



Northern New York Agricultural Development Program

PRESS RELEASE

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Study Says NNY Corn Growers May Reduce or Eliminate Use of Phosphorus

Northern New York farmers may be able to reduce or eliminate phosphorus (P) applied to some cornfields, according to recently released results of a research study funded in part by the Northern New York Agricultural Development Program. Corn, a staple in a dairy cow's diet, is grown on 119,500 acres across Clinton, Essex, Franklin, Jefferson, Lewis, and St. Lawrence Counties, according to New York State Agricultural Statistics Service figures for 2001.

"Based on our research over the past three years, we conclude that phosphorus application can be reduced or eliminated without a loss of yield in corn production in fields testing very high in phosphorus or when manure is applied to those soils," says Dr. Ketterings of Cornell University's Nutrient Management Spear Program and the lead researcher on the project which began in 2000 to evaluate the value of phosphorus (P) starter applications for corn growing.

Karl Czymmek, senior extension associate in the Pro Dairy program and a key collaborator in the project adds, "On many dairy farms, where manure is often applied to fields year after year, phosphorus fertility has increased over time. As a result, more farms can be comfortable with taking advantage of this fertility bank."

On-Farm Trials in NNY

Research for the project was conducted at several farms in Northern New York and at W.H. Miner Institute in Chazy and Willsboro Research Farm in Essex County.

Tim Heiden hosted trials at his farm in Madrid in St. Lawrence County in 2002 and 2003. Heiden plants about 70 acres of corn each year to feed his 60-cow dairy herd.

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The Northern New York Agriculture Development Program selects and prioritizes research the results of which can be practically applied to farms in the six-county region of northern NY: Jefferson, Lewis, St. Lawrence, Franklin, Clinton and Essex Counties. For more information, contact Program Co-Chairs Jon Greenwood, 315-386-3231 or Joe Giroux, 518-563-7523, your local Cornell Cooperative Extension, or R. David Smith at Cornell University, 607-255-7286.

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“We hosted trials the past two years using different rates of fertilizer application from no phosphorus to three different mixes. This year I’m going to try going without phosphorus on two fields,” says Heiden. “We’ll see what kind of results we have when we harvest in the fall.”

Lewis County dairy farmer John Williams hosted a phosphorus trial at his Deer River farm, where he grows 150 acres of corn for a 150-cow herd. He feeds corn as thirty to fifty percent of his cows’ diet. Williams harvested about nineteen tons of corn per acre in 2003 and hopes to repeat that yield this year, using less phosphorus.

“This year I’m switching to a custom mix of less than 19-19-19 (the ratio of phosphorous, nitrogen and potassium in the fertilizer),” Williams says.

Carl Tillinghast, Agriculture Educator with Cornell Cooperative Extension of Franklin County, says some farmers in his county began applying less or no phosphorus a few years ago when lower milk prices began challenging the dairy industry.

“Some farmers who tend to be early adopters of new ideas tested their fields with less or no phosphorus and found that their yields remained good. On the flip side, in that corn is an expensive crop to grow, some farmers do not want to risk lowering their yields by using less fertilizer, including phosphorus. The results of this starter phosphorus study and seeing a neighbors’ success with using less phosphorus may encourage them to try going with less or without on their own crop,” Tillinghast says.

Less Use Benefits Bottom Line, Environment

“Being able to reduce phosphorus use and still maintain crop yield will have a significant impact on the bottom line. Eliminating phosphorus from the starter fertilizer application for cornfields could save \$12 to \$15 per acre. Even being able to reduce the normal use by half would be a significant savings,” says Ron Robbins, a past president of the New York State Corn Growers Association, a dairy farmer growing 1,100 acres of corn in Jefferson County, and a member of the farmer panel that provides direction to the Northern New York Agricultural Development Program.

The environment also benefits when less phosphorus is applied to farm fields. An excess of phosphorus in surface water sources, be it a lake or a municipal reservoir, causes algae blooms. Concern about farms as a nonpoint source of phosphorus in watersheds has prompted research across the U.S. on how to match farm needs with maintaining environmental quality and meeting mandated regulations.

