10 inches of applied irrigation water. They intend to bale some of the cover crop, windrow and graze cattle on some, but most will be incorporated as green manure to improve soil health. Lyle also plans to drill winter rye into the green manure to use for livestock forage this fall and next spring.



Close by at White Mountain Organic Farm, participants observed strip cropping of cover crops in the same field as quinoa. Wheat, sweet clover and peas were planted to improve the soil and reduce wind erosion. Paul of White Mountain Farm demonstrated that strip cropping species with similar water requirements as the cash crop can protect sensitive crops from wind damage while building soil health.

Following the driving tour, the Colorado Chapter of the Soil and Water Conservation Society hosted a BBQ at Pete and Leah Clark's Farm. Approximately thirty five of the participants enjoyed hamburgers, bratwurst and good conversation.



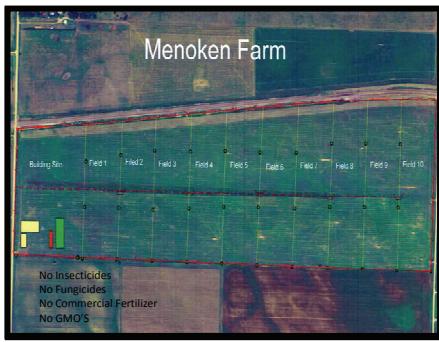
SWCS 2011 NATIONAL MEETING HIGHLIGHTS

By: Michael Collins

The 2011 SWCS National Meeting was held in Washington D.C. July 17-20. The following is a summary of highlights from the meeting.

Soil Health Symposium – Jay Fuhrer and Richard Webb,

The Menoken Farm presentation was presented and talked on taking decades of conventional tilled land and the SCD is implementing a soil health conservation plan using no-till, increasing diversity, multi-specie cover crops, compost, compost teas and comparing yields with different varieties and methods. This power point will be posted at the www.bcsd.com website soon.



Plenary Session

Part 1 -- Former Secretary of Ag Dan Glickman talked on the long term implication of food and agricultural policy on conservation in the US and around the world and the need for food with China increasing population. We need a Farm Program for times when prices are low not for high. Increase research and development and have a long range plan.

Part 2 – Andy Manale/Jorge Delgado SWCS Science and Policy Committee and SWCS Climate Change Taskforce, respectively, talked on conservation practices to mitigate and adapt to climate change.

Special Symposium on the new Farm Bill



Former Chief Bruce Knight talking on the Farm Bill and Climate change.

Talk focused on balancing the budget and that some items would be cut and it will be up to the special committees to address the climate of this deficit. Question was asked on how do we continue to sell conservation with CTA being cut? Answer was that CTA needs to be sold to congressional folks on its importance. Stephanie Page from Oregon Dept of Ag and NRCS tactics for climate change uses EQIP/FB program in riparian areas to address energy conservation using 10 practices as a system approach. Link to share www.agcarbonmarkets.com

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INTERNATIONAL MEETING FROM PAGE 4

Concurrent Sessions

No-till and cover crops in Kansas using Nutrient Management with Manure Management, bottom line – most efficient use of manure is when it's deposited directly to the field without hauling. No-till will increase Organic Carbon, earthworms jumped up 3x in No-Till soybeans and 6x in No-Till sun hemp. Bulk density was lowered with cover crops by 7% - meaning a lower BD = more spore space for soil life, water and nutrients = greater yields.

Dynamic soil properties as another session where state and transitional models are used along with cropping history.

An engineer (Scott Dierks PE) presented a talk on using native plants and its impacts to soil and water. The comment made was "life comes Structure" terms like Pore Network Modeling, Pedo-Transfer Functions and the SPAW model (uses only sand and clay%) were discussed. Quite the engineer talking on pore space, bulk density and the % of water in soil volume and its implications in engineering. Highest to lowest cm of infiltration is Silver Maple, switchgrass, beans, corn and then pasture.

Interesting talk from a USGS person in Jamestown, ND talked on the Biomapper software, could be an unique software for sage grouse or other species. Talked on InVEST called Integrated Value of Ecosystems Services and Tradeoffs.

