

# Horsekeeping & Water Quality: A Horse Owner's Guide to Protecting Massachusetts Natural Resources

## Best Management Practices for Stables and Pastures

If you own horses, this brochure will show how you can play a part in protecting and cleaning up the Commonwealth's water resources. You will learn a few simple best management practices (BMPs) specifically designed for landowners with horses. Armed with this new information, you can join the thousands of citizens, businesses, and communities working together for a cleaner environment.

## Managing Waste and Protecting Water Quality

Manure management is a big challenge for horse owners, especially if you have several animals on a small parcel of land and no way of spreading or utilizing the manure. The following best management practices are designed to keep nutrients and soil out of waterways.

- *Store your manure properly.*  
Do not store unprotected piles of manure in places where runoff may enter streams, or flood waters may wash the manure away. Place a cover or tarp over the pile to keep rainwater out.  
Assistance is available through local conservation districts to design manure storage facilities to protect water quality. These structures usually consist of a concrete pad to protect ground water and a short wall on one or two sides to make manure handling easier.
- *Try Composting.*  
There are many benefits to setting up a small composting facility for your horse wastes. Composted manure makes an excellent pasture and garden fertilizer as long as it is not spread too heavily. What's more, it can be combined with yard waste and non-meat kitchen scraps. Horse owners should have no trouble giving away or selling properly composted horse manure.
- *Establish vegetative covers.*  
A vegetative cover placed around buildings or on steeper slopes can help minimize erosion and absorb nutrients while improving the appearance of your property. In addition to avoiding costlier erosion controls, vegetative covers will provide animals with better traction during wet or icy conditions. Examples of commonly used covers include a combination of grasses, vinca and shrubbery.
- *Keep animals out of streams.*  
Designed stream crossings provide a safe, easy way for horses to ford streams. Fencing encourages horses to use the crossing instead of the streambed to navigate streams. This will allow vegetation to stabilize stream banks and reduce sediment pollution. Contact

your local soil conservation district for assistance in designing crossings and other protection measures for your stream.

- *Manage water carefully*

Manage water within your pasture to control potential nutrient runoff. This may require diverting surface and roof drainage runoff water away from pastures or paddocks. Also, take care to conserve water. Turn the hose off when shampooing horses instead of letting it run, and turn the water on low when rinsing a horse down.

## **Keeping your Pasture Green**

Paddocks, riding rings, trails, and pastures are continuously disturbed areas, under constant physical stress from horses' hooves. Overgrazed pastures, in particular, expose patches of bare soil that can easily erode. Here are several management practices that can help minimize overgrazing in your pasture and help control erosion.

- *Select pasture sites carefully*

If you are establishing a new pasture, select a site that is well drained and located on high ground. Avoid flood plains, drainage areas, and tracts with long, steep slopes. Remember, it is illegal to alter wetlands in any way without proper authorization. Contact your local soil conservation district for assistance in selecting an appropriate site.

- *Inspect pastures for problems*

There are many ways to improve the performance of established pastures. For starters, conduct a visual inspection to pinpoint any existing or potential problems. Correcting erosion problems can sometimes be as simple as stabilizing a hill with railroad ties or moving a gate to high ground. Here are some common problems to look for:

- Patches of bare ground on slopes
- Small hills and gullies
- Sediment accumulations downslope

- *Test your soil*

Establishing and maintaining a dense, vigorous sod that will withstand the constant trampling of horses is no easy chore. An inexpensive soil test from the Cooperative Extension Service can help you determine the type and amount of fertilizer needed for good pasture growth. This will also help prevent nutrient runoff from over-fertilized pastures and can improve your horse's nutrition. Pasture soil should be tested every two or three years to determine fertilizer and lime needs. A comprehensive fertilizer program can then be developed. Call the Soil Testing Lab at 413-545-2311 at the UMass Cooperative Extension Service to obtain sampling and ordering instructions.

- *Reseed bare ground, rills and gullies*

Bare areas should be leveled and smoothed as best as possible before seeding. The best time to reseed is either late winter/early spring or late summer. Tall fescue is a good seed choice.

- *Minimize spotty growth*

Manure clumps are a major cause of spotty pasture growth and reduced grazing. On small parcels, manure should be picked up and removed regularly. Placing a piece of chain-link fence or other drag behind a tractor or truck can also break up manure. In addition to

helping your pasture, breaking up manure piles on a regular basis can reduce parasite infestations.

