



COLORADO SWCS

CHAPTER NEWSLETTER

COLORADO SWCS

JANUARY 2015

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President's Message

By: Rich Rhoades

Greetings Chapter Members,

This is my second stint as Chapter President, I'm pretty certain there won't be a third. I've been a member since 1984. (Yikes...that's 30 years). Many thanks to Kyle Franz and his leadership activities in 2014. During his term he transferred jobs to Kansas but still stayed active and involved, we appreciate his time and effort.

Speaking of time and effort, much the of the Chapter's success is due to folks who continue to remain active such as Kristi Gay, membership, Beth Fortman, awards, Barb Gohlke, secretary-treasurer and Sherri Brandt, newsletter editor. We were fortunate to keep Cathy Dix involved as the West Slope Director. Cathy previously served as President. I know I have forgotten one or two stalwarts, please forgive my lapse. We wish to welcome Aaron Reynolds as a newer member and as the East Slope Director. Finally thanks to Donald Valdez for taking on next year's Presidency.

The Chapter is active and engaged in the Science Fair, technical workshops, scholarships, and grants. See our website for more information. If any of the Chapter activities interest you, let me or another board member know and we'll get you involved.

CHANGE: Being an official "old geezer" it seems the way we used to do things is no longer ideal. For example the Chapter's annual meeting was always well attended. Due to changes in agency travel policy, budget constraints and folks just plain being busy we've seen a decline in participation. The same goes for technical tours. SWCS Colorado Chapter has in the past provided many quality, field level technical training opportunities. Some examples include a Wind Erosion Symposium, Salinity Workshop, Carbon Sequestration Workshop and Urban / Forest Interface Workshop. In addition, this Chapter has hosted two international meetings of SWCS. Our first international meeting was in 1996 and our second one was in 2006. Many other professional societies are in the same situation as far as travel and attendance are concerned. To address this trend the Chapter is going to hold a small gathering of members (old and new) to discuss the future course of the Chapter. If you're interested in being part of this, contact me. The meeting is tentatively scheduled for February 6-7 in Beulah, CO. In future issues of the newsletter we will provide an opportunity for you to comment and provide input. I'd still like to see the Chapter providing opportunities for training and professional development but we may have to approach it from another direction.

I'm looking forward to an interesting 2015!!

SHERRI BRANDT—
NEWSLETTER EDITOR

HAPPY NEW YEAR!

2015 Chapter Officers

At the Colorado SWCS Chapter annual meeting in November 2014, the chapter welcomed Rich Rhoades as President for 2015; Donald Valdez as President Elect; Catherine Dix as West Slope Director and Aaron Reynolds as East Slope Director. You can get to know our new chapter officers a little better by reading their biographies below.

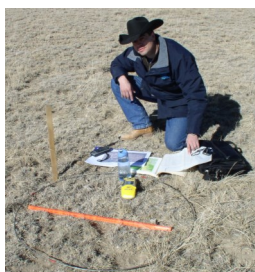
RICH RHOADES—PRESIDENT



Rich Rhoades graduated from Colorado State University with a B.S. degree in Range/Forest Management. Rich has worked for the NRCS (SCS) for 38 years in the Sterling, Eads and Pueblo Field Offices. During this time he has been acting Assistant State Conservationist (Operations) and acting Area Conservationist (La Junta). He joined SWCS in 1984 and presented a paper on conservation tillage at the Oklahoma City International meeting. Rich served as Secretary-Treasurer and President for the Colorado Chapter in past years. He received the Society's Commendation Award and is a Fellow of

SWCS which was awarded in 1998. He served as the Chair for the 1996 International meeting in Keystone, CO and assisted with the 2006 International meeting also in Keystone, CO. Rich believes that SWCS and other professional societies provide an excellent opportunity for technical and leadership growth.

PRESIDENT ELECT — DONALD VALDEZ



Hello my name is Donald Valdez, I am the President Elect for the Colorado Chapter SWCS, Soil Water Conservation Society. I have lived in the San Luis Valley most of my life. I was raised on a farm and ranch and I know that our soils are very important to us.

Our soil and water is a valuable resource to protect and learn about. If we don't educate one another on our resources on how to utilize them in moderation then we will deplete our main resources. I am here to learn and educate those that need assistance. I will continue to learn new and innovative ideas on this journey.

