1. Conventional Corn/ Soybean

**Location/Site History:**
Field has been in **continuous grain production** for 12 years. Tried reducing tillage (just disking) some years ago but was disappointed with the stand. Wet springs cause large wet zones to form in the low areas. Soil is crusted but a few earthworms are present. Grower feels that this could be good land but it is “tired”.

**Opportunities, Challenges, Grower Info:**
There are a number of **dairy farms** and an **equipment dealer** in close vicinity. Older grower wants to try to incorporate some of the features of the “new” cover crops into the rotation to 1) loosen the profile and 2) add “free” N to the soil. Grower has a moldboard plow, disc set, and an old grain drill. He has a modern Deere corn planter which can handle high residue. The current low market value of corn has this grower willing to take the field out of grain production for a year and move it to a one year forage rotation. A local dairy wanting feed is willing to take off this annual forage in 2019 in exchange for a manure application and deep ripping the field.

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**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](http://soilhealth.cals.cornell.edu)

<table>
<thead>
<tr>
<th>Grower: Sandy Rockland</th>
<th>Sample ID: gg4425</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vernon Center, NY</td>
<td>Field ID: Mom’s field</td>
</tr>
<tr>
<td>Date Sampled: 04/30/2018</td>
<td>Given Soil Type: Lima</td>
</tr>
<tr>
<td>Crops Grown: SOY/COG/SOY</td>
<td>Tillage: more than 9 inches</td>
</tr>
<tr>
<td>Coordinates:</td>
<td>Latitude: 43.23645400000</td>
</tr>
<tr>
<td></td>
<td>Longitude: -92.89137900000</td>
</tr>
</tbody>
</table>

**Measured Soil Textural Class:** **loam**  
Sand: **38%** - Silt: **45%** - Clay: **16%**

<table>
<thead>
<tr>
<th>Group</th>
<th>Indicator</th>
<th>Value</th>
<th>Rating</th>
<th>Constraints</th>
</tr>
</thead>
<tbody>
<tr>
<td>physical</td>
<td>Available Water Capacity</td>
<td>0.14</td>
<td>39</td>
<td>Rooting, Water Transmission</td>
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<tr>
<td>physical</td>
<td>Surface Hardness</td>
<td>248</td>
<td>16</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>
<td>440</td>
<td>17</td>
<td>Aeration, Infiltration, Rooting, Crusting, Sealing, Erosion, Runoff</td>
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<tr>
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<tr>
<td>biological</td>
<td>Organic Matter</td>
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<tr>
<td>biological</td>
<td>ACE Soil Protein Index</td>
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<td>Organic Matter Quality, Organic N Storage, N Mineralization</td>
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<tr>
<td>biological</td>
<td>Soil Respiration</td>
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<tr>
<td>biological</td>
<td>Active Carbon</td>
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<td>56</td>
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<tr>
<td>chemical</td>
<td>Soil pH</td>
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<tr>
<td>chemical</td>
<td>Extractable Phosphorus</td>
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<tr>
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<tr>
<td>chemical</td>
<td>Minor Elements</td>
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<td>100</td>
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</tr>
</tbody>
</table>

**Overall Quality Score:** **55 / Medium**
Strengths and weaknesses of your cover crop treatment (0-5)

Spider plots inspired by Cover Crop Cocktails group at Penn State.
2. Conventional Dairy

**Location/Site History:**
This 15 ac field is part of a 60 cow dairy in Niagara county, NY. This field has been in **corn silage for 2 years**, receiving bedded pack manure frequently since there is not much storage. Before this the field was hay field for a long time. Corn grew well early on but then just seemed to shut down in August and the soil surface got VERY dry.

**Opportunities, Challenges, Grower Info:**
Growers are older, but **their nephew is taking an interest in their operation.** He is willing to try to grow a shorter season corn hybrid to incorporate a cover crop. They have never used a tillage system other than moldboard plowing and don’t really want to branch out. **They incorporate manure with their Aerway** on occasion. He has also found some neighbors with an **Unverferth Zone Builder** that he could rent. Local equipment dealer has a no-till drill available for lease by the acre.
Strengths and weaknesses of your cover crop treatment (0-5)

- Soil Organic Matter/Active Carbon
- Soil Protein/Nitrogen Supply
- Aggregate Stability
- Microbial Respiration
- Subsurface Compaction
- Surface Compaction

Spider plots inspired by Cover Crop Cocktails group at Penn State
3. Organic Vegetables

**Location/Site History:**
Western PA, within 10 miles of population centers. This 4 acre field is part of a 50 acre farm with intensive production in 10 foot wide strips. Long history of moldboard tillage and **intensive secondary tillage** including the use of a spader attachment to pulverize the soil. **Regular cultivation** using Allis-Chalmers G tractors due to **very high weed pressure.** Multiple crops grown per year.

**Opportunities, Challenges, Grower Info:**
This field is coming out of summer squash on August 15. Daughter just finished college and wants to incorporate cover crop mixtures to build soil health. Grower has little experience with cover crops, but is excited to work with his daughter to try things. Field has high phosphorus due to long term compost additions. Grower wants to add N without adding more P and K. Varied equipment for veg production is available.
Strengths and weaknesses of your cover crop treatment (0-5)

Spider plots inspired by Cover Crop Cocktails group at Penn State
4. Conventional Vegetables

**Location/Site History:**
Western NY commercial packing vegetable grower. This 8 acre field has had very intensive vegetable production. Frequent moldboard tillage and **regular secondary tillage**. Multiple crops grown per year. **Grows market tomatoes, brassicas and green beans for wholesale.** Lots of farm labor available.

**Opportunities, Challenges, Grower Info:**
Grower fears his field is **tillage addicted**. Excessive runoff from early rains and then beans wilted for want of water. Field is coming out of green beans July 20. Grower has no experience with cover crops but knows of their positive effects on soil functioning. Grower has learned of zone tillage benefits and plans on adding rolling coulters and disks to his implement prior to spring brassicas next year. He would like to modify his rotation and cover crops to ensure success of this practice.
Strengths and weaknesses of your cover crop treatment (0-5)

- Soil Organic Matter/Active Carbon
- Soil Protein/Nitrogen Supply
- Microbial Respiration
- Aggregate Stability
- Surface Compaction
- Subsurface Compaction

Spider plots inspired by Cover Crop Cocktails group at Penn State
<table>
<thead>
<tr>
<th>First</th>
<th>Last</th>
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<tbody>
<tr>
<td>Deborah</td>
<td>Aller</td>
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<tr>
<td>Lorie</td>
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<tr>
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<td>Brian</td>
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<tr>
<td>Ann Marie</td>
<td>Calabro</td>
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<td>Daniel</td>
<td>Eggert</td>
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<tr>
<td>Matthew</td>
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<td>Ernisse</td>
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<td>Morgan</td>
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<tr>
<td>Katherine</td>
<td>Vail</td>
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Find your name, then find your group!