

RESOURCE GUIDE
TO
IMPROVING SOIL
HEALTH & WATER
QUALITY
IN CAYUGA LAKE
& SURROUNDING AREAS

*CREATED BY TOMPKINS
COUNTY WATER RESOURCES
COUNCIL*

ARE YOU CONCERNED ABOUT ...
LOSING NUTRIENTS WITH RUNOFF?
UPCOMING CAYUGA LAKE TMDL?
HARMFUL ALGAL BLOOMS?

PHOTO CREDIT: BILL HECHT

PRINCIPLES OF SUSTAINABLE SOIL MANAGEMENT

MAXIMIZE CONTINUOUS LIVING ROOTS

Incorporate cover crops or perennial forages to capture sunlight and nutrients all year to

- Scavenge excess nutrients that would otherwise be lost
- Feed the soil food web and build soil organic matter
- Improve soil structure both at the surface (building stable aggregates) and deeper in the soil (breaking up compaction)

MAXIMIZE BIO-DIVERSITY

Use cover crops and forages to add diversity to your rotation

Integrate crop and livestock production

Use composts and manures to feed the life in the soil

Reduce tillage to leave soil biological communities intact

MINIMIZE DISTURBANCE

Reduce tillage in annual grain production

- Switch from conventional tillage to strip-till or no-till

Reduce tillage in vegetable systems

- Consider shallower plowing, chisel plow, permanent beds, tarping, or winter killed cover crops to reduce tillage

Use 3-4 year forage rotations to build soil

MAXIMIZE SOIL COVER

Use cover crops and crop residue to protect the soil from heavy rainfall events thereby protecting surface soil structure and preventing soil erosion

NUTRIENT MANAGEMENT

Use soil testing to monitor soil phosphorus levels to understand the water quality risks that a field poses

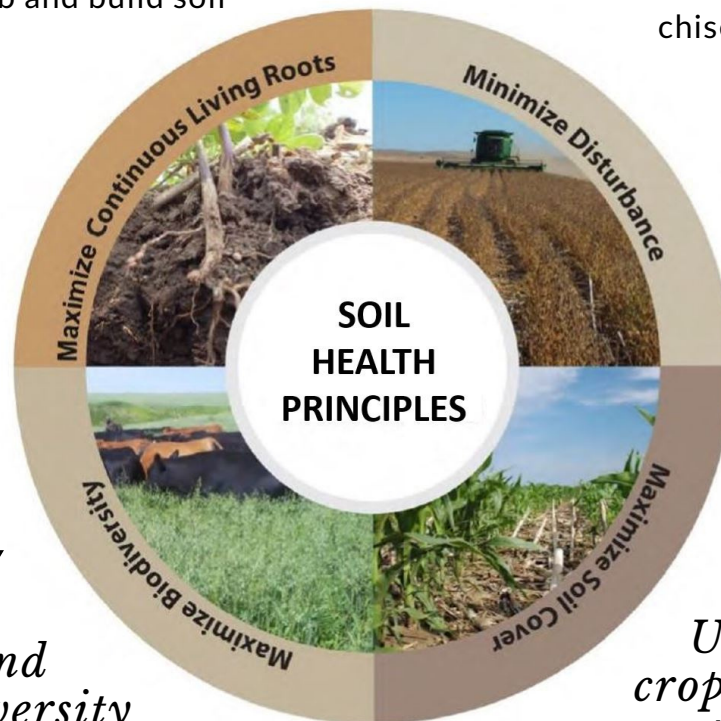


DIAGRAM COURTESY OF NRCS

BENEFITS OF SUSTAINABLE SOIL MANAGEMENT



PHOTO CREDIT: DAVID KOMOROWSKI/USDA-NRCS
AT NORTHRUP AND FARMS LLC

Water Quality Benefits of Soil Health Building Practices

- *Reduction of soil and nutrients lost from system by runoff*
- *Reduction in leaching of nitrates*
- *Reduction of harmful algal blooms*

Agronomic Benefits of Soil Health

- *Each additional 1% of soil organic matter means an additional 20 lbs of nitrogen per acre available to crops*
- *An 1 % increase in soil organic matter on one acre of land = 10,250 lbs of Carbon = 5.1 tons of Carbon = 18.8 tons of avoided CO₂ emissions*
- *With each additional 1% of soil organic matter, soil can hold an additional 3,000 gallons or 0.11 inches of plant available water per acre.*
- *Improved soil structure for plant rooting and accessing water and nutrients*