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EAST SLOPE DIRECTOR — AARON REYNOLDS

Aaron Reynolds is a Soil Conservationist with NRCS in Cheyenne Wells Colorado. Originally, Aaron hails from Southeast Wisconsin where he grew up on a small hobby farm slaving away in the field. After leaving home for college, Aaron attended the University of Wisconsin-Stevens Point where he earned degrees in Soil Science, Land Use Planning, and Geographic Information Systems and Spatial Analysis. Prior to joining NRCS, Aaron had two internships working in County Conservation where he actively applied boots to the ground in selling conservation to landowners. After College, a District Conservationist with NRCS encouraged Aaron to apply for the term Soil Conservation Technician position in his County. Starting in 2011, Aaron started working for NRCS in Southeast Wisconsin, but knowing his position would eventually run out Aaron decided for a change of scenery and accepted the Soil Conservationist position in Cheyenne Wells Colorado. Prior to leaving Wisconsin, Aaron's first expose to SWCS was when he became a member of the Wisconsin chapter. In his free time, Aaron enjoys being outdoors: hiking, fishing/kayaking, backpacking. When not outside, Aaron be found reading and concocting his next homebrew recipe.

WEST SLOPE DIRECTOR— CATHERINE DIX



Catherine grew up in the small town of Deming, New Mexico, a place known for pure water, fast ducks, and 360 days of sunshine. She studied soil science at New Mexico State University and began her career with NRCS as a co-op student trainee in 1994. While attending school, she served as President of the Plant and Soil Association and also participated in a pilot program wherein she helped recruit students for NRCS on campus. Upon graduating, she accepted a position as a soil conservationist in Stilwell, Oklahoma. In 2001 she accepted a District Conservationist position in Alamosa, CO and has worked throughout the San Luis Valley over the last decade. She's now serving as an Area Resource Conservationist for Programs in Area 1. In her spare time, Catherine writes novels.

WELCOME NEW OFFICERS

Soil Health on the Plains

By Clark Harshbarger, NRCS Area Resource Soil Scientist, Greeley, CO

In November, the NRCS-Colorado was honored to welcome Dr. Christine Jones to Colorado for some in-the-field, hands on learning related to soil health. Dr. Jones is considered a leader in the understanding of soil health in her native country of Australia. Her expertise has gained her world renowned attention and respect from her esteemed colleagues and from agricultural producers all across the globe.

Dr. Jones has recently spoken at conferences in Alberta, across parts of North America and most recently, here in Colorado. Her resume is filled with publications related to the liquid carbon pathway and carbon sequestration that have brought her notoriety and accolades, while also demonstrating her profound understanding on how soils function. Her lifelong dedication to the understanding of the symbiotic relationship between soils and plants has been expressed as a university professor, civil servant and global citizen. Her latest project has been the development of a website and brand called “Amazing Carbon”.

Amazing Carbon provides a wealth of resources based in science that provide easy to read explanations of why soil health works. <http://www.amazingcarbon.com/>

Recently, a re-scheduling of one of her many live seminars allowed Dr. Jones the opportunity to travel to some of the private lands in Colorado and see first-hand, what native Coloradans have been achieving with conservation agricultural systems that are rooted in soil health. Dr. Jones’ respected work with ranchers and agriculture producers in Australia has given her time merit and has left her practical advice in high demand here in the states. So when the opportunity arose to get her ‘out on the land’, the NRCS was thrilled to oblige.

On her visit, local NRCS field office staff arranged producer meetings, which allowed for the learning, sharing and promotion of healthy soils to take place in the field. Dr. Jones was able to see several diverse continuous crop rotations across dry land and irrigated ground. The idea of having consecutive multi-species cover crops was brought up, which could provide grazing for livestock, unrivaled benefits to the environment and help to propel the transition from conventional agricultural practices into a soil health management system. Producers that have planted cover crops in CO have observed environmental benefits by providing pollinator plants for insects, habitat for upland game bird species and other wildlife, and of course providing habitat for all levels of the soil trophic system like bacteria, fungi, protozoa, nematodes (beneficial), spiders and everyone’s favorite, earthworms!

Soil Health continued from page 4

Many producers, after spending just a short amount of time with Dr. Jones, realize that the principles of soil health that they have been adapting are being reinforced by a scientific explanation. Some say that they begin to think differently about their management decision, such as what inputs to use. One producer from Kit Carson County said he thought that he may be doing some things right but before speaking with Dr. Jones, didn't fully understand why he was doing them. He said he felt like trying to make the right decisions on his operation was like reaching for several different things in the dark all at once. But after hearing Dr. Jones speak, it helped him to "turn on the lights!"