CO Chapter Elections Fall 2011

The Colorado Chapter of the Soil and Water Conservation Society will be holding its annual fall election from September 20 to October 15, 2011. Chapter members will receive their ballots either by postal mail or electronically at the email address registered with the chapter. In the 2011 election, we will be voting for the offices of **President Elect, Director at Large and Secretary/Treasurer**. The deadline to submit nominations for these offices is September 15, 2011. Nominations should be submitted to Dawn Jackson at dawn.jackson@co.usda.gov.

Please be sure and vote! So far, we have a great group of members running for each office . Please be sure and say thank you to these members next time you see them for their professionalism and willingness to work for soil and water conservation. Our chapter works on local, state, regional and national level in activities related to soil and water conservation. With support from you (CO Chapter Members) and these individuals who volunteer to work for our chapter, we can continue to contribute to the community through professional activities geared toward conservation of soil and water resources.

Watch for instructions on the election in your inbox or mailbox. Please be sure and vote one time for each office and send your electronic ballot to coswcs@gmail.com with the subject line **Election 2011**, or send your paper ballot to Renee Koch 33461 County Road 46 Otis, CO 80743. New officers will be announced at our annual meeting November 14, 2011.

Award Nominations Needed

By: Beth Fortman

The Colorado Chapter of the Soil and Water Conservation Society will present its 2011 conservation Reporter of the Year Award during the Awards Luncheon at the CACD Annual Meeting, at the Embassy Suites in Loveland this year. I am looking for nominations for this award. Do any of you have reporters (TV or newspaper) you have worked closely with or who has been active in reporting the goings on of your Districts or projects and programs from your office? They could be a newspaper reporter, TV or radio media person.

The nomination consists of a letter giving the conservation reporting accomplishments of the nominee. Include the newspaper(s)/periodicals the reporter writes for or submits articles to, how much conservation publicity the reporter has provided and of his/her effectiveness. It is recommended that you provide a sample or two of the nominee's conservation reporting, also. The personal background of the nominee that is provided can be limited at this point because the awards committee can obtain additional information after selection of the award recipient.

I am also looking for nominations for an outstanding or exceptional Jr. Conservationist. If you know of any youth in your area who are active in their 4-H or FFA clubs and are an asset to their club and contribute much, please send a nomination or a contact name and number of the person I can get information from. Nomination should include involvement in activities, projects relating to natural resources, honors won and other related soil and water conservation experiences.

Other award nominations to think of are the significant contributions made in the recent past to the Chapter and the cause of soil and water conservation by one of our members and to nominate these contributors for a chapter award. Please submit a nomination (to the Chapter Award Committee as given below) for each Chapter member whom you feel is deserving of recognition with the **Chapter Commendation Award** (especially, but not limited to, a deserving member who has not been so recognized in the last several years). Generally, this award is presented to those members who have made significant contribution of their time and talents to Chapter activities and functioning. We will present these awards at our annual meeting November 16, 2010

Please send your nominations to Beth Fortman (Chapter Awards Committee Chairman), 200 S. Santa Fe, 4th Floor, Pueblo, CO 81003 by October 1, 2011. Or email to eliza-beth.fortman@co.usda.gov.

For Commendations the deadline is **October 15**. National Awards nominations deadline is **November 21**.

I am also accepting nominations for National Awards (see categories on the next page).

AWARDS FROM PAGE 6

The awards program of the Soil and Water Conservation Society is designed to recognize individuals and organizations who have made outstanding contributions in advocating the conservation of soil, water and related natural resources.

Fellow

The designation of Fellow is conferred on Society members who have performed exceptional service in advocating the conservation of soil, water, and related natural resources. This award is given for professional excellence, first and foremost. Professional achievement may be in practicing, investigating, administering, or teaching soil and water conservation or closely related fields.

Outstanding Service

The Outstanding Service Award is given to Society members in recognition of distinguished service in helping the Society to develop and carry out its program over a long and sustained period of time. Accomplishments of the nominee should not be of a scope or significance warranting the degree of Fellow, but should be greater than those required for the Commendation Award.

