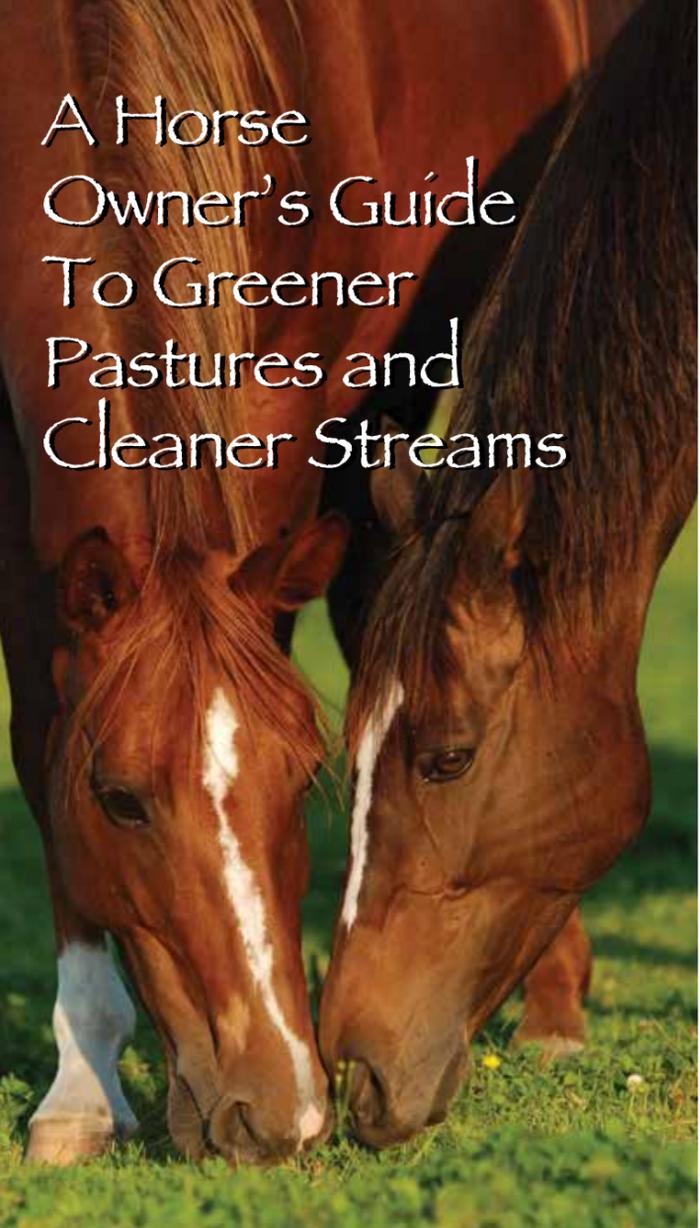


A Horse Owner's Guide To Greener Pastures and Cleaner Streams



Best Management Practices That You Can Use



Numbers to Know

For more information or free assistance in planning or implementing the best management practices described in this brochure, contact your local soil conservation district or the University of Maryland Extension office listed below. You may also contact the Maryland Horse Industry Board and the Horse Outreach Workgroup at mda.maryland.gov. Working together, we can make a difference for Maryland's natural resources and the Chesapeake Bay.

	Soil Conservation Districts	University of Maryland Extension
Allegany	301-777-1747, ext. 3	301-724-3320
Anne Arundel	410-571-6757	410-222-3900
Baltimore City		410-856-1850
Baltimore County	410-527-5920, ext. 3	410-887-8090
Calvert	410-535-1521, ext. 3	410-535-3662
Caroline	410-479-1202, ext. 3	410-479-4030
Carroll	410-848-8200, ext. 3	410-386-2760
Catoctin	301-695-2803, ext. 3	
Cecil	410-398-4411, ext. 3	410-996-5280
Charles	301-934-9588, ext. 3	301-934-5403
Dorchester	410-228-5640, ext. 3	410-228-8800
Frederick	301-695-2803, ext. 3	301-600-1594
Garrett	301-334-6950, ext. 3	301-334-6960
Harford	410-838-6181, ext. 3	410-638-3255
Howard	410-313-0680	410-313-2707
Kent	410-778-5150, ext. 3	410-778-1661
Montgomery	301-590-2855	301-590-9638
Prince George's	301-574-5162, ext. 3	301-868-9366
Queen Anne's	410-758-3136, ext. 3	410-758-0166
St. Mary's	301-475-8402, ext. 3	301-475-4482
Somerset	410-651-1575, ext. 3	410-651-1350
Talbot	410-822-1577, ext. 3	410-822-1244
Washington County	301-797-6821, ext. 3	301-791-1304
Wicomico	410-546-4777, ext. 3	410-749-6141
Worcester	410-632-5439, ext. 3	410-632-1972



