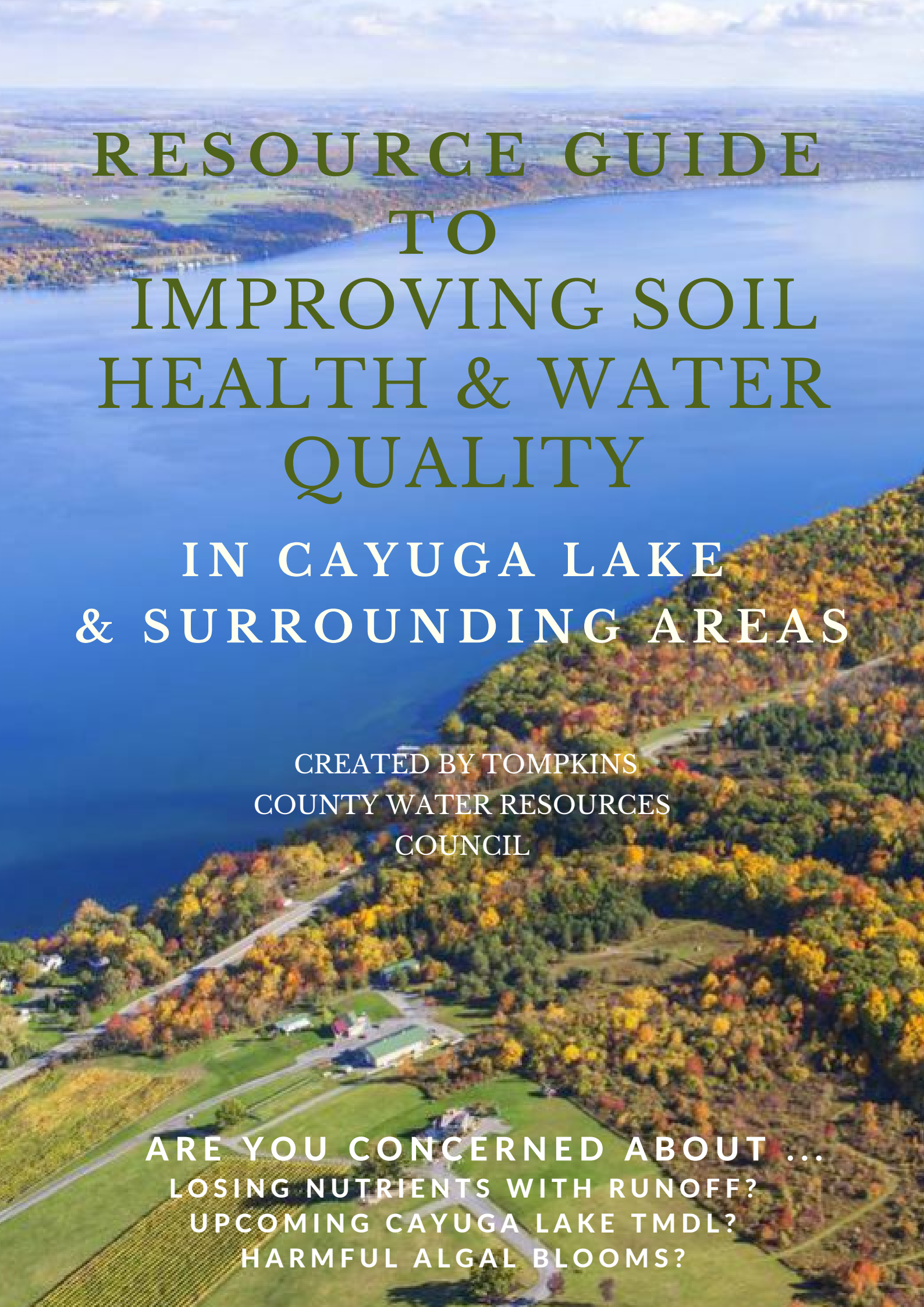


RESOURCE GUIDE TO IMPROVING SOIL HEALTH & WATER QUALITY

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?