Commendation

The Commendation Award gives international recognition to Society members for service to their chapter or council of chapters.

***NEW* Conservation Research Award**

The SWCS Board recently approved a new award to honor Society members who achieve excellence in conservation research. Recipients of the Conservation Research Award will receive a plaque and will be honored by their peers at an awards luncheon at the annual conference.

Hugh Hammond Bennett

The Hugh Hammond Bennett Award is the highest honor bestowed on an individual by the Society. It is given for distinguished service in recognition of national and international accomplishments in the conservation of soil, water, and related natural resources.

Merit

The Merit Award is given in recognition of an outstanding activity, product, or service by a group, business firm, corporation, or organization that promotes the conservation of soil, water, and related natural resources.

Harold-Kay Scholl Excellence in Conservation Award

The Harold and Kay Scholl Excellence in Conservation Award recognizes and provides a yearly cash award to individuals who creatively and effectively provide technical assistance in conservation planning and plan application. Up to three (3) awards will be presented annually with cash awards ranging from \$800 to \$1200. The number and value of awards will depend on the annual income from the Scholl fund.

CO Chapter Technical Conference 2011

The Colorado Chapter of SWCS will hold its annual technical conference and annual meeting on November 14 and 15, 2011. The conference will be held in Loveland, Colorado at Embassy Suites Hotel. This years technical conference will focus on soil health and cover crops. There will also be a rainfall simulator demonstration. The agenda is below and be sure to watch your email and the Colorado Chapter website for more details as well as registration information.

Colorado Chapter SWCS 2011 Technical Conference / Annual Meeting Agenda

Monday, November 14

1:00 – 2:00	Rainfall Simulator Demonstration	<i>Ed Kilpatrick, Soil Conservationist, NRCS</i>
2:00 – 3:30	Soil Health Power Point	<i>Tim Steffens, PhD, Rangeland Specialist, NRCS</i>
3:30 – 4:00	Intermission	<i>Open Discussion</i>
4:00 – 5:00	Improving Soil Health with Cover Crops	<i>Brendon Rockey, San Luis Valley Producer</i>
5:00	2011 Annual Meeting	<i>Dawn Jackson, President</i>

All workshop attendees are invited to attend the Annual Meeting and the social hour that will immediately follow the meeting.

Tuesday, November 15

8:00 – 9:00	Soil Health Demonstration	<i>Michael Casper, Soil Conservation Tech, NRCS</i>
9:00 – 11:00	Managing Soil Biology for Profitability	<i>Kristine Nichols, PhD, Soil Microbiologist, ARS</i>
11:00 – 12:00	Producer/Speaker Panel	<i>Farmers & Guest Speakers</i>
12:15	Wrap Up & Adjourn	

CEU's are expected to be available for attending this Technical Conference; however, the number of CEU's were not known at this time. If you need to know the number of CEU's that will be available or for any other questions regarding the SWCS Technical Conference, please call Storm Casper at (719) -523-4522 Ext 3

The cost to attend SWCS Conference is \$25 for members and \$30 for non-members if you register by November 1. Late registration fee is \$35 for members and non-members. This cost is for either one or both days. We look forward to seeing you there!



EVENTS TO WATCH FOR

- ☺ MANAGING WATER. HARVESTING RESULTS. AMERICA'S AG WATER SUMMIT
OCTOBER 11 & 12 , 2011 BLOOMINGTON, MN
- ☺ COLORADO CHAPTER SWCS TECHNICAL CONFERENCE AND ANNUAL MEETING
NOVEMBER 14 & 15, 2011 EMBASSY SUITES, LOVELAND, CO
- ☺ CONSERVATION COVERS: EFFECTIVE COVER CROPPING IN THE MIDWEST
DECEMBER 7 & 8, 2011 DECATUR, IL
- ☺ NORTHERN PLAINS REGIONAL TECHNICAL MEETING
MARCH 2012 COLORADO
- ☺ 67TH ANNUAL INTERNATIONAL SWCS CONFERENCE
JULY 22-25, 2012 FORT WORTH, TX

Check It Out!