- *Mow pastures to the proper height.*

It is well known that horses graze selectively, consuming nutritious, young pasture grasses while leaving mature grasses and weeds to seed and spread. Proper mowing is the best way to control weeds and minimize spotty growth. Bear in mind that pasture grasses do best at about six inches.

- *Switch to rotational grazing*

Heavily overgrazed pastures offer little feed for horses and may cause colic if soil is ingested while grazing. Moving livestock from one pasture to another during the growing season can minimize overgrazing. In small pastures, horses should be rotated to a fresh area about every two weeks. As a rule, one or two acres of well-managed pasture can support one mature horse during the grazing season with rotation, while four or five acres without rotation will support only one mature horse for the entire grazing season.

- *Set up a paddock system*

A paddock system works especially well for landowners with limited pasture land (two acres or less). Paddocks or riding rings can be used for turnout when the pasture is excessively wet or dry, or when you want to reseed, fertilize, or rest the pasture. The paddock should be set up on high ground, using stone dust for the foundation. It should be surrounded with a hardy grass and, if possible, a trench to capture runoff. Riding rings, especially those being used as turnout areas, should be lined with a mixture of sand and sawdust to help protect the soil from erosion.

If you are unable to set up a paddock system, limit pasture grazing to a few hours each day during the hot, dry summer months.

## **Material Storage Safety Tips**

Many of the chemicals found in barns - formaldehyde, paints, hoof oils, and pesticides to name a few - require careful handling and proper disposal. When using these chemicals, be certain to follow these common-sense guidelines:

- Buy only what you need, and use what you buy.
- Treat spills of hoof oils like a fuel spill. Use kitty litter to soak up the oil and dispose in a tightly sealed plastic bag.
- Store pesticides in a locked, dry, well-ventilated area.
- Whenever possible, select less toxic chemicals.
- Protect stored fertilizer, lime, and pesticides from rain and surface water.

## **The Commonwealth's Horse Country**

Typically, when people think of Massachusetts, they think of rocky and sandy shores. But many horses reside in the state, and they can impact not only the rural areas in which they reside, but also the coast throughout a network of streams and rivers that link the two areas together.

With over 60,000 horses, Massachusetts has a significant horse population which can pose a threat to water quality. Soil from eroding pastures and rainwater runoff from unmanaged animal wastes carry bacteria, nutrients, and sediment to tributaries, and eventually the coast. Scientists have identified erosion and rain water runoff from urban, agricultural, and residential areas, as a major threat to the Commonwealth's water bodies.

## **Protecting our Natural Resources**

In 1993, the Massachusetts Department of Environmental Protection developed "A Clean Water Strategy" premised on the protection and management of water resources at the watershed level. In conjunction with this effort, the Executive Office of Environmental Affairs (EOEA) affirmed and broadened this watershed approach to incorporate the expertise and help of other EOEA agencies, such as the Department of Food and Agriculture. This collaboration of state agencies will offer watershed communities exciting opportunities to protect, enhance, and restore water resources within their towns and in cooperation with their watershed neighbors.

Watershed teams will conduct water quality surveys to determine the "health" of the water resources and watershed. This information will be shared with communities, and will lead to better protection and improvement of water quality in the Commonwealth's 27 watersheds.

For more information, or free assistance in planning or implementing the best management practices described in this brochure, contact your local Natural Resources Conservation Service or the UMass Cooperative Extension Service. Working together, we can make a difference in water resource protection in the Commonwealth of Massachusetts.

## **Agency Resources**

*Natural Resource Conservation Service (NRCS)* works with farmers on issues relating to the best use of our natural resources. Find them in the phone book under federal government, US Department of Agriculture, Natural Resource Conservation Service.

*Conservation Districts* also work with farmers and livestock owners, often for smaller, non-commercial places, on similar land management assistance.

### *Natural Resource Conservation Service Centers:*

Berkshire CD: 413-443-6867

N.E.N.W., S. Worcester CD: 508-829-6628

Hampden-Hampshire CD: 413-586-5440

Essex-Middlesex-Suffolk CD: 978-692-1904

Bristol-Plymouth-Norfolk CD: 508-295-5151

Cape Cod - Nantucket-Dukes CD: 508-771-6476

*UMass Cooperative Extension Service:* 413-545-4800

*Massachusetts Department of Environmental Protection*

Malcolm Harper, 319 Program Coordinator: 508-767-2795 or [malcolm.harper@state.ma.us](mailto:malcolm.harper@state.ma.us)