



Miner Institute Participates in Statewide Manure Application Method Project

By Sara Zglobicki

Springtime on New York dairies is a busy time. Farmers are spreading manure, plowing, planting and more, hoping for a good growing season. Earlier in May, Jake Ashline, crop manager of the William H. Miner Agricultural Research Institute in Chazy, NY, worked with Anne Place, graduate student with the Nutrient Management Spear Program (NMSP) at Cornell University's Department of Animal Science, on a manure application field trial at the Institute. The study is part of Place's master thesis project. The project is set up to determine the impact of different manure application methods on nitrogen conservation and crop yield. It compares surface-applied manure with (1) no incorporation, (2) shallow incorporation with an aeration tool (Aerway), or (3) chisel incorporation.

As part of the project, Place takes soil samples before manure application, at planting, at sidedress time and at harvest. The soil is tested for soil moisture, pH, organic matter, soil organic N supply with the Illinois Soil Nitrogen Test (ISNT) and nutrient content. Additional 12-inch soil samples are taken when the corn is 6-12 inches tall. These samples are analyzed for the Pre-Sidedress Nitrate Test (PSNT). Soil compaction, residue coverage, late season stalk nitrate, yield and forage quality data are also collected.

"Farms are located at ten different sites throughout New York and we conduct the trial at each for two years to make sure we cover the diversity of soils and growing conditions," says Place. "Thanks to funding from New York Farm Viability Institute and the Northern New York Agricultural Development Program we were able to expand a single research station trial in central New York to a project with ten dairies throughout the state."

First Season Results

At the Miner Institute's trial location, rain caused saturated soil conditions for most of the spring, resulting in irregular emergence and generally poor stands. While ISNT results

indicated soil N supply potential was large, the saturated conditions caused this nitrogen pool to not be plant-available. The PSNT and late season stalk nitrate results were consistent with this -- both indicated low nitrogen availability. In addition to the challenging spring conditions, in late summer, a record storm crossed the farm. These challenges resulted in low trial yields and no significant differences among the application methods, different from results obtained at other sites.

"It is important to see how technologies work under different soil, weather and field conditions," states Quirine Ketterings, Associate Professor in Cornell's Department of Animal Science and director of the NMSP. "What we observed at the Miner Institute is that nitrogen addition will not help us overcome poor growing conditions. The early-season wetness at the field where we had the trial restricted emergence and root growth last year. The results also show the importance of doing these trials for more than one year. We hope this year will give us better growing conditions."



Jake Ashline, crop manager of the William H. Miner Agricultural Research Institute in Chazy, New York.

Though there was a challenging growing season last year, Ashline looks forward to this year's results while noting "the Aerway mixed topsoil quite well without plowing as deeply as a chisel or moldboard plow".

Commitment and Collaboration

Miner Institute, nestled in the fertile Champlain Valley of northeastern New York, is the former homestead of entrepreneur, engineer, and visionary William H. Miner. Once the country respite of this Chicago businessman, provisions from Miner's will converted the property to the William H. Miner Agricultural Research Institute. Since 1951, the Institute has taught scientific and environmentally sound agricultural practices through research, education, and outreach.

It's no wonder Ketterings contacted Ev Thomas, then agronomist at the Miner Institute, when seeking a location in the Northeastern region of New York State to host 2008-2009 manure management trials. "The Miner Institute is known for its dedication to the improvement of agricultural management for both farm profitability and environmental protection through research, education and extension." Ketterings noted.

Connections between the Miner Institute and Cornell University stemmed from the Institute's use of Cornell University soil analyses and recommendations since the 1970s. Collaboration with the NMSP followed soon after Ketterings joined Cornell University in 2000. "We have been working with the [Nutrient Management Spear] Program since its inception," noted Thomas, who recently retired from his agronomist position at Miner Institute. "The manure application study addressed a topic of interest for farmers and was easy to implement at the farm."

Key Partner in Sharing Results

Today, the 300-head Holstein milking herd, Morgan horse herd, and cropland of the Miner Institute provide ample opportunity to test some of the latest innovations in agriculture,

while the student intern educational programs, farmer meetings and newsletter supply a plethora of options to publicize research results.

The first NMSP trial hosted at Miner Institute was part of the statewide Starter Phosphorus Project. After seeing the results, the Institute changed its starter fertilizer practices for corn, which accounts for almost 50% of its cropland. "We found the results useful," commented Thomas. "We publicized the results widely in our newsletter and farmer meetings because it was the kind of information that farmers needed and would use."

"When meetings are held at the Miner Institute, most of the farmers in the area will attend. At our recent Corn Congress, there were over 20 farmers from Canada as well. Our trials are published in the farm newsletter or are otherwise published and made available to area farmers," Ashline, a former dairy farmer himself, explains.

When sharing success stories in agriculture concerning practices that may be different from what local farmers are doing, trust is key. This seems no problem for Miner. As Ashline commented, "Miner's has been here long enough that farmers know us, our crops and our cows. They know we work honestly, so we are well respected in the agricultural community and have gained their trust."

Ketterings concurs. "Farmer to farmer communication spreads the knowledge we gain on the farm much quicker than any other form of communication. This is why we try to conduct relevant projects with a large on-farm presence and that is also why it is important for us to work with institutes that have gained farmer's trust such as the William H. Miner Agricultural Research Institute."

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Cornell University
Cooperative Extension



The **Nutrient Management Spear Program** (NMSP) is an applied research, teaching and extension program for fieldcrop fertilizer and manure management on dairy and livestock farms. It is a collaboration among faculty, staff and students in the Department of Animal Science, Cornell Cooperative Extension, and PRO-DAIRY. Our vision is to assess current knowledge, identify research and educational needs, facilitate new research, technology and knowledge transfer, and aid in the on-farm implementation of strategies for field crop nutrient management including timely application of organic and inorganic nutrient sources to improve farm profitability while protecting the environment. An integrated network approach is used to address research, extension and teaching priorities in nutrient management in New York State. For more information on NMSP projects and extension/teaching activities, visit the program website (<http://nmssp.css.cornell.edu>) or contact Quirine Ketterings at qmk2@cornell.edu or (607) 255-3061.