

New Soil Health Legislation

Connects the Dots:

Healthy Soils → Water Quality → Climate Resilience

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Healthy Soils

Benefit Farmers, Consumers, the Environment

Low-cost resilience to weather extremes

while mitigating climate change and protecting water quality



Building soil organic matter (reducing tillage; winter cover crops; using manure, composts, biochar; more perennial crops):

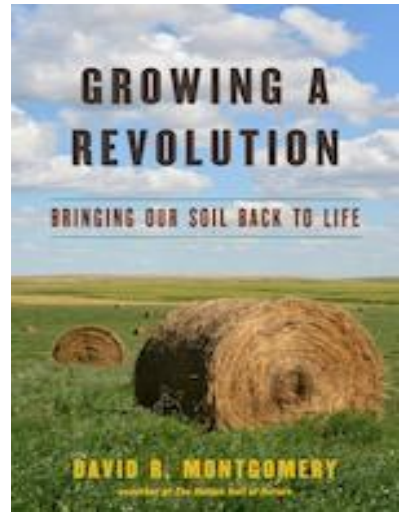
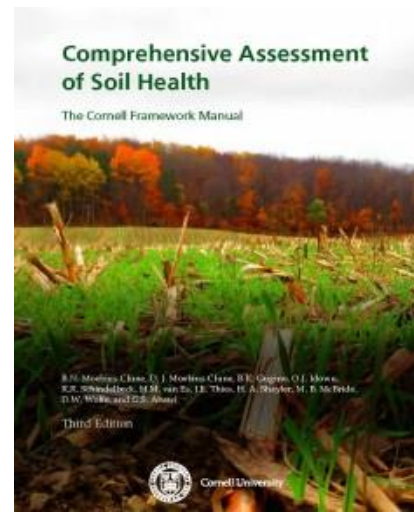
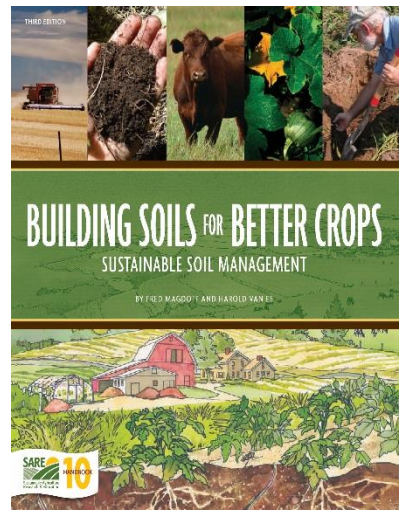
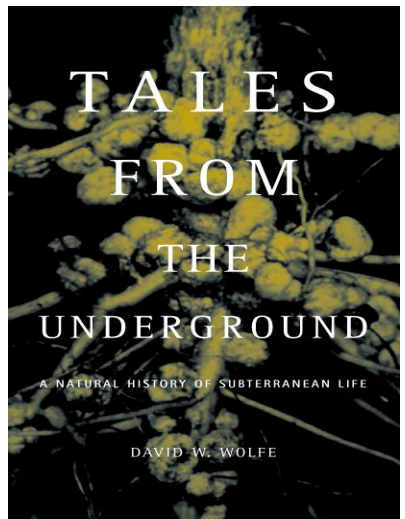
- Adaptation: increases resilience to drought, flooding, erosion
- Mitigation: stores carbon in the soil that otherwise would be in air as CO₂
- Water quality: less sedimentation and chemical runoff into waterways during heavy rain events



New York Soil Health:

Merging Discovery Science with Farmer Needs and Protection of Natural Resources

- An era of discovery:
 - Amazing biodiversity and abundance beneath our feet
 - Prescription crops and innovative management to build healthy soils
- Farmer motivation and innovation:
 - Healthy soils = resilience and increased profits
- Soil health and the environment:
 - Erosion and water quality;
 - Food security and climate change challenges



2022 Soil Health and Climate Resiliency Act

Bipartisan Support in Albany











Broad Support By Diversity of Stakeholders



Trends in NYS Conservation Practices

(For Corn and Soybean: www.nass.usda.gov)

