



Northern New York Agricultural Development Program

FACT SHEET

3 in a series on Phosphorus

Developing a P Index for NNY Soils

Principal Investigator: Dr. Quirine Ketterings,
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Introduction:

Why a P Index for NNY?

In spring 2001, a revised national nutrient management conservation practice standard presented by the Natural Resources Conservation Service as Practice Standard Code 590 became effective. Code 590 offered three options for managing manure phosphorus:

- 1) using Land Grant guidelines, apply manure only if the soil test calls for phosphorus;
- 2) apply manure only if a Land Grant determined environmental soil test allowed phosphorus; or
- 3) evaluate characteristics of each individual field for the potential for delivering phosphorus (P) to surface water before application.

All farms with a CAFO (confined animal feeding operation) Permit and any farms getting state or federal cost share assistance are required to meet the terms of this standard.

Code 590 states:

The planned rate of phosphorus application shall be consistent with the New York Phosphorus Index (PI) rating. Manure applied shall be based on nitrogen rates on low or medium risk sites. Manure shall be applied based on estimated phosphorus removal rates on high risk sites. No manure shall be applied on very high risk sites as identified in the PI.

Why be concerned with phosphorus runoff? Excess P creates algae bloom in water environments. This bloom lowers oxygen availability for plant and animal life in the water thus causing degradation of the water environment. Reducing the runoff of P from farm fields into nearby waters helps reduce the nutrient's effect on algae bloom which, in turn, reduces degradation of the aquatic environment.

The revised national standard mandates field-specific assessment prior to manure and fertilizer application

Want to know more about phosphorus use?

The following Northern New York Agricultural Development Program Fact Sheets are available from your local Cornell Cooperative Extension office:

- Why is Phosphorus an Issue for New York State Farms?
- Trends in Soil P Status
- Developing a P Index for NNY Soils
- Limiting Phosphorus Use for Corn Growing in NNY Without Sacrificing Yield
- The Impact of Starter P on Corn Silage
- P Runoff: Rainfall Simulation Experiment Results

Researchers say the absence of still-to-be-determined knowledge may lead to a P Index that is either needlessly strict or too lenient

Two rainfall simulators - one for indoor use, one for outdoor use - have been specifically designed for this project and were first tested in fall 2004

To calculate a P Index rating for your farm:

Find a computerized spreadsheet to complete with your farm's data at www.nmsp.css.cornell.edu/pindex.

Methods

New York State's P Index is designed as a tool to help farmers and conservation planners assess a farm's risk vulnerability for P runoff and to assist with nutrient management planning. The Index cannot measure or predict actual phosphorus runoff.

The state's current P Index was developed by Cornell University faculty and staff, Cornell Cooperative Extension field staff, and agencies including the Natural Resources Conservation Service and the New York State Soil and Water Conservation Committee, with cooperation from private sector crop consultants and producers.

The working New York State P Index includes source factors:

- soil test P
- fertilizer application rate
- manure application rate
- application timing
- application methods, and

transport factors:

- soil drainage classification
- flooding frequency
- distance to stream
- stream type.

There are a number of factors that require additional investigation to continue to refine and improve the NY P Index (PI) to make sure that farmers have enough land to spread manure on and protect water resources at the same time.

Dr. Ketterings and Karl Czymmek, a Senior Extension Associate with Cornell's PRO-DAIRY Program, will work with Project Coordinator Jason Kahabka to conduct field and laboratory experiments to address the release of P from soils testing high for phosphorus and identified as having a high PI rating in Northern New York's three westernmost counties: St. Lawrence, Lewis and Jefferson.

Two rainfall simulators - one for indoor use, one for outdoor use at research stations and on cooperating Northern New York farms - were specifically designed for this project.

P Index Project Sponsors

The New York State P Index Project is funded by the Northern New York Agricultural Development Program Program and a 319 non-point source pollution grant from the New York State Department of Agriculture and Markets.

Principal Investigators

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Project Coordinator:

Jason Kahabka, Extension Associate, Nutrient Management Spear Program, Department of Crop and Soil Sciences, Cornell University.

Participating Farmers

Adams: Mike Burger, Butterville Farm, Hi Hope Farm;
Adams Center: Porterdale Farm; Canton: Jon Greenwood;
Carthage: John Williams; Waddington: Jessica Huang.

Participating CCE Educators:

Jefferson-Lewis Counties: Mike Hunter, 315-788-8450;
Lewis County: Jennifer Beckman, 315-379-5270; St. Lawrence County: Peter Barney, 315-379-9192

For more information on the P project,

contact: your local Cornell Cooperative Extension office;
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<http://nmsp.css.cornell.edu/publications/pindex.asp>;
or Karl Czymmek, kjc12@cornell.edu, 607-255-4890.

The Northern New York Agricultural 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.

To learn more about the Northern New York

Agricultural Development Program, contact Co-Chairs Jon Greenwood, 315-386-3231, or Joe Giroux, 518-563-7523; or R. David Smith, Cornell University, 607-255-7286. ♦

Developing a P Index: 3



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