



Collaboration Ensures Starter P Project Success

Elaine Dalrymple is a believer. The New York Starter P Project “convinced me that there is no need for phosphorus in the starter when soils test very high,” said the district field manager for the Schuyler County Soil and Water Conservation District. Dalrymple is not the only convert to lowering or eliminating starter P in some situations. Her project collaborators – an Extension educator, a crop consultant and a dairy producer – believe enough in the project results to spread the word and make management changes.

“I saw a general trend toward reducing P or making P applications more targeted,” said Janice Degni, field crops Extension specialist with the South Central New York Dairy and Fields Crops Team. By her estimation, 50 or so farms in her area reduced or eliminated P-based starter on fields testing high or very high after seeing the project results.

Gary Gaige is one of those farmers. Convinced to participate in the Starter P Project by Dalrymple, the Alpine, N.Y., dairy producer was one of five cooperators Degni worked with. Gaige, who grows 550 acres of corn on soils that primarily test in the medium range for P, seemed genuinely surprised that there was no negative impact on yield and silage quality when eliminating or lowering P on high or very high fields, Degni said.

Since participating in the project, Gaige has changed his starter program by lowering P on fields closer to the dairy that have traditionally gotten more manure, he said.



Janice Degni, Team Leader and Field Crops Extension specialist with the South Central New York Dairy and Field Crops Team, participated in the Starter P Project for several years.

Mark Ochs, a central New York crop consultant who works with Gaige, kept a close eye on the project and its results. “When you’re making recommendations (to farmers), it’s important to have this kind of data,” Ochs said. As a result of the Starter P Project, he has backed off on P recommendations in those situations where soils test high or very high.

The Starter P Project began in 2000 when Karl Czymmek, PRO-DAIRY team member, worked with producers and Extension offices and with initial funds from the Natural Resources Conservation Service (NRCS) to do site-by-site comparisons on 10 farms. The trials compared strips that had received P to strips that did not get the P starter application.

“We thought there was an opportunity to reduce phosphorus fertilizer inputs on some fields without hurting yields, and we wanted to test this on farms,” said Czymmek.

Following that year, a grant from the Northeast Region Sustainable Agriculture Research and Extension (NESARE) program and support from the Northern New York Agricultural Development Program, Agway, Carovail, Pioneer Hi-Bred International Inc. and AgriCulver Seeds, allowed the project to expand, resulting in 65 on-farm and 13 research station trials conducted in 3 years.

Cooperation is key

Cornell University researchers, Extension educators from 12 county or regional offices, farmers, and in some locations Soil and Water Conservation District staff and private consultants, teamed up to accomplish a common goal – to identify P needs for optimum corn production, said Quirine Ketterings, leader of the Nutrient Management Spear Program (NMSP) and a faculty member in the Cornell Department of Crop and Soil Sciences.

“Because of this network approach, the project became a success,” she said. “We were able to generate a database with a large number of trials covering a great variety of soil types and growing seasons. And that allowed us to determine and demonstrate that we could reduce starter P use to 0 to 25 pounds of P_2O_5 per acre on high P soils, and eliminate it altogether for very high P soils without a penalty in yield or silage quality.

“It would have taken at least a decade for a single researcher to do just the trials, let alone the extension programming that we managed to do in three years as a group,” Ketterings added.

Collaboration was of particular value to Degni. “It allowed me to participate in cutting-edge

research in terms of what current needs are," she said. The project also provided her with opportunities to work directly with farmers, increasing her credibility with them.

Collaboration with Cornell staff and researchers provided Degni and other Extension educators with the tools needed to conduct the project – everything from fertilizer, supplies and plot stakes to helping hands at harvest.

Collaboration also led to annual field crops team meetings that provided training in such areas as statistical analysis, Degni explained. "It was really valuable to us. It created a team."

Collaboration gave Dalrymple the opportunity to work with professionals who do field trials, making it easier to set them up. "We were able to make use of each person's expertise," she said about the team.

Field trials provide a perfect opportunity to convince farmers that results are real under field conditions, Dalrymple added. "There's a lot of value to farmers to see suggestions aren't pie-in-the-sky. And it's another way to strengthen our relationship with farmers."



Mark Ochs, crop consultant, supplied scales to weigh silage trucks for overall plot yields.

Multiplier effect

Involving advisers, such as Ochs who has influence statewide, creates a powerful multiplier effect. He took the results of the project and ran with them. "I see data like that from the Starter P project and try to duplicate it elsewhere," Ochs said. "Since Gary's, I've done a number of projects on my own with farmers. I show them on their farms how their crops

react to lowering or eliminating P where soil tests indicate doing so.

"The main thing for me from a project like this is the multiplier effect," Ochs added. "It's applying what I saw and putting it on a lot of farms."

Ketterings and her team on the Cornell campus were diligent in disseminating information about the Starter P Project and its results. "I was really impressed with the material Quirine put out," Dalrymple said. "There was a summary card for farmers, a fact sheet that explained recommendation or findings, and posters, among other things."

Degni multiplied the project's results through newsletters, discussions at winter crop meetings and even radio broadcasts.

"Local offices took leadership for Extension programming for the project, making sure that the results of the project were distributed to a wide audience," Ketterings said.

Critical questions and results

"This was an important project because it addressed questions we had," Degni said. The project was timely because of the increased public and agriculture interest in water quality and Concentrated Animal Feeding Operations (CAFO), she added. "To me as an Extension educator, this was like a perfect project. It combined a public policy issue like water quality and applied practical research to address a real issue."

Farmers are particularly attentive to the Starter P Project message because of the impact on the environment and their profit. "Fertilizing based on soil test results benefits the environment and farm profitability," said Ketterings. "Calculations based on 30 farms showed that, depending on the acres of corn on the farm, cost savings on a whole-farm basis can be quite substantial."

Importantly, silage yield and quality was maintained. "The no-P plots tested the same as all the other plots for forage quality and nutrient value," Czymmek said. "So the changes in fertilization did not affect yield or forage quality."

This was a win-win situation for both farm profitability and the environment.

By Eleanor Jacobs



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The **New York Starter Phosphorus Project** was initiated to evaluate and demonstrate the value of P starter application on soils testing high or very high in soil P. Cornell University's Nutrient Management Specialist Program (NMSP) faculty and staff, PRO-DAIRY staff and Cornell Cooperative Extension educators worked together to conduct 65 on-farm and 13 research station trials between 2001 and 2003. The project was funded by a NESARE research and education grant (LNE02-173) and contributions from New York State Natural Resources Conservation Service, Agway, Carovail, Pioneer Hi-Bred International Inc., AgriCulver Seeds and the Northern New York Agricultural Development Program. Based on the results of these three years, we conclude that on sites that test *high* in P and have no manure applications planned for the season, no yield penalty is expected when P starter levels are *reduced* below 25 lbs P₂O₅ per acre. On sites that test *very high* in P or when manure is applied to high testing sites, there is a low probability of a starter P response, and P could be *eliminated* from the starter without a yield or silage quality penalty. For more information, visit: <http://nmssp.css.cornell.edu/projects/starterp.asp> or contact Quirine Ketterings at gmk2@cornell.edu or (607) 255-3061.