



SOILS are the NEXUS between

- ❖ FOOD SECURITY
- ❖ WATER QUALITY
- ❖ ENERGY EFFICIENCY
- ❖ CLIMATE CHANGE MITIGATION, ADAPTATION, AND RESILIENCY

Soil Facts

- Soil is one of the largest sinks for atmospheric carbon, and one that can be cost-effectively managed to mitigate the effects of climate change.
- Soil health is important across all landscapes, not just farmland and forests. It is also related to urban development, particularly in Connecticut with its population density and significant land area intensively dedicated to lawns, fields, parks, and urban agriculture.
- Soil health is achieved through practices that prevent erosion, increase water infiltration rate and water holding capacity, increase organic carbon content, nutrient content, microbial activity, and biological diversity, and reduce compaction.
- Soil health is producing market opportunities for payment for ecosystem services to farmers and other landowners. Our largest food and agribusinesses support soil health through economic and technical incentives to producers of sustainable and local food, rewarding implementation of soil health practices. Carbon markets and green banks are increasingly interested in soil health.

MEASURING SUCCESS!

By improving the health of the soil, the effect on reduced emissions and carbon sequestration **can be quantified** and compared, for example, to reducing the number of cars on the road. These effects can be measured using the USDA's Comet- Planner and other available tools.

“Soil health” means the continued capacity of soil to function as a vital living ecosystem that sustains plants, animals, and humans.



Benefits of Soil Health

- **Food Security**
 The human health and economic benefits of soil health in our food systems can be measured in increased and stable yields, lower use of inputs and energy, increased crop resistance to drought, and increased nutritional value of food. Food security is better achieved in healthy soils, increasing availability of local foods and decreasing logistical and carbon footprint costs of transportation.
- **Improved Water Quality**
 Healthy soils reduce erosion and increase water filtration and microbial action that cleans water as it moves through the soil profile. Healthy soils provide for better nutrient uptake by plants and decrease incidence of plant disease reducing the need for fertilizers and pesticides across all landscapes.
- **Managed Water Quantity**
 Healthy soils retain more water and make it available to plants, increasing drought resistance and reducing the need for irrigation. They also allow for better infiltration and recharge of surface and groundwater and provide for flood storage.
- **Reduced Net Greenhouse Gas Emissions**
 Improving soil health in agricultural fields, forests, and urban open space (fields, parks, urban gardens, lawns) increases atmospheric carbon sequestration and reduces GHG emissions.
- **Profitability for Farms and Managed Forests**
 Reduced need for inputs (fertilizers, irrigation, energy), resistance to drought and yield increase and stabilization result in higher profits for farms and managed forests.
- **Energy Use/Generation Efficiency**
 Production of electricity or renewable natural gas (RNG) from methane digesters or other technology.