Soil Health Management Planning
Part One- Soil Assessment

Features of the Cornell Assessment of Soil Health

- Public Service Soil Health Testing Laboratory
- Identifies multiple soil processes important to crop growth, resilience, efficient input use and environmental services
- Measures a comprehensive suite of indicators of essential soil functions: physical, biological and chemical realms
- Rating of laboratory measured values identifies constraints
- Interpretive Report and management suggestions
- Enables data-informed soil health management planning and implementation to target constraints

Measured indicators → soil processes

Comprehensive Assessment of Soil Health Report

1. Background information about farm
2. Indicator List with color-coded physical, biological and chemical indicators
3. Indicator Values measured in laboratory or field
4. Ratings (1-100): Score < 20 (red) = soil constraint, 20-40 (orange) = low, 40-60 (yellow) = medium, 60-80 (light green) = excellent, 80-100 (dark green) = optimal soil functioning
5. Identified Soil Constraints listed; useful for identifying how to target management efforts. (Also see Management Table on pages 9-10 of the Report)
6. Overall Quality: score < 20% is very low, 20-40% is low, 40-60% is medium, 60-80% is excellent and > 80% is optimal
Soil Health Management Planning
Part Two- An Implementation Framework

How can you use Soil Health Assessment information?

• Understand soil processes & past management impacts
• Identify constraints, assess soil health status
• Select & implement management strategies that address needs and are feasible for the operation
• Monitor change
• Measure progress and adjust management

Soil Health Management Planning: Example using the Cornell Soil Health Assessment Report

1. Determine farm background and management history

Rented land to transition to organic vegetables. Young, creative organic grain and seed grower. Diverse equipment inventory. Supportive local farming community.

2. Set goals and sample for soil health

Grower wants to transition rented land to organic. Looking for useful cover crops/rotations to address soil constraints in the transition.

3. For each management unit: identify and explain constraints, prioritize


4. Identify feasible management options

Fresh green manure needed to soften soil surface and stimulate soil biological activity. Adjust pH with broiler manure. Subsoil loosening needed to address hard layer.

5. Create short and long term Soil Health Management Plan

Fall- rent ripper implement to loosen soil to 12” depth. Drill fall barley. Spring broadcast broiler manure to raise pH, stimulate soil biology and add potassium. Incorporate manure. Drill field pea to 2”. Tine weeder to 1” depth.

6. Implement, monitor, and adapt

Mow barley straw/field pea in July. Drill buckwheat. Fall disk then drill cereal rye/ vetch.

Comprehensive Assessment of Soil Health
From the Cornell Soil Health Laboratory, Department of Soil and Crop Sciences, School of Integrative Plant Science, Cornell University, Ithaca, NY 14853. http://soilhealth.cals.cornell.edu

Grower:
Mr. T Organic Grains
556 Leamy Haven
Hardwork, PA 12435

Agricultural Service Provider:
Mr. Bob Consulting

Sample Id: LL6
Field Id: Deep six
Date Sampled: 10/16/2015
Crops Grown: COG/COG/COG
Tillage: more than 9 inches

Test Report
Measured Soil Textural Class: sandy loam
Sand: 59% - Silt: 36% - Clay: 5%

<table>
<thead>
<tr>
<th>Group</th>
<th>Indicator</th>
<th>Value</th>
<th>Rating</th>
<th>Constraints</th>
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<tbody>
<tr>
<td>Physical</td>
<td>Available Water Capacity</td>
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<td>26</td>
<td>Roofing, Water Transmission</td>
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<tr>
<td>Physical</td>
<td>Surface Hardness</td>
<td>255</td>
<td>14</td>
<td>Subsurface Pan/Deep Compaction, Deep Rooting, Water and Nutrient Access</td>
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<tr>
<td>Physical</td>
<td>Subsurface Hardness</td>
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<td>Physical</td>
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<tr>
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<td>134.0/Fe:3.4/Mn:2.7/Zn:1.3</td>
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Overall Quality Score: 53 / Medium