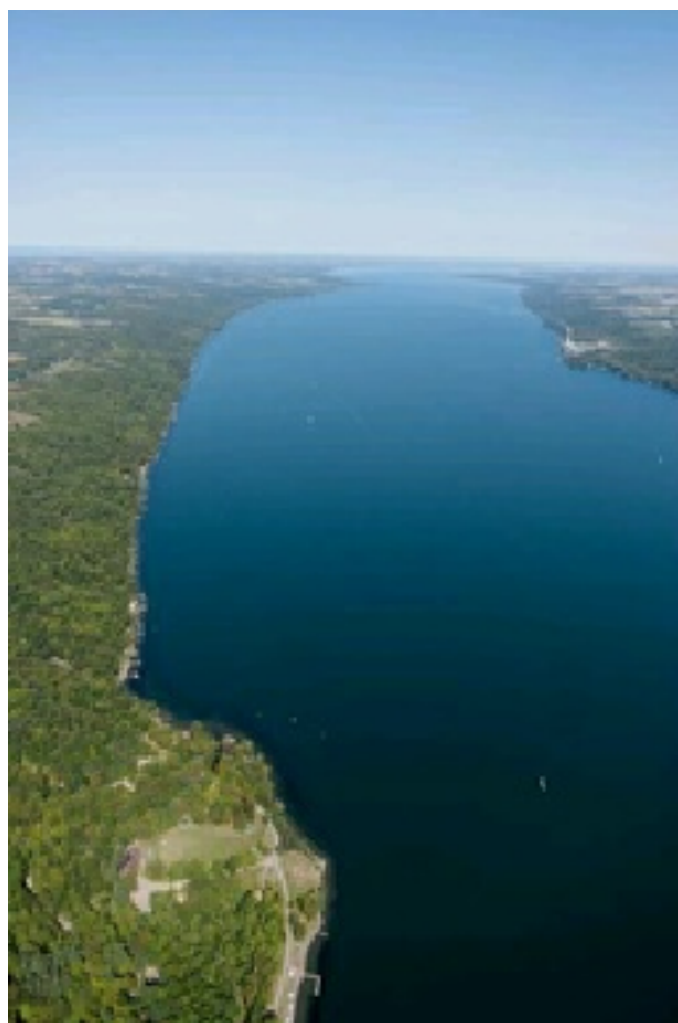


PHOTO CREDIT: BILL HECHT

RESOURCES FOR MORE INFORMATION

Cornell Cooperative Extension South Central Dairy & Field Crop Team

- Local Event Info
- Soil Health Articles
- Local Announcements

<https://scnydfc.cce.cornell.edu/>

Phone: 607-391-2660

Tompkins County Soil & Water Conservation District

- Local programs for
 - Agriculture environmental management
 - Storm water pollution prevention
 - Water quality improvement
 - Aquatic invasive species prevention
- Conservation grants/bids

<https://www2.tompkinscountyny.gov/swcd>

170 Bostwick Rd

Ithaca, NY 14850

Phone: 607-257-2340

National Resource Conservation Service

- State Funding Programs
- State Initiatives
- Soil Health News
- Technical Resources
- & much more

<https://www.nrcs.usda.gov/wps/portal/nrcs/site/ny/home/>

Ithaca Office:

225 S Fulton St

Ithaca, NY 14850

Phone: 607-257-2737

New York Soil Health Initiative

Cornell University

- News
- Local events
- General info on soil health
- Informational videos
- Trainings

<https://www.newyorksoilhealth.org>

SOIL TESTING SERVICES

Dairy One Soils Laboratory Services

<https://dairyone.com/services/agronomy-services/soil-analysis/>

Phone: 607-375-9962

Email: soil@dairyone.com

Cornell Soil Health Testing Laboratory

<http://soilhealth.cals.cornell.edu/testing-services>

Email: soilhealth@cornell.edu

The members of the WRC Soil Health Committee who contributed to the creation of this brochure are Barry Goodrich,, Joseph Amsili, Kristen Hychka, Mia Jumbo and Fay Benson.

Special thanks to New York Soil Initiative and the rest of the WRC for supporting us in this endeavor.