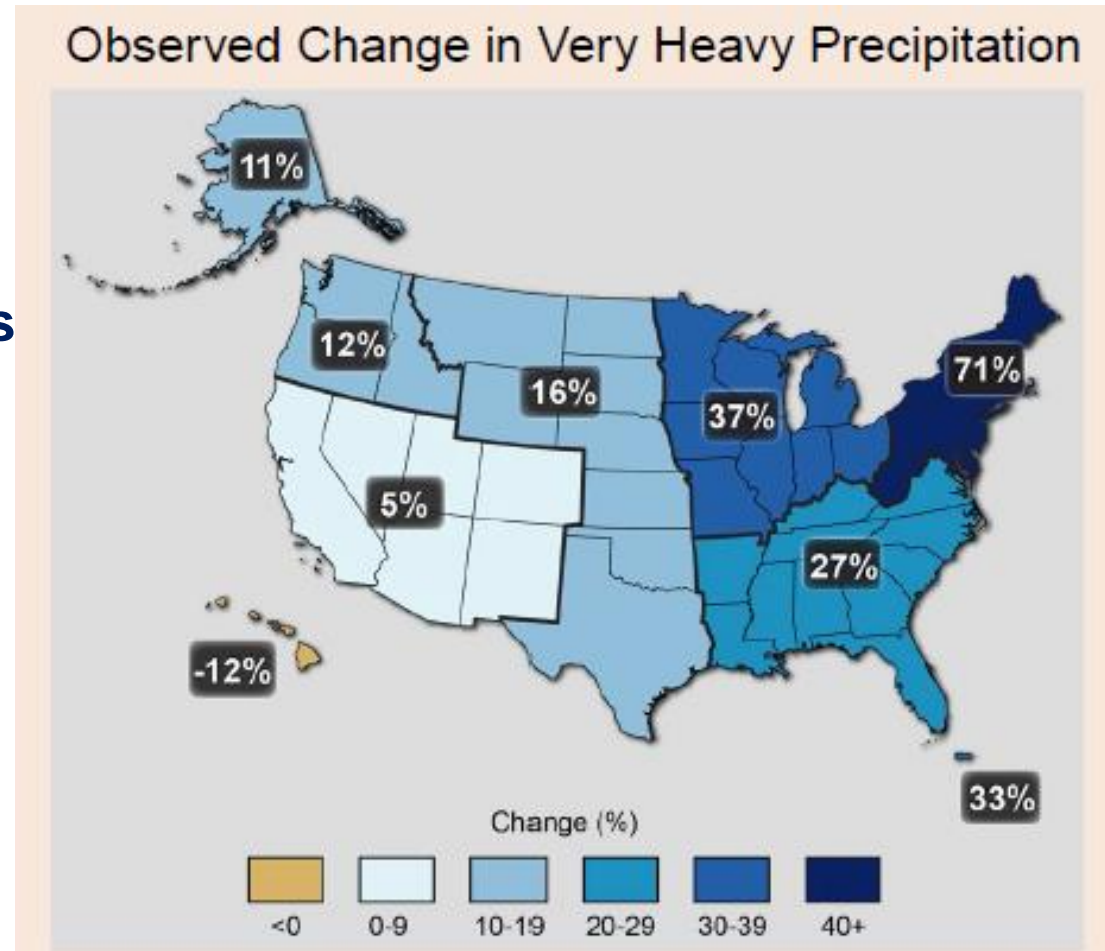
Practice	% change from 2012 to 2017 (acreage)	
Cover Cropping	37%	
Conservation Easements	1.8%	
No-Till	20.6%	
Reduced - Till	22.5%	
Intensive Tillage	-20.8%	
Tile Drainage	10%	
Irrigated Land	-11%	
Silvopasturing/Agroforestry & Conservation buffers	538%	

Source: J Suarez, Cornell

Climate Change Resilience:

For the NE US, more than a 70% increase in the frequency (days/year) of very heavy precipitation

Increase (1958-2012) in days/year of most intense (top 1%) of precipitation events (for NE: >2inch/24 hr)



For Farmers, Heavy Rains and Flooding can...

Delay spring planting



Cause yield losses



Cause soil erosion and runoff of sediment and chemicals into waterways



In urban and rural communities, heavy rains can... result in serious infrastructure damage to cars, homes, roads, docks, and require investments for improved flood control and flood insurance



Impacts on Lakes: Ecological

Increased Nutrient Loading and Harmful Algal Blooms

Sediment and nutrient plume









**Harmful Algal Bloom
Cayuga Lake (July 19, 2021)**



Farm Strategies for Erosion and Runoff Control:



Inter-row groundcover

	<u>Legumes</u>	<u>Brassicas</u>	<u>Grasses</u>
<u>Winter-hardy</u>	Red Clover 	Canola 	Cereal Rye 
<u>Winter-killed</u>	Austrian Winter Pea 	Forage Radish 	Oats 

Many fall/winter cover crops and cover crop mixes being explored for annual row crops

Nitrogen (N) Management and Greenhouse Gases



*Legume N instead of fertilizer N
A broader view of 'renewable energy'...*



- Synthetic N fertilizers are energy-intensive to produce
- All N fertilizers (including manure and other organic sources) give off nitrous oxide (N_2O), a potent greenhouse gas, as they degrade in soils
- N management is often inefficient

NY Soil Health Summit in Albany (July 18, 2018)

(farmers, researchers, policy-makers and > 35 organizations represented at the event)



NEW YORK SOIL HEALTH ROADMAP

2 0 1 9

New York Soil Health for Healthy Food, Profitable Farms, and Protection of Natural Resources

- Goals** (and Policy, Research, Outreach Priorities for each)
- 1) A framework for stakeholder collaboration**
 - 2) Support agencies and programs to overcome barriers to adoption of best mgmt practices**
 - 3) Integrate soil health with climate change goals**
 - 4) Integrate soil health with water quality and nutrient management goals**

Governor Hochul Signs Senator Hinchey and Assemblymember Lupardo's Soil Health and Climate Resiliency Act December 23, 2022



Senator Michelle Hinchey and Assemblymember Donna Lupardo first announce the Soil Health & Climate Resiliency Act on June 2, 2021, in Albany.

Legislation Authored by Senate and Assembly Agriculture Chairs Elevates New York Farmers as Key to State's Climate Change Mitigation Strategy

Soil Health and Climate Resiliency Act

- **Reflects a deep understanding of the latest scientific advances in soil biology and ecology, and best management practices (BMPs) for improving soil health**
- **Defines responsibilities for state agencies (e.g., NYSDAM, NYSDEC) to collaborate and work with farmers and other stakeholders, for “...optimizing soil health to mitigate and adapt to climate change, and improve water quality while improving long term soil productivity, efficiency, resiliency and profitability”**
- **Specifically addresses soil nutrient management strategies to “...minimize nutrient runoff and reduce downstream nutrient loading, and improve watershed health...”**
- **Codifies a commitment to “promote scientific understanding of soil health and carbon sequestration with various farming practices, including no-till, cover cropping, managed grazing, perennial pasture, and precise application of added nutrients..”**