

AGRICULTURE

Overview

According to a federal report, agricultural runoff is now considered the primary source of pollutants in streams and rivers in the United States. Techniques called Best Management Practices (BMPs) can help reduce agriculture runoff, but convincing farmers to implement them is not always easy. Pasture land is generally viewed as a potential food source for livestock, saving farmers the time and expense of supplemental feeding. Often, this land runs along and even crosses creeks and streams, encouraging livestock to spend a lot of time in the waterway. Fencing off significant portions of streambank pasture can be a difficult decision for a farmer to make. This is just one of the challenges to the health of the Schuylkill River Watershed, where approximately 37% of land use is farming, and there are 258 miles of agriculture-impaired watershed streams.

Pollutants carried in agricultural runoff include soil, nutrients, pesticides, bacteria, and other substances, all of which may increase water treatment costs and degrade aquatic habitats. Runoff from animal operations can contain manure, depositing high nutrient values and potentially disease-causing bacteria into the local waterways. Nutrients cause excessive plant growth and algae blooms in waterways, which depletes the water of dissolved oxygen as the plant materials die. Fish and other aquatic creatures cannot survive if dissolved oxygen levels are too low. The presence of pathogens in source water may increase the cost of downstream drinking water treatment. Agriculture runoff can introduce cryptosporidium, which may persist through water treatment and cause illness among immuno-compromised individuals.





Over 800 farms operate in the Schuylkill River Watershed, making priority project site selection a critical task for the Schuylkill Action Network (SAN) Agriculture Workgroup. This was accomplished using the Philadelphia Water Department's Evamix, a statistical tool used to rank farms based on established criteria for water quality. Once priority farms were identified, outreach to the farm owners was initiated by the Berks County Conservancy, the Berks County Conservation District, and the Penn State Cooperative Extension, and the installation of agricultural BMPs began. The BMPs included riparian buffer restorations to filter farm runoff before it reaches the streams, livestock exclusionary fencing to keep animals and their manure away from and out of the waterways, and crossings to allow limited access to streams as needed.



Through a partnership effort and funding from the Schuylkill Watershed Initiative Grant, Conservation Plans have been developed and BMPs have been implemented at more than 15 priority farms, including 32,000 feet of streambank fencing, 6,225 feet of native riparian buffer plantings, and the installation of 13 cattle crossings and alleyways. In some areas, entire tributary stream lengths were improved and protected by clustering projects on contiguous land parcels. In the process, five farm operations were certified for environmental excellence by the Penn State Cooperative Extension's Pennsylvania Environmental Agricultural Conservation Certification of Excellence (PEACCE) program.



These projects would not have happened without the collaboration of the SAN and the diligent hard work of the Agriculture Workgroup. SAN brought groups together that typically work independently of each other, thereby uniting available resources and broadening project scopes. The Berks County Conservation District brought expertise in BMP standards and strong ties to the farming community. As a nonprofit organization, the Berks County Conservancy was able to quickly implement on-the-ground activities. Aqua Pennsylvania provided monitoring support and the Reading Area Water Authority assists farmers with maintenance of buffer areas. Truly a "domino-effect", the collaboration of government, nonprofit, academic, and landowner groups not only led to additional funding sources, but also to additional project opportunities. For example, Albright college

students, eager to apply learned skills to help protect water resources, mapped agriculture project sites using Geographic Information Systems technology. In doing so, they created a valuable tool in measuring the cumulative effect of the broad-scale stream protection and restoration projects that will be used to determine future project sites.



The Schuylkill Watershed Initiative Grant is a \$1.15 million targeted watershed grant awarded by the U.S. Environmental Protection Agency for the completion of a suite of water quality improvement demonstration projects. The grant is administered by the Partnership for the Delaware Estuary and the Philadelphia Water Department, and through leveraging, provided \$3 million for water quality improvements, including over \$350,000 devoted to agriculture projects in the Schuylkill River Watershed.