Producers and NRCS employees from all three areas were exposed first hand to on the job training of what to look for in the soils in order to observe the benefits of the liquid carbon pathway at work in the field.

Dr. Jones demonstrated to onlookers that by digging up a plant, one can observe physical signs on the plant's root system that show evidence they are communicating with soil bacteria and mycorrhizal fungi. She went on to explain how plants exude chemical stimulus in the form of hormones, sugars and other carbon compounds that stimulate enzymes in the bacteria, allowing them to digest the carbon and release inorganic forms of nutrients that the plants are able to absorb. The exchange of sugar for nutrients is vital for plants to thrive, and most importantly it occurs naturally, if soils are not disturbed. This process can be mimicked by attempting to substitute inorganic fertilizer but it typically comes at a much higher cost economically and environmentally to us all. Dr. Jones was adamant that although plants cannot get these inorganic nutrients on their own, it only takes water, air, sunlight, and a soil with living biology to provide them what they need to survive.

She explained that the first step in achieving soil health is the understanding that living plant roots must be kept alive as long as possible throughout the year (This of course is also one of the four principles of the NRCS's "Unlock the Secrets in Soils" campaign). She says the next step is to then provide diversity, diversity and more diversity. The zone around all those diverse plant roots is called the rhizosphere. In the rhizosphere, a symbiotic relationship between plants and nitrogen fixing bacteria and in many species, mycorrhizal fungi, produces glues that bond soil minerals to the plant root tissue. Dr. Jones refers to this phenomenon, as a rhizosheath. The rhizosheaths provide low oxygen and a moist environment for the bacteria to colonize so they can digest the plants sugar, and in return mineralize carbon, nitrogen, and other macro and micro nutrients that would otherwise not be soluble for the plants to uptake. The mycorrhizal fungi have the ability to mine nutrients and bring them directly into the roots that are surrounded by rhizosheaths though direct transfer in exchange for carbon based compounds.

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Soil Health continued from page 5

Another visual benefit producers and agronomist alike can observe to see if soil health is being achieved is by looking at the soil structure. The soil glues produced by the relationship between plants and healthy soils create stable soil aggregates. Some folks say that healthy soil looks like cottage cheese and feels 'mellow'. The soil science term used to describe this feature is friable, granular structure, which is commonly found in topsoil's of native ecological systems. Both micro and macro sized aggregates contribute to the soils ability to increase water holding capacity, porosity, aeration infiltration, and fertility. Both rhizosheaths and soil aggregates are common features you will find in almost all natural ecological soils found in the forest and across our native prairie.

One of the pressing issues she has seen in agricultural production all around the globe is the excessive use of inorganic nitrogen fertilizers. Inorganic fertilizers are created by releasing energy that has been locked in fossil fuels for thousands of years. The production comes at high economic cost for producers and is becoming less and less sustainable, as cost increases. By incorporating the principles of soil health, organic forms of nitrogen in the soil can be fixed into the inorganic soluble forms (NH_3), for uptake by plants, as it has been done in nature for all of time. One of her favorite things to say to her audience is, "Show me a native plant, in a native ecosystem that is nitrogen deficient. It just doesn't happen."

Rangeland management was also discussed with several of the producers as well, relating to paddock size, duration, and frequency. Removing 1/3 to up to 1/2 of the shoots and then not returning to that paddock again throughout the growing season was her recommendation, providing stimulation, some trampling and then the opportunity for complete plant recovery. Her concept on grazing was to increase the number of paddocks, increase the number of livestock, and shorten the duration in each paddock.

The Colorado Chapter of SWCS helped sponsor Dr. Jones' trip to the Colorado plains.



Nodules that form on legume roots are actively fixing nitrogen from the air if



Joel Moffat, the NRCS-CO Soil Health Coordinator for the east slope, discusses how healthy soil functions with Mike Collins (Area Conserva-

2014 CO Chapter Awards

By: Beth Fortman, Awards Committee Chair

Outgoing President, Kyle Franz presented Presidential Citation awards to Kristi Gay, Rich Rhoades, and Greg Langer. Chapter Commendation Awards were presented to Barbara Gohlke, Donald Valdez, and Sherri Brandt.

The Chapter also presented its 2014 Outstanding Conservationist Award to Boyd and Helen Arnold from Keenesburg, Colorado. They are district cooperators in the Weld and Yuma Conservation Districts.

