Fact Sheet

ADAPTING INNOVATIVE TECHNOLOGIES TO ELIMINATE PHOSPHORUS FROM DAIRY EFFLUENT

Special Project Grant

PROJECT LOCATION
Carroll County, Maryland

PROJECT LENGTH
Three years

PROJECT PARTNERS
Carroll Soil Conservation District, Maryland Dairy Industry Association, National Milk Producers Association, Pasture Systems Watershed Management Research—USDA Agricultural Research Service, Maryland office of the USDA Natural Resources Conservation Service, and Oklahoma State University

SPONSORS
Sponsored in part by a Conservation Innovation Grant from the USDA Natural Resources Conservation Service

Award Amount
$527,166

Project Description
This project will address alternative manure management options for dairy farms by demonstrating a system for removal of phosphorus in dairy manure effluent. Excess phosphorus threatens the health of rivers, streams and the Chesapeake Bay. Maryland's new Phosphorus Management Tool regulations may place limits on the amount of phosphorus used by farmers with high levels of residuals on their fields.

The project being studied involves installing additional solids separator equipment and a secondary process whereby phosphorus in manure will bind to a special filter called Phosphorus Sorbing Material (PSM). Some of the current technologies available for dairies only remove 60 percent of the phosphorus contained in dairy manure.

This project aims to refine the design parameters to reduce phosphorus content in manure by more than 90 percent, an amount needed to make the technology useful to dairy farms where phosphorus applications are restricted. If this technique is proven, the technology may be considered as a best management practice eligible for cost-share funding.

Project Goals
- Demonstrate the most cost-effective options to remove phosphorus while conserving nitrogen to create a favorable N: P ratio for continued crop production under more stringent nutrient application regulations.
- Create a phosphorus removal system that is adaptable to various dairy setups, while removing more 90 percent of the total phosphorus.
- Implement a full scale demonstration of an innovative technology to reduce phosphorus from dairy slurry.
- Evaluate and monitor the technology's effectiveness, utility, affordability and usability by dairy operations in Maryland and throughout the Bay watershed.
- Demonstrate technologies by conducting outreach events, farm tours, and producing educational materials.

Operational Benefits
- Improved manure management for dairy operations
- Improved water quality

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