

Horse Stable Redesign for Water Quality and Animal Health Field Day

August 5th, 2017, Dayton, MN

About a dozen horse stable managers attended a field day on a cool summer Saturday morning to see how Joanie Stene of Foxwood Farm, along with County resources, redesigned a stable and pasture system for improved horse health, ease of management, and water quality.



*Karl Hakanson, U of M Extension
Hennepin County.*

Karl Hakanson, U of M Extension Educator for Hennepin County, started things off with a primer on runoff pollution. Hakanson emphasized key principles of runoff pollution; that water pollution comes from human activities on the land and that it comes from a multitude of small sources spread out over the landscape.

Says Hakanson, “This makes it much harder to recognize and control that “point” sources of pollution, such as from municipal or industrial discharges”. The other key to understanding runoff pollution is that it only happens during major rain events. His advice is to go outside in a pouring rain and see where the water flows across your property, adding, “The goal is to slow the runoff water down, spread it out, and soak it in”.



*Kirsten Barta, Hennepin Co., Joanie
Stene, landowner*

Kirsten Barta, Rural Conservationist for Hennepin County, explained how the County is fortunate to have a lot of water. Prior to European settlement, most of the county was covered by lakes, streams and wetlands. With the growth of the Twin Cities, water has become difficult to avoid when working with horses and other livestock operations.



Michelle DeBoer, U of MN

Barta explained that manure contains a lot of phosphorus. When phosphorus reaches the water it can cause algal blooms, some of which are toxic, and excessive plant growth. As those plants and algae die they decompose, which depletes oxygen from the water leading to fish kills and other problems.

She estimates an average of eight-pound reduction of phosphorus runoff annually from the Stene site improvements. While this may not sound like a lot, consider that one pound of phosphorus –the limiting nutrient in natural water bodies-- can grow 500 pounds of algae. Five pounds of runoff there, eight pounds here, 20 pounds from a field over there. Times 10,000’s of sites and 100,000 of acres. “It all adds up.”



Jim Kujawa (left), Hennepin Co.

Barta says that surface waters should be properly buffered from livestock and their access to sensitive areas restricted. Livestock trample delicate wetland plants and cause erosion into streams. A 30’ vegetated buffer paired with proper

manure and grazing management can produce significant benefits. “Water quality is everyone’s responsibility”, said Barta, “careful planning and management can keep our waters healthy for all to enjoy.”

Michelle DeBoer, U of M Equine Management PhD Candidate, stressed the multiple benefits to good pasture and manure management, including improved horse health and providing real cost savings in reduced feed and fertilizer purchases. DeBoer reviewed the benefits of rotational grazing and the importance of soil health. She said a composting set up, like Stene’s new three-bin system, facilitates proper manure management . Composted



Sturdy roof gutters with downspouts direct clean water away from lot underground to grass waterway.



Tiled waterway between pasture and lot (foreground) greatly improves drainage, filters runoff water before it reaches wetland.



Tiled, grassed waterway (right) below barn, horses fenced out, improved pasture (foreground).



Stene (left) explains how the waterway empties to a rock spill way to further settle any remaining solids in the runoff water before entering the wetland.



The new composting facility allows manure to be collected to prevent runoff and creates a dry, uniform material perfect for use on pastures.

manure reduces bulk and creates a near odorless, stable, easy to handle fertilizer and soil builder that can be used anywhere on the farm.

Jim Kujawa, Surface Water Resource Specialist for Hennepin County, discussed the process used by Joanie and Hennepin County staff to make her project a reality. How Joanie's desires to eliminate mud from her stable areas equated to water quality benefits for her and the public, making it a win-win situation.

Kujawa talked about the programs and procedures used to plan, design and construct the Stene water management system. This included costs associated with all of the components necessary from start to finish and the state and local cost-sharing programs available to Joanie to make it affordable for her.

Joanie Stene, owner of Foxwood Farm, spoke about the reasons she pursued fixing the water problem on her farm. Like a majority of farm owners in the area, she discovered that the farm she purchased was situated on a wet, poorly drained location. She has struggled with a muddy mess for years. Her main concern was the dry lot area. The water would collect and turn green with algae. Her horses were beset with recurrent abscesses, and one horse twisted his knee in the slop and had to be stall rested for two months.

A longer-term concern to Joanie, and part of her reason for going ahead with the project, was the untreated runoff that flowed into the Three Rivers Park District wetland just beyond the back pasture. Her family enjoys the wetland and she considers herself to be a conservationist.

The construction started last year during one of the wettest Augusts on record. Work slowed to a crawl. It took twice as long to finish as it was supposed to. The rains, however, proved to Joanie that she had made the right decision: the lot was never going to be dry!

Asked if she was glad she did these improvements, the resounding answer was YES! She is very pleased that she went ahead with this project. Her only regret was not doing it sooner.

Recently, as she looked out at the rain --and it rained for most of the previous week, her paddocks were dry and the pastures were in good condition. Joanie says, "I am thrilled that I no longer have to worry about the horses and the footing, or the wetland, with its myriad of wildlife we love to watch and photograph. Although not an easy decision to make originally, I would encourage anyone with similar issues to consider it."