The Burlington Record received the Chapter 2014 Conservation Reporter of the Year award.



KRISTI GAY



SHERRI BRANDT



GREG LANGER



BARBARA GOHLKE

2014 Technical Conference

By Barbara Gohlke

On Nov 10 the Colorado Chapter held its Annual Membership Meeting and Technical Conference in Loveland. The topic of the day was Hydraulic Fracturing. Speakers included Ana Vargo, NRCS Geologist; John Axelson from the Colorado Oil and Gas Commission, Mark Truax representing Coloradans for Responsible Energy Development, Mike Freeman- Weld County Commissioner and Ken Carlson, Professor of Civil and Environmental Engineering at CSU. Then President Elect Rich Rhoades put together an excellent group of speakers. Ana Vargo spoke on the geology of Northeast Colorado and the resulting petroleum resources and how those resources impact aquifers- with and without the fracking. John Axelson and Mike Freeman gave perspectives on both the positive and negative impacts of fracking from a government perspective- schools, roads, law enforcement, tax base- everything is impacted both short and long term. Mark Truax, provided the industry's perspective and history of hydraulic fracturing including reminding us that fracking is not new technology- and has been used in Colorado since about 1947 according to industry records. Finally Dr. Ken Carlson told us about water and fracking. All speakers were well received and about 35 people in attendance. Following a brief break, the Colorado Chapter held the Annual membership meeting.



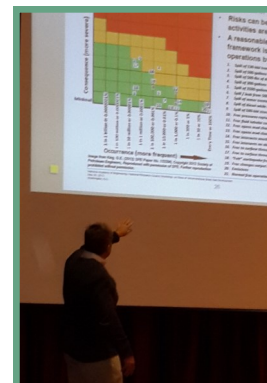
Mark Truax from Coloradans for Responsible Energy, speaks to the group.



Weld County Commissioner, Mike Freeman speaks on the effects of Oil and Gas in his county.



Panel of speakers answers questions at the end of the conference.



Dr. Ken Carlson addresses water and fracking.



San Luis Valley Soil Health Conference

Save the Date — February 2, 2015

The primary objective of the San Luis Valley Soil Health Conference is to provide an opportunity for farmers and ranchers to exchange ideas, while learning from some of the nation's leaders on soil health and agroecology.

Topic covered will include, but not be limited to

- Nutrient Cycling
- Soil Aggregation
- Soil Microbiology
- Parasitic Nematodes
- Diverse Cropping Systems
- Water Use Efficiency
- Beneficial Insect Habitats
- Economic Impacts of Soil Health
- Root Exudates (Liquid Carbon Pathway)
- Livestock Integration on Cover Crops

Where: Adams State University, Alamosa, CO Student Union Building Room A127

When: February 2, 2015 8:00 am to 5:00 pm

Who: Kris Nichols Karl Coopers

Jonathan Lundgren George Whitten

Register Early at slvsoilhealthconference.org and receive lunch and a parking pass!



Striving for a Resilient Future

FARMING EVOLUTION 2015

Gabe Brown and Ray Archuleta

Event Center, Phillips County Fairgrounds, Holyoke, CO

Thursday, February 12 - Cropland Emphasis 8:30 a.m. – 5 p.m.

Friday, February 13 - Rangeland Emphasis 8:30 a.m. – 4 p.m.

Check-in, coffee & rolls: 7:30 a.m.

Thursday Social: 5:00 p.m. – 6:30 p.m. (all times are Mountain)

Registration By 2/4/15, \$19 single day, \$25 both days

Registration After 2/4/15, \$24 single day, \$30 both days



Gabe Brown

- no-till farmer for two decades,
- 2,000 acres of cropland
- 3,000 acres of native rangeland
- cow/calf pairs, yearlings
- grass finished beef.

Ray Archuleta

- 'the Soils Guy'
- Natural Resources Conservation Service Agronomist
- Infectious enthusiasm for soil health
- Uncovers the mysteries of soil

For complete workshop, lodging and registration information:

www.farmingevolution2015.eventbrite.com

Or email julie.elliott@co.usda.gov or call 970-854-2812 ext. 3. for more information and to register.



Fasten your seatbelts for a powerful presentation that will leave you inspired and excited about the lifeblood of your agricultural operation: SOIL.

2015 COLORADO CHAPTER LEADERS



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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.