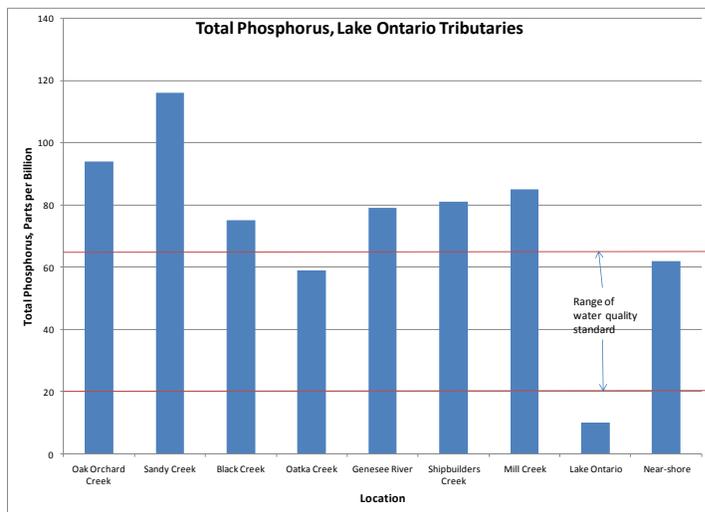




New York's Lake Ontario coastal waters and tributaries are a valuable resource for drinking water, recreational boating, fishing and swimming, tourism, and waste water processing, and a key asset in the economic revitalization of upstate New York.

We have all seen algae in the waters of this region. It can vary in intensity from a nuisance to a health hazard. Algae is a major cause of beach closings along the Lake Ontario coast.

High levels of phosphorus in that near-shore water are the source of these algal blooms. The phosphorus is a limiting nutrient in the growth of algae in aquatic environments. The phosphorus enters the shoreline from streams that discharge into it. The phosphorus in those streams comes from a variety of sources including: septic systems, wastewater treatment plants, cropland fertilization, industrial effluents and farm animal waste.



Studies conducted by SUNY Brockport suggest that phosphorus discharged into streams as far west as Oak Orchard Creek contribute to beach closings at Ontario Beach and Durand Beach in Rochester, New York. The chart here shows where phosphorus water quality is in some local streams and where it should be as shown by the range of the phosphorus water quality standards being considered.

Recent studies have shown that a portion of the phosphorus loading in the Oak Orchard and Black Creek watersheds comes from dairy farming activities.



Dairy Farmers Have Been Doing Their Share: Many best management practices (BMPs) have been implemented by farmers over the years to reduce the environmental impact of their operations. These BMPs vary in effectiveness but none can assimilate the entire phosphorus load applied to these watersheds. There is simply too much phosphorus which drives the need to eliminate some of the phosphorus from entering the watershed in the first place.



Prevent Phosphorus from Entering the Watershed: The Cornell Cooperative Extension of Delaware County has developed a process that seeks to reduce phosphorus and nitrogen excretions, accumulations, and losses from dairy farms by reducing feed nutrient imports and manure excretions, and increasing crop and milk nutrient exports. Proper implementation of this process called **precision feed management (PFM)** can reduce feed phosphorus intake by 25%, manure phosphorus excretions by 33%, and mass phosphorus balance by 50%.

PFM provides adequate, but not excess, nutrients to the animal and derives a majority of nutrients from home-grown feed through the integration of feeding and forage management.

What does it take to implement?: **PFM** is a process of farm management that revolves around a cycle of monitoring, assessment, planning and implementation. Monitoring involves on-farm records as well as feed and herd production testing. Periodic meetings of key farm advisors (feed, crop, cow, etc.) can accomplish effective assessment and planning of tactics for implementation. Achieving the day-to-day and periodic benchmarks detailed below on a continual basis will result in minimized manure nitrogen and phosphorus excretions, and whole farm mass accumulations as well as increased income over purchased feed costs.

Benchmark	Goal
Forage NDF (neutral detergent fiber) intake as % of body weight	≤ 0.90%
Forage as a percent of diet	≤ 60%
Home grown feeds as a percent of diet	≥ 60%
Ration P as percent of NRC (National Research Council) requirement	< 110%
Diet crude protein as % of DM (Diet dry matter)	< 16.5%
Milk urea nitrogen (MUN)	8 – 12
Cows dead or culled less than 60 DIM (Days in milk)	< 8%

Who is doing it?: The Cornell Cooperative Extension of Delaware County has been implementing the **PFM** to help make dairy farms more economically and environmentally sustainable through management of homegrown feed production and dairy cattle rations. They have implemented this BMP at over 42 farms and 3,800 cows. They have reduced farm phosphorus accumulations by over 60% while increasing milk production by 1,400 pounds per cow per year and reducing operating expenses by \$1.33 per hundredweight.

The Yates County CCE is working with 9 farms to implementing **PFM** with a goal to solicit 11 more farms to participate. They are currently working with milk co-ops to get the data they need. They plan four one-day workshops on PFM in 2013/14.

Who should I contact for more information?:

- Jerry Bertoldo, Genesee County CCE at 585-343-3040 (x133).
- Paul Cerosaletti, Delaware County CCE at 607-865-6531.
- Elizabeth Newbold, Yates County CCE at 315-536-5123
- David Balbain, CNY Dairy & Field Crops Team of CCE at 518-312-3592
- George Thomas, Center for Environmental Initiatives, 585-262-2870.

References: *The Delaware County Precision Dairy Feed Management Program*, P. Cerosaletti, Delaware County CCE, August 2008.

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