Maryland Department of Agriculture
Office of Resource Conservation

50 Harry S. Truman Parkway
Annapolis, Maryland 21401
410-841-5865
mda.maryland.gov

MDA 15.17.15

Horse Country Is Bay Country

Maryland's horse country—it evokes images of gently rolling hills and grassy meadows—a far cry from the sandy shorelines that most people imagine as Chesapeake Bay Country. But Maryland's horse country is also Bay Country, closely linked by a dense, 17,000-mile network of streams and rivers that feed the Bay.

With more than 85,000 horses, Maryland has twice as many horses per square mile as Kentucky, Virginia, Texas and California. If not managed properly, this high density of horses can have a significant impact on water quality and natural resources. Eroding soil from over-grazed pastures and rainwater runoff from unmanaged manure piles carry excess nutrients and sediment to the Bay and its tributaries. Scientists have identified "over-nutritification" as a major contributor to the Bay's water quality problems.

The Bay Cleanup

The U.S. Environmental Protection Agency (EPA) has placed the Chesapeake Bay on a pollution diet by setting limits on the amount of nutrients and sediment entering its waters. These pollution caps, called the Total Maximum Daily Load (TMDL), represent the maximum amount of pollution that the Bay can receive and still meet water quality standards. The six Bay states and the District of Columbia are required to follow Watershed Implementation Plans (WIPs) outlining specific actions and strategies that they will take to achieve these pollution limits by 2025. If you own horses in Maryland, this brochure will show how you can do your part to help clean up the Bay and its tributaries and comply with Maryland's environmental regulations. Armed with this new information, you can join the thousands of farmers, citizens, businesses, and communities working together for a cleaner Bay.

Managing Manure and Protecting Water Quality

If you have eight or more horses or gross \$2,500 a year or more from farm income, you are required by law to file a nutrient management plan with the Maryland Department of Agriculture (MDA). Contact MDA, your county University of Maryland Extension (UME) office or soil conservation district (SCD) for a list of certified consultants who can prepare a plan for you. Beginning July 1, 2016, MDA will prohibit farmers from making nutrient applications between November 1 and March 1 on the Eastern Shore and between November 15 and March 1 on the Western Shore. Livestock manure deposited directly by animals is exempt from this requirement. Listed below are manure management tips and other best management practices designed to keep nutrients and soil out of waterways.

Store Your Manure Properly

Do not store piles of manure in places where runoff may enter streams or floodwaters may wash away the manure. Place a cover or tarp over the pile to keep out rainwater. Consider building a manure storage structure. These structures protect stockpiled manure from rainwater runoff until it can be used safely as a fertilizer. Manure storage structures usually consist of a concrete pad to protect groundwater and a short wall on three sides to make manure handling easier. SCDs provide free technical assistance to design manure storage structures that protect water quality.



Manure storage structure with Jersey walls and concrete floor.

Compost Manure

There are many benefits to setting up a small composting facility for your horse manure. Composted manure makes an excellent pasture and garden fertilizer as long as it's not spread too heavily. What's more, it can be combined with yard wastes and non-meat kitchen scraps. Horse owners should have no trouble giving away or selling properly composted horse manure. Contact your UME office or SCD for assistance in setting up a compost system that works for you.

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. Examples of commonly used covers include a combination of grasses, vinca (periwinkle) and shrubbery.