Anita Deming, agriculture program leader with Cornell Cooperative Extension of Essex County, notes that Lake Champlain is one of the few areas in the U.S. that has a total maximum phosphorus loading requirement mandated by the state as a protective measure to prevent an excess of phosphorus reaching the lake and causing eutrophication. And, she adds that CAFO

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(confined animal feeding operations) farms and those under contract with the Natural Resources Conservation Service must follow requirements set by their Comprehensive Nutrient Management Plan and the State Department of Environmental Conservation.

“You need to know how much phosphorus you already have in your soil. This Starter Phosphorus study follows a 1995 study that tested more than 200 fields across Essex County,” Demings says. “Of those 200, about 21 dairy fields, especially those near barns, were supersaturated with phosphorus. If you have soil testing very high in phosphorus, let’s not waste money and possibly pollute the environment by purchasing additional chemical phosphorus fertilizer.”

Steve Mahoney, District Manager with the Clinton County Soil and Water Conservation District, points out that, for his area, the number one goal to protect Lake Champlain is to reduce phosphorus inputs.

“Almost all of Clinton County drains to Lake Champlain. Much of this land is agricultural acreage growing crops to feed dairy cows. Any reduction in phosphorus being imported into the basin could be potentially helpful in slowing algae and aquatic plant growth. Less starter fertilizer phosphorus might be a viable place for some farmers to cut back if fertility is already very high on their fields,” Mahoney says.

Dr. Michael Davis, an agronomist at Willsboro Research Farm where starter P trials were held, says, “It is critical if you have high phosphorus soils to minimize the potential for phosphorus movement off-farm and into the water, especially because we are so close to Lake Champlain. We want to be sure what we recommend is reasonable for reducing phosphorus for environmental reasons while optimizing the agricultural yields and economics. We believe these latest phosphorus study results are a win-win situation”

How to Know How Much

“Soil testing is the key,” says Dr. Ketterings. “Regulations for CAFO (confined animal feeding operations) require testing, at a minimum, every three years.”

Peter Barney, agronomy and field crop specialist with Cornell Cooperative Extension of St. Lawrence County, says “Each farm needs to develop its own nutrient management plan based on its particular circumstances, such as soil type, when the corn will be planted, whether or not manure will be applied to those fields.”

In 2004, as part of her work with the Northern New York Agricultural Development Program, Dr. Ketterings will continue research on Northern New York farms looking at a new method for identifying existing levels of another key agricultural soil and crop nutrient - nitrogen.

NNY Corn Growers

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“Corn responds to nitrogen in the starter fertilizer application more often than to phosphorus. We continue to recommend 20 to 30 pounds of banded starter nitrogen, even when phosphorus is eliminated from the starter fertilizer application,” Dr. Ketterings says.

For more information on the Starter Phosphorus Project, visit <http://nmssp.css.cornell.edu> or call your local Cornell Cooperative Extension office.

The Northern New York Agricultural Development Program conducts research projects which benefit regional farms. The Program is supported by the New York State Senate, through the long-term sponsorship of Senator James W. Wright, and by Senator Elizabeth O’C. Little, and Assemblyman Darrel Aubertine. The Program also receives support (funds, time, land, expertise) from Cornell University’s College of Agriculture and Life Sciences, Cornell’s Agricultural Experiment Station, W. H. Miner Institute, the six Northern New York Cornell Cooperative Extension associations, the U.S. Department of Agriculture, cooperating farmers, and others.

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Corn Growing in NNY (# of acres by county, NYS Agricultural Statistics Service)

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| St. Lawrence County: | 33,300 acres |
| Jefferson County: | 32,400 acres |
| Lewis County: | 19,500 acres |
| Clinton County: | 18,900 acres |
| Franklin County: | 13,100 acres |
| Essex County: | 2,300 acres |
| Region Total: | 119,500 acres |

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