SOIL HEALTH MINUTE: HAPPENINGS IN SOUTHERN IDAHO

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Hello! We are Courtney Cosdon (University of Idaho Extension/Natural Resources Conservation Service) and Tasha Paul (Idaho NRCS), bringing you Idaho soil health news and information. In this newsletter, we are sharing resources to encourage the use of soil health practices and working to involve more of our community in soil health events and discussions.

USDA United States Department of Agriculture
Natural Resources Conservation Service

University of Idaho Extension

Upcoming Events

The National Cover Crop Summit: A free, 3-day virtual meeting to learn about cover crop strategies, March 14-16th

Soil Health 5 for 5 Roundtable Meetings: April 5th on Zoom. All are welcome to join! Presenters give 5-minute presentations on soil health topics of interest and then the floor is open for discussion. Here is the link for the meeting, occurring **1:30pm** MST: https://uidaho.zoom.us/j/4700068861

Event Recap

Sheep integration Impromptu Field Day

The sheep integration impromptu field day on November 14th was held at Ballard Farms in Kimberly, ID. A 5 species cover crop mix, including radish, rapeseed, winter wheat, common vetch, and Austrian winter pea had been direct-seeded on August 17th, following seed peas. After allowing 60 days for cover crop establishment, a rancher brought in 700 sheep to graze on the 60 acres of cover crop. The rancher set up a solar-powered electric fence around the field perimeter and moved the animals by moving a single hot polywire across the field. The sheep did not need a lot of water while grazing, as they sourced much of it from the green cover crop and can utilize snow. The sheep arrived October 18th and left December 28th, strip-grazing the forage for a little over 2 months. This arrangement provided Ballard with several benefits, such as on-farm nutrient cycling, added revenue from two months of leasing fees, and cover crop termination.

Resources

- University of Idaho Soil Heath: https://www.uidaho.edu/extension/soil-health
- Idaho NRCS Soil Health **(The NRCS has a new website - be sure to bookmark this new link)**: https://www.nrcs.usda.gov/conservation-basics/conservation-by-state/idaho/idaho-soil-health
- Soil Health YouTube: https://www.youtube.com/playlist?list=PL6g6ZYcM47s9emP2muvDV4yq_FNQwoZoJ

Sheep event recap continued

Soil testing at the start of grazing showed an increase in soil respiration (biological activity) and soil organic carbon content in Ballard's field from cover cropping and no-till. The soil pH was also shifting favorably, from 8.2 to 7.8. The sheep rancher benefited from this grazing arrangement as well; he was able to feed his animals at a rate that was half the cost of feeding hay and observed less animal disease compared to feeding in confinement. This example of animal integration took place near a busy road, and the sheep were successfully contained on the field using the temporary electric fence.

Cattle Integration Impromptu Field Day

On November 17th, Brad McIntyre hosted an impromptu field day to see a 9 species cover crop being grazed by his cattle, located at one of his fields near Caldwell, ID. The cover crop mix, a diverse blend of pearl millet, daikon radish, collards, turnip, spring pea, spring oat, sorghum, teff, and hairy vetch, was planted into a crop of seed collards on August 13th. The field we visited was 10 acres divided into 10-12 paddocks for rotational grazing, having the animals mob graze about an acre per day. Although reduced tillage has been used on this ground for the last 15 years, this was the first time since then that animals had been integrated into the system, with the goal of building soil organic matter more rapidly. This winter, McIntyre grazed 120 head on a total of 100 acres of cover crop. As of February 16th, the cattle are still eating the cover crop. He plans to direct seed corn into this area in the spring.

Check It Out

Soil Keepers Forum

The Treasure Valley Soil Keepers is a group and online platform for Treasure Valley producers to connect on soil health topics. Post pictures or ask for advice on the forum from fellow soil health enthusiasts. Look out for information from us about Soil Keepers events.
Soil Keepers

Idaho Soil Health Storymap

This is a go-to location for information on general soil health topics and also info very specific to soil health in Idaho. On this page, you can take a virtual tour of soil health practices and research projects happening around the state, and find links to other great resources such as Virtual Field Day videos, soil health assessments, and NRCS programs for assistance implementing soil health practices. This Storymap was created by Shanna Bernal-Fields (NRCS Resource Soil Scientist).
Idaho Soil Health Storymap

YOU CAN SUBSCRIBE TO THE IDAHO SOIL HEALTH EMAIL LIST AND SOIL HEALTH MINUTE NEWSLETTER FOLLOWING THESE STEPS:

1. Copy and paste this address: https://public.govdelivery.com/accounts/USDAFARMERS/subscriber/new?preferences=true#tab
2. Scroll to the bottom of the email and click "manage subscriptions"
3. Under "subscription topics", scroll down to Idaho, expand and select "ID-State NRCS Soil Health"

Get Involved!