Keep Horses Out of Streams

Crossings provide a safe, easy way for horses to ford streams. Fencing encourages horses to use the crossing instead of the streambed to navigate the water. This allows vegetation to stabilize streambanks and reduces sediment pollution. Maryland's nutrient management regulations require horse owners to install pasture management practices under the guidance of SCDs to protect streams from livestock impacts. Contact your local SCD for assistance in designing crossings, alternative water sources or other protection measures for your stream.

Manage Water Carefully

Manage water within your pasture to control potential nutrient losses. This may require diverting surface and roof runoff water away from pastures or paddocks. Also, take care to conserve water. Use a bucket of water rather than a hose to wash horses.



Watering troughs provide a clean, reliable water supply for animals away from streams.

Additional Assistance

For more information on best management practices for horse owners, contact your UME office or local SCD. A technical expert will visit your farm and offer recommendations on ways to help improve water quality in your local stream and the Chesapeake Bay. You will also receive information on state and federal cost-share programs and new research and technologies in land and water management.



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, lead to exposed bare soil that can easily erode. Here are several best management practices that can help minimize overgrazing in your pasture and reduce soil 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 or streams in any way without proper authorization.* Contact your local soil conservation district (SCD) for assistance in selecting an appropriate site. Your SCD can help you determine the soil type. Pasture grasses and legumes must be matched to the soil's pH and fertility as well as its ability to hold moisture. These factors are critical to a long-lived and productive stand.

Inspect Established Pastures for Problems

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

- Areas of bare ground
- Small rills and gullies
- Sediment accumulations at the bottom of a slope

Test Your Soil

Establishing and maintaining a dense, vigorous pasture/grass that will withstand the constant trampling of horses is no easy task. An inexpensive soil test 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. Soil should be tested a minimum of once every three years to determine fertilizer and lime needs. With the results of a soil test in hand, a comprehensive fertilizer program can be developed to encourage growth of legumes such as white clover, as well as a range of hearty pasture grasses. Call your University of Maryland Extension (UME) office or SCD for a list of soil testing labs and sampling instructions. MDA requires a 10 to 35 ft. "no fertilizer application zone" adjacent to surface waters and streams. Contact MDA's Nutrient Management Program for guidance.



Periodic dragging can break up manure and minimize spotty growth.



A sacrifice lot gives stressed pastures time to recover.

Reseed Bare Ground, Rills and Gullies

Bare areas are usually sites that have been damaged by heavy animal traffic, surface water runoff or both. These areas should be leveled and smoothed before seeding. The best time to reseed is either late winter/early spring or late summer (end of August/early September). Consult your UME office or SCD for specifics.

Minimize Spotty Growth

Manure clumps are a major cause of spotty pasture growth. Horses will not graze in areas where manure is present. On small parcels, manure should be picked up and removed daily. Manure can also be broken up by dragging. In addition to helping your pasture, breaking up manure piles on a regular basis can reduce parasite problems.

Clip Pastures to the Proper Height

Horses graze selectively, consuming nutritious young pasture grasses while leaving mature grasses and weeds to produce seed and spread. Proper mowing is the best way to control weeds and minimize spotty growth. Pasture grasses do best at a height of 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 horses from one pasture to another during the growing season can help reduce overgrazing and increase pasture productivity. In small pastures, horses should be rotated to another pasture or paddock about every two weeks or when growth is three inches or less. 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.

Establish a Sacrifice Lot

When pastures are stressed from too much rain, extended dry weather, overgrazing or renovation activities, it is time to move your horses to a **sacrifice lot**. A sacrifice lot is an exercise paddock or riding ring that you don't expect to keep grassy. The area may have grass, wood chips, stone dust or just plain dirt. The intent is to "sacrifice" a small area of your property in order to give your pastures time to recover. Locate sacrifice lots on high ground, as far away from waterways as possible. Sacrifice lots near streams will need to comply with MDA setback requirements. Install buffers or other erosion control measures to prevent runoff. Consider adding a packed-down layer of bluestone to keep the area from becoming muddy and to help prevent injuries caused by slippery conditions.

