



Cobleskill B.T. Student Joseph Foster Gains Leadership and Research Skills through NMSP Internship at Cornell

By Lisa Fields

Joseph Foster grew up on a hobby farm outside of Buffalo, NY. His experiences with livestock care, gardening and high school FFA activities inspired him to study agricultural science at SUNY Cobleskill where he focused on crops and soils, and took environmental courses for his Bachelor of Technology (B.T.) degree program.

Foster explained his choice of study. "Producing food is of the utmost importance to everyone on the planet. The fact that many areas of science are applied in an integrated way to farming fascinates me."

The SUNY Cobleskill B.T. program requires students to complete an experiential internship in their chosen area of interest. In the summer of 2010, Foster became the 6th SUNY Cobleskill B.T. intern with the Nutrient Management Spear Program (NMSP) at Cornell University. The program is directed by Dr. Quirine Ketterings, an Associate Professor in the Animal Science Department. Foster's choice was the result of attending the NMSP internship presentations of fellow students John Weiss and Hilary Bundick in the fall of 2009. He noted, "I was impressed by how involved they were in a variety of projects and the hands-on nature of the soil fertility research."

Ketterings commented on the connection between her program and SUNY Cobleskill's Plant Science Department. "We have worked with Cobleskill students since 2007. The students have all been eager to apply their knowledge from the classroom and motivated to learn the research procedures involved in both the field and the lab and our program has greatly benefited from our interactions. When I attended the seminars of John and Hillary, Joseph sat next to me and directly after the seminars, he approached me about joining us. His keen interest, solid course background, and previous internship with a fertilizer company made him a great addition to our program."

Dr John Kowal, Foster's internship advisor and then Plant Science Department Chair, emphasized the benefits to his students. "The internships with Quirine have all been very comprehensive. The students gain exposure to new activities that build upon what they've learned in their coursework at Cobleskill. They work very hard and reap big benefits."

Ketterings further explained, "The student interns get exposed to a wide variety of projects with field and laboratory work and writing and communication assignments. Our work with soil fertility and crop nutrient management need to be relevant to our stakeholders and our hope is that the interns develop a keen sense of how our work reflects that commitment."



Joseph Foster, 2010 Cobleskill intern with the Cornell Nutrient Management Spear Program.

Foster described his NMSP activities. "I traveled all over the state with Greg Godwin (NMSP Research Support Specialist). We set up field trials for the "Potassium for Alfalfa Project" that included thirty farm fields and for

the "Starter Nitrogen for Corn Project. I learned about research design, and I got really good at soil sampling!"

The "Starter Nitrogen for Corn Project" evaluated if manure can replace starter nitrogen fertilizer. In 2010, at fourteen project sites across the state, corn was grown with and without nitrogen in the starter. The current nitrogen status assessment tools, the Illinois Soil Nitrogen Test (ISNT), pre-sidedress soil nitrate test (PSNT), and end-of-season corn stalk nitrate test (CSNT), were used to determine nitrogen availability. Most of the study sites were on farms, and Foster was the primary communicator with the local Cornell Cooperative Extension (CCE) staff.

"It was eye-opening for me to learn how often the CCE and NMSP team members are in the field during the growing season. These are not professionals who just sit behind desks all day pushing paper." Foster added, "I loved the fieldwork. My biggest challenge was getting the details about the cropping history, manure and fertilizer applications from the farmers. They are super busy, so I had to be persistent without being a pest!"

After collecting and labeling the soil samples, Foster returned to the laboratory, where he learned to perform ISNT and CSNT analyses. Cobleskill B.T. graduate, and 2009 NMSP intern, Eun Hong, guided him through the steps. Foster quipped, "Eun is the ISNT master. She really put me through my paces, and it was a great learning experience for me."

Foster emphasized the value of being involved in the full spectrum of the research process. "It was a truly comprehensive learning experience and I made valuable connections with people, too."

An activity that connected Foster with agronomic professionals in the region was the 2010 Northeastern Branch of the Crop, Soil and Agronomy Society of America (NEBCSA) meeting, hosted in Ithaca by the NMSP. Foster assisted with the conference, which included oral and poster presentations as well as tours of research projects at Cornell and area farms.

One of the NMSP internship requirements is to write a factsheet, an experience that builds communication skills. Ketterings stated, "It's a collaborative assignment, so interns work with various professionals. The students gain technical writing skills and learn about the editorial process." Foster's factsheet was about the Web Soil Survey, the electronic version of the national soil survey of the Natural Resources Conservation Service (NRCS). His factsheet was reviewed by Dale Gates of NRCS, Greg Albrecht of the New York State Department of Agriculture and Markets (NYSDAM), and Karl Czymmek of PRO-DAIRY.

A second writing experience for Foster was developing a learning module on pH management, working closely with Patty Ristow, extension associate with the NMSP. His work is being included in a curriculum package formatted as interactive software for farmer advisors, farmers, and students.

Both Kowal and Foster stressed the value of experiencing the connection between farmers and CCE professionals in the research process. Kowal commented, "Whether students are entering the work force or going on to graduate school, they need a mix of skills. In my opinion, the combination of hands-on field work and lab analysis skills they gain as NMSP interns is the best experience we can offer our students." Foster summarized his experience. "My internship work opened my eyes to the connection between academia and agricultural science theory to the real world of farming. In the past I've questioned my ability to play a leadership role, and my work with NMSP taught me that I can succeed."

Foster is currently building a small greenhouse to produce vegetables, studying to become a Certified Crop Advisor and will join Laing-Gro Fertilizers Inc. in March of 2011.

(December 15, 2010)



Cornell University
Cooperative Extension



The **Nutrient Management Spear Program** (NMSP) is an applied research, teaching and extension program for field crop 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://nmsp.cals.cornell.edu>) or contact Quirine Ketterings at qmk2@cornell.edu or (607) 255-3061.