sustainability grows in healthy soil

unlock the SECRETS IN THE SOIL

Is protecting America's natural resources – our rivers, lakes and streams, groundwater, air, and wildlife habitat – and reducing use of fossil fuels part of your corporate sustainability goals?

Do your customers demand products grown using good environmental stewardship practices?

Is your company interested in sustainability gains related to water, energy, carbon and the environment?

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Check in with YOUR growers about healthy, productive soils.

Soil Health Management Systems can help America's growers feed the nation and the world through sustainable conservation practices. The guide below provides an at-a-glance view of specific sustainability benefits associated with soil health improving practices. It is important to note that not all practices are applicable to all crops. Some operations will benefit from just one soil health practice, while others may require additional practices for maximum benefit.

By following four basic soil health principles, producers can improve their soil health and sustainability:

1. **Keep the soil covered as much as possible**
2. **Disturb the soil as little as possible**
3. **Keep plants growing throughout the year to feed the soil**
4. **Grow a variety of plants to diversify soil**

Soil Health Management Systems include:

How does it help environmentally and economically?

Soil Health Management Systems include:	DECREASES PEST PRESSURES	IMPROVES NUTRIENT USE EFFICIENCY	IMPROVES WATER QUALITY	CONSERVES WATER	IMPROVES PLANT HEALTH	IMPROVES WATER EFFICIENCY TO CROPS	SAVES NON-RENEWABLE RESOURCES	IMPROVES AIR QUALITY	INCREASES PLANT POLLINATION
Conservation Crop Rotation Growing a diverse number of crops in a planned sequence in order to increase soil organic matter and biodiversity in the soil.	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cover Crop An un-harvested crop grown as part of planned rotation to provide conservation benefits to the soil.	✓	✓	✓	✓	✓	✓	✓	✓	✓
No Till A way of growing crops without disturbing the soil through tillage.			✓	✓	✓	✓	✓	✓	
Mulch Tillage Using tillage methods where the soil surface is disturbed but maintains a high level of crop residue on the surface.			✓	✓	✓	✓	✓	✓	
Mulching Applying plant residues or other suitable materials to the soil surface to compensate for loss of residue due to excessive tillage.	✓		✓	✓	✓	✓		✓	
Nutrient Management Managing soil nutrients to meet crop needs while minimizing the impact on the environment and the soil.		✓	✓		✓	✓	✓	✓	
Pest Management Managing pests and promoting the growth of healthy plants with strong defenses, while increasing stress on pests and enhancing the habitat for beneficial organisms.	✓	✓	✓		✓	✓	✓	✓	✓

Growers who…

- **disturb the soil as little as possible**
- **use diverse crop rotations**
- **plant cover crops**
- **leave crop residue on the soil**

… have the key to sustainability!

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Soil health matters.

Soil is made up of air, water, decayed plant residue, organic matter from living and dead organisms, and mineral matter, such as sand, silt, and clay. Increasing organic matter typically improves soil functions including nutrient cycling and water infiltration. Healthy soils are porous, and allow air and water to move freely through them.

Healthy, fully functioning soil provides an environment that sustains and nourishes plants, soil microbes, and beneficial insects. Crops grown in healthy soil are more resilient because they resist pest pressure and use nutrients more efficiently. Managing for soil health is one of the easiest and most effective ways for farmers to increase productivity and profitability while also improving the environment.

Sustainability Solutions in the Soil

Crops grown in healthy, productive soil provide a wide range of on- and off-the-farm sustainability benefits. Whether you do business with large-scale operations or small farms, healthy soil practices can be applied to all.

When farmers manage their land to maintain or improve soil health, we all harvest the benefits of improved sustainability.

Healthy soil…

Saves farmers money – since reducing or eliminating tillage means fewer passes over fields, and healthy soils use inputs like water and nutrients more efficiently, production costs are lower.

Boosts production – plants thrive because more organic matter and soil organisms improve soil structure, aeration, water retention, drainage, and nutrient availability.

Protects against drought – because healthy soil has greater water infiltration and holding capacity, more water is available to plants when they need it, like during periods of drought.

Safeguards resources – runoff that causes flooding or carries nutrients and pesticides into lakes, rivers, and streams is reduced. There is less leaching into groundwater. And, fewer trips across fields with farm machinery mean less fuel used and fewer emissions to harm air quality.

Ask your growers if they know about NRCS' Soil Health Management Systems.

Contact us: For more information, contact David Lamm, Soil Conservationist, NRCS East National Technology Support Center, Greensboro, NC, (336) 370-3339, david.lamm@gnb.usda.gov, or visit www.nrcs.usda.gov.

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