

# Agricultural BMP's for the Bore Mill Run Watershed

Funded by [Pennsylvania's Growing Greener Program](#)



This project was developed to install agricultural best management practices (BMPs) on farms in the Bore Mill Run watershed. The watershed is located northeast of Newburg. Bore Mill Run is a sub-watershed of the Conodoguinet Creek. The BMPs that were designed were developed to improve the water quality within the watershed by improving nutrient management, manure handling, and reducing the nutrient runoff. An important part of this project was monitoring water quality data before and after the BMPs were constructed to measure the improvements in the water quality.

## **Why were Best Management Practices (BMPs) needed?**

The nonpoint source problem associated with some farms in this watershed came mostly from nutrient runoff from animal concentration areas and the runoff after it was applied to crop fields. These are common problems that occur because constructing a manure storage facility and barnyard runoff systems are very costly. When manure is applied in the winter, there is an increased chance that the nutrients in the manure and the manure itself will end up in a stream. Precipitation or snow melt can potentially cause the manure to be washed off the crop fields into streams if manure is applied on top of snow or frozen ground. Furthermore, manure applied in the winter can lose nutrients through volatilization, which wastes the nutrients in the manure instead of using them as a resource.

*Newly Installed Waste Storage Structure*



One of the BMPs that were implemented was a Manure Storage Facility. Utilizing a manure storage facility enables the farm operator to apply the manure at a time when the crops will readily use the manure and when weather permits. Conserving nutrients in this manner benefits water quality and allows the farmer to purchase little or no additional fertilizer which saves them money.



Before: Sediment and Nutrient Buildup in Pond



After: View of Pond Base Nutrient Removal

Approximately 1450 tons of nutrient rich material was removed from the pond during the cleanup process. A representative sample was tested to determine the actual nutrient content. \*\*From the sample analysis, the amount of nutrients removed from the water source could be determined.

| Nutrients Removed from the Pond |             |
|---------------------------------|-------------|
| Nitrogen                        | 19,616 lbs. |
| P2O5                            | 5,086 lbs.  |
| K2O                             | 18,017 lbs. |
| Ammonia N                       | 872 lbs.    |

\*\*Tested Analysis N-P2O5-K2O – Ammonia N: 13.5 – 3.5 – 12.4 – 0.6 (lbs. per ton)



Concrete flooring was poured at heavy use areas

Manure runoff from animal concentration areas (areas where animals spend a lot of time) also needed to be managed to prevent contamination. There were multiple BMPs that were installed including: barnyard roof runoff management, surface water controls, runoff controls, and heavy use area protection. Due to the large scale of the project, additional funds from the USDA EQIP program and the PA Chesapeake Bay Program were allocated to assist with project implementation.



*\*Before: View of Denuded Pasture*



*After: View of New Grass Buffer and Walkway*