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)

MINIMIZE DISTURBANCE

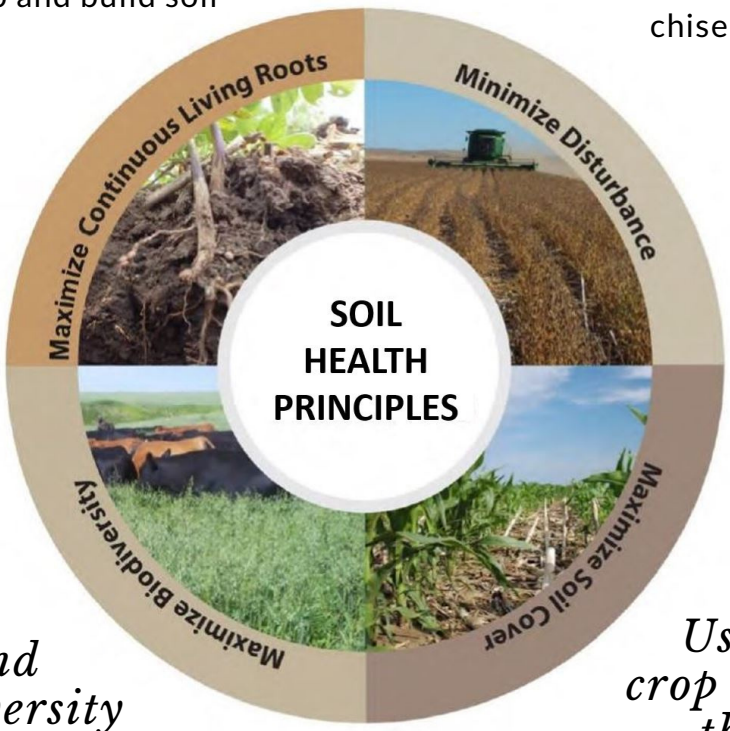
Reduce tillage in annual grain production

- 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 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

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

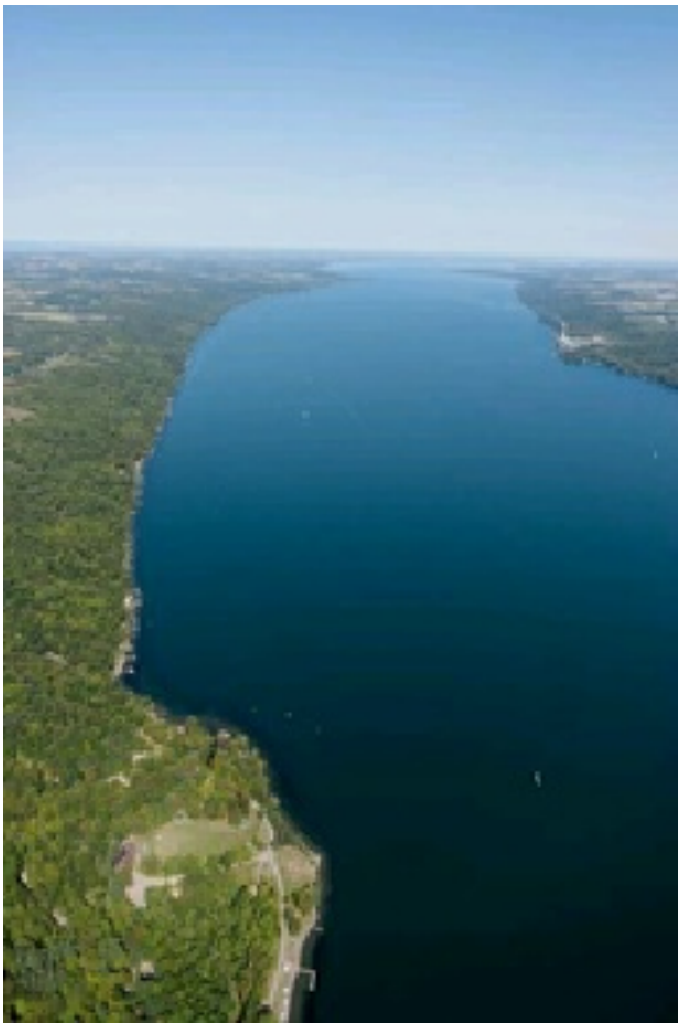
BENEFITS OF SUSTAINABLE SOIL MANAGEMENT

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



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