Global Partnership on Nutrient Management
BMP Case Study

Overview

Name: The Impact of Agricultural Best Management Practices (BMPs) on Downstream Systems: Soil Loss and Nutrient Chemistry Flux to Conesus Lake, New York, USA

Location/Terrain: Conesus Lake, NY, USA

Crop(s): Dairy and row crops

Nutrient(s): Total phosphorus (TP), soluble reactive phosphorus (SRP), nitrate (NO3), total Kjedahl nitrogen (TKN) and total suspended solids (TSS)

Rationale: Prevention of nonpoint source pollution (NPSP)

Issue(s) of Concern/Challenges:

The movement of sediment, nutrients, pesticides and other pollutants from land to surface or groundwater is causing nonpoint source pollution (NPSP) in the sub-watersheds of Conesus Lake, NY.

Practice Description:

Structural and cultural BMPs were implemented in six watersheds in the Conesus Lake. The structural BMPs included construction of manure lagoons, terraces, buffer strips and sediment control basins. The cultural BMPs used were cropping sequence, soil testing, fertilization rates and tillage practices.

Practice Objectives:

The BMPs are being used to change the transport of the pollutant to the waterways and to reduce pollutant inputs to the waterways through land management practices.

Outcomes:

The implementation of BMPs in Conesus Lake led to significant changes in soil and nutrient loss. The greatest discharge occurred in the largest watershed and the lowest discharge occurred in the smallest watershed. By the second and third year of implementation, there was a significant reduction in TP, SRP, NO3, TKN and TSS concentration and fluctuation. The largest percent reduction and the largest number of significant reductions in analytes occurred at the watershed that implemented both structural and cultural BMPs. At this watershed, there was an average percent reduction of 55.8% and reductions in the concentration and fluctuation occurred in four out of five analytes.

Significance:

This confirms that the use of structural and cultural BMPs can reduce the flux and concentration of nutrients in the stream water.

For more information, please contact Chuck Chaitovitz at chuck.chaitovitz@getf.org or visit www.gpa.unep.org/index.php/global-partnership-on-nutrient-management.

References:

For the full list of references, visit www.GlobalWaterChallenge.org/References4.pdf.