

# Soil Health Affects Yield, Nutrition

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GENEVA, N.Y. — Want healthy crops? Start with healthy soil. Harold Schrock, sales and support representative for Cayuga Ag/King's AgriSeeds, presented "Soil Health Relationships Impacting Farm Profitability" at the recent Farming Through Adversity meeting put on by Cornell and King's AgriSeeds.

"What is a healthy soil?" Schrock asked the 100-plus attendees of the meeting. "It is well-drained, through tile or working it from the top down. It has moderate pH. It's alive. Biology drives a lot of this and impacts both draining and pH. Healthy soil has good structure. It's a part of biology. It also has growing carbon levels."

Schrock believes soil should improve every season and not just through adding organic matter. "Active cycling is the key," he said.

He cited a study by LaCanne and Lundgren in 2017 conducted in the upper Midwest, a similar climate to that of New York. Of 72 cornfields sampled, half were identified as "regenerative" and used multispecies cover crops, minimum till or no-till, integrated livestock grazing, and they eliminated pesticide use.

None of the fields used genetically modified seed. Some were certified organic but most weren't.

The rest of the fields used conventional methods, includ-

ing genetically modified seed and insecticides. Some were no-till but did not include cover crops. Schrock said that insect numbers were more than 10 times higher in the conventionally treated fields. The average grain yield in the regenerative fields was 29 percent lower, but profits were 78 percent higher.

"Overall, the study showed a correlation of profits with soil particulate organic matter rather than yield," Schrock said.

The study concluded that fostering biology generates soil organic matter. To enhance this process, farmers need to eliminate tillage, use cover cropping and cycle plant residue through livestock, he said.

Schrock said that biologically active soil "is a little bit warmer, which can benefit us in the Northeast" as it may slightly increase the growing season, enabling farmers to plant sooner.

"The destroyers of soil health are tillage, herbicides, fertilizer, low biomass and photosynthesis," he said.

Schrock said he's not convinced that no-till will work in every situation. He acknowledged that tillage does warm the soil, but cautioned farmers to "keep it as shallow as possible. If you deep rip, keep space between the rows."

Spraying can also negatively affect soil health. Schrock said that herbicides have nearly the effect of

plowing. "Don't be afraid to keep the rates down," he said. "Start making adjustments based on what the weeds are telling you through soil adjustment. I'm not saying you can do it 100 percent through soil, but it can help."

He also said to not buy fertilizer based on analysis alone, but also on how it performs.

Photosynthetic nutrients like nitrogen, magnesium, phosphorus, iron and manganese need to be balanced, he said.

"Any will do damage if these are in short supply," he said. "We need them in balance."

Schrock said farmers should do a forage analysis, not just a soil analysis, especially on livestock operations, to ensure the forage provides optimal nutrients.

"We want to gain organic matter," he said. "If we could increase the fat level up to 6 percent from 2 to 3 percent, we can feed a dairy cow without grain. If we get up to 8 percent, dairy cows won't touch grain."

Schrock said that fat in forage begins as sugar.

"The less energy the plant has to expend to grow its fruit, the more energy we provide plants, the more fat they put on," he said.

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Photo by Deborah Jeanne Sergeant  
Harold Schrock, Cayuga Ag/King's AgriSeeds, presented "Soil Health Relationships Impacting Farm Profitability" at a recent workshop.

## New Expo Center to be Largest Space North of NYC

The Great New York State Fair recently announced that a design-build contract has been awarded for construction of the 136,000-square-foot Expo Center at the New York State Fairgrounds.

Work has begun on the project, which is part of the state's plan to revitalize the nation's oldest state fair and fairgrounds.

The contract was awarded to HBP Joint Venture. The company is a partnership with Hueber Breuer Construction Co. of Syracuse and The Pike Co. of Rochester, with QPK Design of Syracuse providing the architectural design.

The contract was awarded following a selection process.

The State Office of General Services will manage the project, which will be completed in time for the 2018 New York State Fair.

The Expo Center will be the largest events facility north of New York City between Boston and Cleveland. It will feature 110,000 square feet of modern, flexible space with 4,000 retractable seats and a clear span of 250 feet. It can hold up to 500 10-foot-by-10-foot booths.

The remaining space will include rooms for event workspace, meetings and conferences, restrooms that will be available all year, a concession stand and catering space, and an outside balcony.

The center will be located in the heart of the 375-acre New York State Fairgrounds on space created during the first phase of fair construction. Renovations that began in 2015 made way for a full-service RV park, more space for the midway, open areas for fair programming and the

space now being used for the Expo Center.

The other Phase II project, managed by the state's Department of Transportation, will create more spaces while improving traffic flow and access to the adjacent highway.

The New York State Fair is the nation's first and oldest state fair.

These changes, along with an attractive new Main Gate, permanent RV park and other improvements helped the fair grow attendance more than 25 percent in two years to become the nation's third-largest state fair. Similarly, the investment in the new Expo Center is aimed at increasing the number of events year-round on the fairgrounds as well as increase the number of visitors to those events.

Estimated attendance at approximately 110 non-fair events in 2017 was well-above the level seen in 2016.

The contract with HBP Joint Venture is valued at \$62.6 million

with \$50 million included in the fiscal year 2017-18 state budget and the balance coming from the Upstate Revitalization Initiative. The 2017-18 state budget granted design-build authority to OGS to ensure the timely completion of the

Expo Center prior to the 2018 State Fair. The state will use a project labor agreement for construction, which will protect taxpayers by delivering the best quality work at the lowest possible price, and is open to all contractors.

The New York State Fairgrounds is a 375-acre exhibit and entertainment complex that operates all year.

A schedule of events is available on the fair's website.

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