We are starting to plan 2023 season events! If you would like to host a field day let us know!

Impromptu Field Days

Impromptu field days are quick, educational field visits to see and discuss a soil health practice that a producer is trying on their land. If you would like to host an impromptu field day and have your neighbors out to your place for a couple hours, call Courtney Cosdon (208) 364-4692.

Climate Smart Grant

University of Idaho's College of Agricultural and Life Sciences has secured a $55 million USDA grant to help farmers adopt climate smart practices on Idaho's major commodity crops including potatoes, barley, beef, chickpeas, hops, sugar beets and wheat. Do you grow any of these crops and are interested in incorporating practices such as cover cropping, reduced tillage, interseeding, or biochar/compost amendments, and would like to reduce your potential financial risk?

Here is what you can do to get involved:

1.Make sure you are growing the required crops

2.Determine if you have acreage in these crops that is not already enrolled in a federal assistance program like EQIP or CSP (it is fine if you have other acres enrolled in EQIP, but the acres involved in the grant can't already be enrolled in EQIP or other programs)

3.Talk to the funded partners to see if you qualify and sign up. These include: your local conservation district representative, The Nature Conservancy, Nez Perce or Coeur d'Alene representative or Desert Mountain Beef. Signups will begin in the fall.

Things to note:

+ Ideally, between 400-1000 acres per producer would be enrolled, but there is flexibility. Please apply no matter the acreage.

+ Early adopters can and are encouraged to be involved. You can be working with soil health practices already; you just need to choose another practice you are not already receiving financial assistance for.

+ Smaller and bigger farms are encouraged to sign up

Climate Smart News Release

Idaho 5 for 5 Soil Health Roundtable Meetings

If you would like to present for 5 minutes on a soil health practice or subject that you have experience with for the Idaho 5 for 5 Roundtable zoom meetings, please let us know! Here is a link to check out previous meetings: Soil Health 5 for 5: February 1, 2023

Get to Know Idaho Soils

Soils underfoot are characterized and classified into named groups called series. Take a tour of some of Idaho's benchmarks soil series at this link: Explore Idaho Soils (arcgis.com)

In The Literature

This section is for sharing recent and exciting scientific literature, boiled down to key takeaways that focus on soil health practices relevant to producers in Idaho.

How can biochar be used to improve soil health?

Biochar is a conservation practice offered through the U of I Climate Smart Grant, as well as Idaho NRCS programs' 808 Soil Carbon Amendment.
Research is showing many potential benefits from using biochar in soil, including using it as a liming agent or as a tool for bioremediation of contaminated soils, providing increased water holding capacity, acting as a persistent form of soil carbon, and providing microbial habitat.
Degraded soils generally have compromised soil structure and reduced overall pore space. The soil pores are where soil microbes live, eat, and cycle nutrients in healthy, biologically active soils. The porosity of biochar is huge (100-800 m2/g of surface area depending on the biochar type) and boosts the available microbial habitat in soils where habitat is currently lacking. You could picture this as pop-up homes for soil bacteria and fungi to colonize and begin building soil health. Soil health is improved through a positive feedback loop where plant roots feed sugars to soil microbes, and soil microbes build soil organic matter as a byproduct of living in the soil. A more robust microbial community aids in nutrient cycling, promotes beneficial aggregation of soil particles and porosity, and improves organic matter content for better water retention and availability. In turn, these promote plant vigor and the feeding of soil microbes via plant exudates, and the cycle continues.

According to Gujre et al (2021), an improvement in plant response from a biochar application is most commonly observed in degraded soils (such as sandy soils low in organic matter) and calcareous soils. Web Soil Survey has an interpretation called "Dynamic Soil Properties Response to Biochar" which indicates the predicted response of biochar on dynamic soil properties (those properties that can change with soil management) across different soil map units. Soil properties potentially influenced by biochar include pH, cation exchange capacity, water holding capacity, bulk density, hydraulic conductivity, and organic matter content.
In agricultural settings, it is recommended to apply biochar with compost or manure to satisfy some of the charges on biochar and reduce binding of nutrients on its abundant charge sites. A compost and biochar mix is offered as part of the 808 Soil Carbon Amendment.

Soil Health Myth Busters

A commonly cited statistic of soil health is that a 1% increase in organic matter in the top 6 inches of soil in an acre equates to the soil being able to hold an additional 20,000 gallons of water. A research group reevaluated this statistic and found it to be an overestimate. The actual improvement in water holding capacity equates to about 2,800 gallons of water (Libohova et al, 2018).

This is still an impressive gain from increasing soil organic matter content! This updated statistic helps promote accurate science behind soil health.

Thank you for reading!