MidWest
Bio-Tech News

December, 2019

STILL LOTS TO LEARN ABOUT SOIL HEALTH

Thanks to the crazy weather in 2019, we had an opportunity to learn about the performance of soils under a variety of adverse field conditions. First, we found that the very wet spring weather and very dry weather in mid-summer had a clear impact on soil health. During a typical growing season, microbial activity usually increases from spring through July and then slowly declines through harvest. However, we took some samples during April and August in the same fields, and there was actually more biological activity in April for some of these samples. Although the soil temperatures were cooler in April, the moisture conditions were more moderate earlier in the season.

The farm press has also reported on soil compaction issues that started with the wet weather last fall. Clearly, compaction may develop along end rows and field roads when field operations have to be completed on wet soils, but many people have found compaction issues across entire fields in the past year. We used a soil penetrometer to measure the compaction in test plots in 2018 and 2019, and we generally found lower penetrometer readings (or more compaction) in 2019 due to the wet and cool weather. However, the plots treated with Chandler Soil and Biocat 1000 had nearly identical penetrometer readings in both years, but the degree of compaction in the untreated plots was worse in 2019. So, you can support the soil microbes to help them overcome the impact of poor weather.

SOME MICROBES ARE NOT HELPFUL

Researchers have known for a long time that ruminant animals like cattle generate methane when they digest feed stuffs, and this gas causes two distinct problems. First, the methane emitted by the livestock is lost energy that could be used to create meat, milk, and wool. Second, methane is a greenhouse gas that could have a long-run impact on our climate.

Three years ago, researchers found that ruminant animals grazing on certain types of seaweed produced considerably less methane. After further research, they found that compounds in the seaweed block an enzyme required by the methane-producing microbes in the rumen. The latest research on this topic is trying to determine if these compounds can be fed directly to ruminant animals in order to reduce methane output and improve feed efficiency. Alternatively, the researchers may be able to find other forage crops that contain these methane-blocking compounds.

FREE ORGANIC REPORT

We recently co-sponsored a new special report on organic no-till farming by Lessiter Media. Special Report #61 is titled “Going After Bigger Profits with Organic No-Till” and it includes several articles about cover crops, weed control, and other advances in the no-till approach to organic farming.

If you would like a free copy of the report, please call our office (309-659-7773), send email to info@midwestbioman.com, or drop us a note by postal mail.

SUMMARY OF RECENT ON-FARM TEST RESULTS

We received some very good on-farm reports from customers this fall. Following our privacy policy, we do not identify the customers by name or location, but we did get their permission to share the details of their on-farm tests:

- ***Chandler Soil and improved water infiltration*** **–** we heard from three farmers who independently reported very similar results for Chandler Soil. In each case, these farmers had been using Soil for 2-3 years on particular fields on their farms, and they each stated that these treated fields were the first cropland dry enough to plant in their areas (central Minnesota, southern Minnesota, and northern Illinois).

By multiplying the beneficial soil microbe colonies, Chandler Soil builds soil structure and organic matter that allow more water to drain from the soil surface and be stored in the air spaces within the soil structure. One important dimension of soil structure is the water-stability of soil aggregates, and soils with higher shares of stable aggregates tend to have more pore spaces that can absorb and hold water. The Solvita VAST procedure measures the share of stable aggregates in a soil sample, and higher values are preferred.

For example, we tested samples from plots in northern Iowa that had been treated with Chandler Soil and Biocat 1000 for two years in a row, and we also sampled adjoining plots that were untreated. The average results of the VAST procedure are:

	Solvita VAST
Average of treated plots	43.0%
Average of untreated plots	37.5%

So, the soil in the treated plots has notably higher aggregate stability on average. Although we usually think of soil structure as being relatively stable, we can improve structure in just a few years by enhancing the biological activity in the soil.

- ***Chandler Biocat 1000 and weed seed decay*** **–** this fall, we heard from two farmers who stated that they had less weed pressure in fields treated with Chandler Biocat 1000. In particular, both farmers said they had less waterhemp and other difficult weeds than the neighboring fields. Although we tend to focus on using Biocat 1000 to reduce volunteer corn in soybean fields, we have reported in past newsletters about accelerating the residue decay process to control weed seeds. Dropped ears and weed seeds are plant residue just like corn stalks, and these unwanted seeds can be decayed before they germinate and cause trouble later.
- ***Chandler Liquid Seed Treat on soybeans*** – we got several good reports on Chandler Seed Treat, including one from a long-term user in northern Illinois who tried Liquid Seed Treat on his soybeans for the first time. This fall, he checked the treated and untreated soybeans in several spots throughout the field, and the treated beans made at least 5 BPA more than the untreated beans across all of the checks.

