ENHANCING SOIL HEALTH IN RHODE ISLAND

Regional Conservation Partnership Program

"Soil is at the foundation of everything that we and the other life on earth need to live…"

-The Cornell Framework Manual

Your soil is an ecosystem teeming with life! When managed properly, this ecosystem will function at its full capacity to sustain productivity, improve environmental quality and increase net farm profit.

Economic Benefits of Healthy Soil

- ⇒ **Better plant growth, quality & yield;**
- ⇒ **Reduced risk of yield loss during periods of environmental stress;**
- ⇒ **Better field access during wet periods;**
- ⇒ **Reduced fuel costs by requiring less tillage;**
- ⇒ **Reduced input costs by decreasing losses, improving efficiency of fertilizer, pesticide, herbicide, and irrigation application.**

Healthy soil is characterized by good soil tilth, sufficient root depth, good water storage capacity & drainage, sufficient supply of nutrients, low populations of plant pathogens & insect pests, large populations of beneficial organisms, low weed pressure, freedom from chemicals and toxins that harm crops, resistance to degradation, & resilience when unfavorable conditions occur.

HOW CAN MY FARM'S SOIL HEALTH BE EVALUATED?

Have a *Comprehensive Soil Health Assessment* conducted on your cropland, hayland or pasture. This Regional Conservation Partnership Program (RCPP) for enhancing Soil Health provides access to *Cornell University's Comprehensive Assessment of Soil Health* when you apply for technical assistance. The Conservation District Soil Health staff will collect soil samples from your property, send the samples to Cornell Soil Health Testing Lab and interpret those results in a Soil Health Management Plan.

HOW CAN MY FARM'S SOIL HEALTH BE IMPROVED?

A Soil Health Management Plan interprets the results of the *Comprehensive Assessment of Soil Health* and provides recommendations for best management practices to address your soil's physical, biological & chemical functionality. Financial assistance is available through this program to execute those practices, based on the recommended schedule.

Program Partners, left to right:

- *USDA Natural Resources Conservation Service*
- *RI Conservation District (Eastern, Northern & Southern)*
- *RI State Conservation Committee*
- *Narragansett Indian Tribe*
- *RI Department of Environmental Management, Office of Customer & Technical Assistance*

Cornell Soil Health Assessment

Agricultural Service Provider:
None

Sample ID: Nnn_664
Field/Treatment: Field #4
Tillage:
Crops Crown: COS, COS
Date Sampled:
Given Soil Type: No Soil Type Given
Given Soil Texture: No Soil Texture Given
Coordinates:

Measured Soil Textural Class: Sandy Loam Sand: 63% Silt: 28% Clay: 9%

Test Results

	Indicator	Value	Rating	Constraint
Physical	Available Water Capacity	0.18	75	
Physical	Surface Hardness	253	17	Rooting, Water Transmission
Physical	Subsurface Hardness	263	71	
Biological	Aggregate Stability	65.0	60	
Biological	Organic Matter	3.8	68	
Biological	ACE Soil Protein Index	10.3	62	
Biological	Respiration	0.42	30	Soil Microbial Abundance and Activity
Biological	Active Carbon	520	55	
Chemical	pH	4.7	0	Low pH: Toxicity, Nutrient Availability
Chemical	Phosphorus	3.5	100	
Chemical	Potassium	19.4	3	Plant K Availability
Chemical	Minor Elements (Mg: 13 Fe: 23.4 Mn: 4.5 Zn: 0.6)		56	Deficient Magnesium
	Overall Quality Score		50	Low

WHAT CAN I EXPECT FROM A SOIL HEALTH MANAGEMENT PLAN?

Your Soil Health Management Plan (SHMP) will be developed by Conservation District staff with you (the producer) to address short & long-term objectives that will address constraints identified in the *Cornell Soil Health Assessment*. [An example of assessment results at left.] Your SHMP will recommend & describe practices that will build or maintain a healthy soil that can supply the needs of the soil organisms, prevent overall environmental degradation, & contribute to improved economic benefits.

WHAT ISSUES ON MY FARM WILL BE ADDRESSED?

- ◊ Soil Quality Degradation
- ◊ Water Quality Degradation
- ◊ Soil Erosion
- ◊ Degraded Plant Condition

WHAT ARE A FEW EXAMPLES OF POTENTIAL RECOMMENDATIONS?

- ◊ Developing & instituting Crop Rotations
- ◊ Planting Cover Crops
- ◊ Conducting or increasing Nutrient Management
- ◊ Mulching
- ◊ Improving management of irrigation water
- ◊ Implementing rotational grazing
- ◊ Conducting deep tillage (to break up a plow pan)

Pictures in this publication were taken in New England, by K. Bousquet, SRICD.

Pg 1: (*left to right*) Hayland; Vegetable crops; Pasture.

Pg 2: (*left, top to bottom*) Rainfall simulator / Soil health demo; Soil sampling; Cover crops; Deep Tiller

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