- 2011 SWCS ANNUAL CONFERENCE VIDEO: GLICKMAN PRITCHARD LECTURE
ONLINE AT WWW.SWCS.ORG
- “SOIL HEALTH FOR GRAZING LANDS AND CROPLANDS” RECORDED WEBINAR
ONLINE AT WWW.SWCS.ORG/EN/COLORADO_CHAPTER
- NORTHERN PLAINS REGION CHAPTER WEBSITES & NEWSLETTERS
MONTANA: WWW.MTSWCS.ORG
NEBRASKA: INCOLORINETNEBR.COM/DOUGG/SWCS
NORTH DAKOTA: WWW.NDSWCS.ORG
SOUTH DAKOTA: WWW.SDSWCS.ORG
WYOMING: WYSWCS.HOME.BRESNAN.NET



Soil Quality Fact Sheet

Soil Glue

Main Concept

Surface soil particles are held together by various organic substances. For example, glomalin, a protein produced by fungi, acts as a "soil glue" to create stable soil aggregates. The gluing of soil particles together into aggregates helps maintain pores and channels in the soil for air and water to enter and move through it. Soil aggregates are more stable and harder to wash away than individual soil particles during rain storms.

Educational Goals

- Demonstrate that less disturbed soils contain more "soil glue" and are held together better than more disturbed soils, when soils of the same type are compared.
- Demonstrate why it is important to protect soils from disturbance.
- Provide examples of situations where soils must be disturbed along with further investigation into actions that can be taken to protect soils when they are disturbed.

Background

Soil organisms increase in abundance and in the variety of species represented when soil is not disturbed. Fungi in particular make proteins, such as glomalin, that ooze into the soil and help glue soil particles together.

When soil is heavily cultivated (tilled) or disturbed during construction, the surface layer (topsoil) is often drastically changed, buried, or removed. Change takes place when oxygen gets into the soil and provides energy for decomposers to convert dead organic matter to energy, carbon dioxide, and water. This reduces the amount of organic matter in the soil and the amount

of glue that is available to hold soil together as aggregates. Soil habitat is destroyed and live soil creatures are reduced in number and/or variety, or they are eliminated.

When the soil is not disturbed, more animals, plants, fungi, and microorganisms thrive in the soil. The amount of soil glue, such as glomalin, increases and the soil holds together better.

Explanation

Soil from the surface layer of a lawn, an orchard, or a field that has not been disturbed or tilled for a couple of years will hold together in a wire mesh basket when immersed in water. Often the soil clods will hold together so well that the water will evaporate before the soil falls apart. If any of the soil does fall through the wire mesh basket, it generally will be in the form of small soil aggregates, and the water will remain clear instead of becoming cloudy with loose soil particles.

Soil from a continuously tilled field, a construction site, or from several inches below the surface will generally fall apart (disperse) into individual soil particles when immersed in water. The loose soil will make the water cloudy, and

when it settles it will form a layer of sediment in the bottom of the jar.

In addition to level of soil disturbance, two special cases exist that affect the results of this demonstration. If the soil is held together chemically it may not fall apart during this test. Sometimes soils with a high clay content are bound together chemically.

A second exception is exhibited by the thick, dark soils of the Midwest. The mineral particles of these soils are held together by organic matter that was created decades or centuries ago. This recalcitrant organic matter is resistant to decomposition. If these soils are cultivated, the soil clods will fall apart very fast as sand-sized aggregates. The water will remain clear after the sand-sized aggregates settle to the bottom of the jar.

Examples of situations where soils must be disturbed include production of underground crops, such as potatoes and peanuts, and the construction of roads and houses.

Planting cover crops and covering disturbed soils with mulch provides protection from raindrops and food for soil glue-producing organisms.

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MISSION STATEMENT

The mission of the Colorado Chapter of SWCS is to promote the wise use of soil, water and related resources through scientific, educational and service oriented functions. The members promote a stewardship ethic that recognizes the interdependence of people and natural resources.