SAMPLE SOIL HEALTH TEST REPORT

We have included a sample soil health test report on the next page. The results are taken from an actual test sample, but we have not included the customer name or location. The key results are the Solvita tests for CO2 respiration (Burst), amino N (SLAN), and aggregate stability (VAST). These three values are combined to form the soil health index, and higher values are preferred. To date, the highest soil health index we have observed is 87.7 out of 100.

The Solvita tests and the other test components are explained at our web page for the soil health laboratory. One of the most practical results is the potential nitrogen mineralization, which is an estimate of the available N converted from organic matter by soil microbes. Some of our customers with biologically active soils have used this information to fine-tune their nitrogen applications.

MidWest Bio-Tech Inc.

Soil Health Lab

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Name:

Field ID:

Sample ID:

Soil type: Silty clay loam

Previous crop: Corn

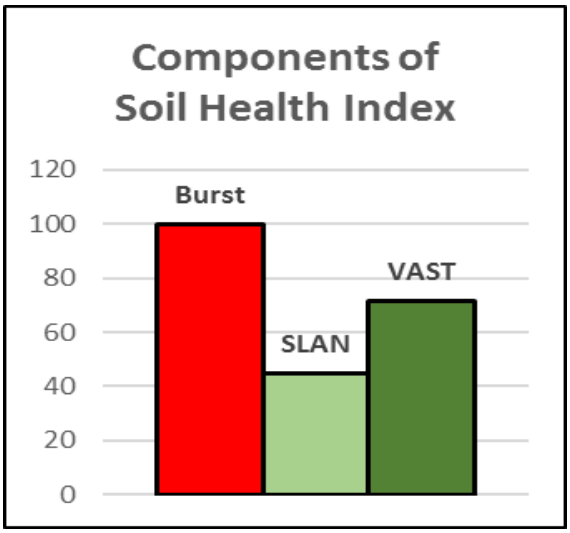
Intended crop: Soybeans

Soil Health Score components:

Solvita CO2 Burst	199.5 #/A-day 150.0 ppm
Solvita SLAN (amino N)	179.6 #/A 135.0 ppm
Solvita VAST	43%
Soil health index	77.1 / 100
Potential N mineralization	55.0 #/A

Other soil properties

Solvita CO2 Basal	64.2 #/A-day
Soil acidity (pH)	6.8
Dry bulk density	1.08
Microbial biomass	3330 #/A
EC (total salts)	0.37
Organic matter	3.6%



POWERED BY:

SOLVITA®

Sample received
9/10/2019

Results reported
9/15/2019

WINTER EVENT SCHEDULE

Dec. 3-5	Greater Peoria Farm Show Peoria Civic Center Peoria, IL
Jan. 7-10	National No-Till Conference St. Louis Union Station Hotel St. Louis, MO
Jan. 14-16	Fort Wayne Farm Show Allen County Coliseum Fort Wayne, IN
Jan. 19-21	Quad Cities Farm Show QCCA Expo Center Rock Island, IL
Jan. 22-23	IFCA Convention Peoria Civic Center Peoria, IL
Jan. 29-30	Midwest Ag Expo Gordyville USA Gifford, IL
Mar. 3-5	Hawkeye Farm Show University Dome Cedar Falls, IA
Mar. 10	Illinois Soybean Summit Crowne Plaza Hotel Springfield, IL

To pick up product at one of these events, let us know at least **5 days** in advance.

2020 NATIONAL NO-TILL CONFERENCE

The 28th Annual National No-Tillage Conference will be held at the St. Louis Union Station Hotel on January 7-10, 2020. For the sixth year, we will co-sponsor the welcome reception on Tuesday evening (January 7 from 6:30 to 9:30 PM). We will have an exhibit at the reception, so please drop by to say hello if you attend. The full conference program and registration details are posted at www.NoTillConference.com, and we look forward to seeing you there!

PRODUCT PRICES STEADY FOR SPRING 2020

The enclosed spring discount price list offers the same prices and shipping fees that we have maintained since April, 2016. The December discount prices are the best deals for the coming year, and these prices are available on all orders placed between December 1, 2019, and January 6, 2020. After January 6, the discounts decline on a monthly basis from January to March, and our regular retail prices go back into effect on April 1, 2020.

To qualify for a particular discount, you must pay for the product within the stated discount period. Also, you can place an early order, and we can hold it for later delivery. If you want to receive a shipment by a particular date or have other delivery instructions, please note these instructions on the back of the enclosed order form. Also, please note that we do not charge shipping fees on orders that exceed $800.

Seasons Greetings

We want to take this opportunity to thank you for the privilege of serving you in the past year, and we look forward to working together in the future. We also extend our best wishes for the season and for the New Year!

Sincerely,

Jim and Doug Miller