



Do you grow soybeans? Are you interested in soil health?

Introduction: Although there is a great deal of research on soil health, the concepts are still loosely defined, and there are not clear resources for farmers to determine their farm's impact on soil. More research is needed to determine the most effective methods of measuring soil health, and whether those measurements relate to management decision and crop yield. The proposed project uses four soil health measures that center on both soil carbon and nitrogen stocks: Permanganate Oxidizable Carbon (PoXC), Mineralizable Carbon, Potentially Mineralizable Nitrogen (PMN), and Autoclave Citrate Extractable Protein (ACE Protein). These four measures are relatively inexpensive, and can be conducted on dried, stored samples. Additionally, these measurements were chosen as estimators of soil health that are likely to relate to crop performance. See the table below for more details about these assays.

Objectives:

1. Connect management practices to these four common soil health measurements.
2. Explore the relationship between soil health measurements and soybean yield.

What we need from you:

- Provide us with maps and allow us to come out to your farm and sample a few soybean fields.
- Fill out an extensive field history survey about management, including information on crop rotation, tillage, cover cropping, manure applications, residue management, and crop yields.
- Report 2020 yields, preferably by submitting yield maps from a calibrated yield monitor.

What we will do for you:

- Protect the confidentiality of your yield data.
- Give you a detailed soil-health report with your farm's data.
- Prepare extension materials for all results from this study, helping farmers make informed decisions about soil health management on their farm.

| Assay | Biological Relevance |
|--|--|
| Permanganate-oxidizable carbon (POXC) | <ul style="list-style-type: none">• Measure of active soil carbon pool• Organic matter stability• Carbon-sequestration capabilities of the soil |
| Mineralizable carbon (Min C) | <ul style="list-style-type: none">• Measure of active soil carbon pool• Short term soil organic carbon pool |
| Potentially mineralizable nitrogen (PMN) | <ul style="list-style-type: none">• Organic nitrogen that can be easily broken down• Nitrogen likely to become available to plants in that growing season |
| Autoclave Citrate Extractable Nitrogen (ACE-N) | <ul style="list-style-type: none">• Nitrogen present in proteins |

**We are recruiting growers with a variety of management practices, from all over Wisconsin!
Reach out for more information, or to enroll in the study for 2020.**

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