

Impact

- Rain water no longer flows through the paddock on its way to the waterways, and in turn, no longer ponds there.
- The impact of pollution being carried to the local stream and the threat to horse health is minimized.
- This project represents a relatively simple, inexpensive and effective strategy for reducing contaminated runoff and maintaining the structural quality of a paddock area.



Before dry wells



After dry wells

Demonstration Horse Farm

In 2005, a team of Rutgers researchers affiliated with the Equine Science Center and several state and federal agencies began a multi-year collaboration. They sought to develop a demonstration working horse farm on the George H. Cook Campus that would use agricultural Best Management Practices (BMPs) to provide solutions to many of the problems facing farm owners and stable managers today.

Our researchers have identified numerous environmental issues, such as preserving water quality, proper nutrient and waste management, farm and pasture management, weed control, fencing, pasture rotation, and soil enrichment. These are just a few of the many facets of farm management that the project will address.

Goals of the Project:

- To develop and maintain the facility as a Demonstration Horse Farm by implementing BMPs that address pasture management, stormwater, and manure issues.
- To conduct educational programs at the Demonstration Horse Farm that demonstrate the implementation of BMPs to enhance and maintain pasture and water quality.
- To utilize the farm site to conduct research on new forage varieties.
- To provide learning experiences and educational programs for the public.

For more information, visit <http://esc.rutgers.edu>.

The project was funded by:



Best Management Practice Demonstration Horse Farm



Construction of Paddock Drainage (Dry Wells)



Situation

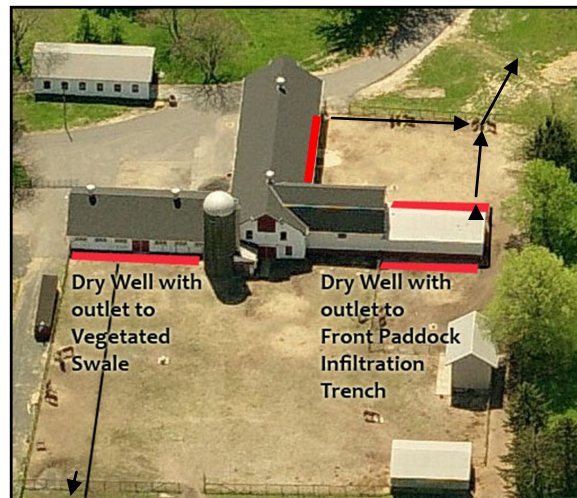
- Stormwater management is a growing concern for equine facilities.
- Regulators are concerned that stormwater runoff carries nutrients and pathogens from facilities into local streams and lakes.
- Paddocks that are adjacent to barns at the Demonstration Horse Farm were the main area of concern.
- The gutter/downspout system on the barn captured relatively clean stormwater runoff from the roof.
- Downspouts discharged the runoff onto the paddock where manure was present.
- Clean water ran through the paddock, mixing with the manure and carrying pollutants off site.
- Additionally, this system of managing roof top runoff made for a muddy paddock, which can have negative health implications for the horses.
- Rain water that landed on the paddock continued to wash soil and manure into a drainage ditch that discharged to a local stream, thereby threatening the health of this waterway.



Drainage problem

Action

- The Rutgers Cooperative Extension Water Resources Program designed an infiltration system to allow rain water from small storms to infiltrate into the ground.
- Rain water from larger storms is now conveyed around the paddock area, discharging this clean water to a drainage swale.
- The system was fairly easy to construct and relatively inexpensive. A three-foot wide, two-foot deep trench was excavated next to the barn.
- Six inches of clean $\frac{3}{4}$ inch stone was placed in the trench and four-inch diameter perforated PVC piping was placed on top of the stone.
- Additional stone was used to place six inches of cover on the pipe. The downspouts were connected to the PVC pipes in the trench. The system was covered with soil to assure that the top of the trench was brought back to existing grade so as not to endanger the horses.
- A PVC-Tee was used to connect the downspouts to the piping in the trench, which serves as an emergency overflow if the PVC piping in the trench ever gets clogged.
- Additionally, a clean-out was installed in case the system becomes clogged.



Construction



Excavating the trench



Pipes attached to downspouts and laid in trench; filling trench with gravel

