Soil Health – Drought Monitor Workshop - WEST

July 30, 2020 – Cory Owens, NRCS State Soil Scientist
What is Soil Health?

The continued capacity of soil to function as a vital living ecosystem that sustains plants, animals, and humans.

It is considering management activities in the context of the soil as an ecosystem and designing management to build (not degrade) the ecosystem.
Why does Soil Health matter when you are talking about drought?

High functioning (healthy) soils can buffer against drought by having a functioning ecosystem that stores more water.

Soil can be managed in ways that reduce the need for supplemental watering and increase the sustainability of the farm. Any worthwhile strategy for drought management optimizes the following factors:

• capture of a high percentage of rainfall (infiltration);
• maximum storage of water in the soil for later use (waterholding capacity);
• efficient recovery of stored water (plant rooting).
NRCS Focus on Soil Health

FOUR SOIL HEALTH PRINCIPLES

1. Maximize Continuous Living Roots
2. Minimize Disturbance
3. Maximize Soil Cover
4. Maximize Biodiversity
What soil health practices increase Available Water Holding Capacity? WEST

Management Practices that Maintain and Build Soil Organic Matter

- Cover Crops
- Minimal or No Tillage

Considerations

- Pest pressure – slugs
- Greater complexity of management
- Access to equipment
- Seed cost
- Timing and Termination

“There’s a difference in the top of soils that’s been cover cropped versus what’s been beat by rain and sealed up,” Kenagy says. “The cover crop ground has better infiltration and you don’t get the runoff.”
How do you know if your soil is healthy?

Look at the Soil Health Indicators:

- organic matter
- aggregate stability
- water infiltration
- available water holding capacity
- nutrient cycling
- soil biology
- erosion resistance

A healthy soil
protects natural resources.

A healthy soil
is high performing and productive.

A healthy soil
increases efficiencies.

A healthy soil
reduces production costs and increases profits.
How does soil health fit into management systems to reduce risk?

Applying Soil Health Management Systems to Reduce Climate and Weather Risks in the Northwest

Projected impacts of temperature increases to NW agriculture include:

1. **Crop Yields**
   - Increased temperatures may alter germination, harvest and storage timing, impacting crop yield (may be positive or negative, depending on crop).

2. **Increased Pests**
   - Higher temperatures for longer periods are associated with increased pest, disease, and weed pressures that may harm crop yields and crop quality.

3. **Longer Growing Season**
   - A longer growing season due to hotter temperatures and more frost free days may be beneficial for certain crops and will likely change the suite of crops (species and varieties) that are grown in our region.

Four soil health principles:

1. Decreased Snowpack
2. Crop and Livestock Stress
3. Increased Fallow Production
4. Increased Fire Risk

nrcs.usda.gov
If you want to make small changes, change how you do things.

If you want to make major changes, change how you see things.

-Don Campbell
Canadian Rancher
Thank-you!

In accordance with Federal Civil Rights law and U.S. Department of Agriculture (USDA) Civil Rights regulations and policies, the USDA, its agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior credible activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.