



A Horse Owner's Guide to:

- GREENER PASTURES •
- CLEANER STREAMS •
- HEALTHIER HORSES •

**Best Management
Practices** to Improve
the Health of Your
Horses and the
Chesapeake Bay

Dear Horse Lover,

When most people think about Maryland's horse country, they envision 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 nearly 100,000 horses, Maryland has a high-density horse population that—if not managed properly—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 nutrient and sediment pollution as major culprits in the Bay's decline.

This booklet describes best management practices that you can use to create greener pastures for your horses and cleaner streams that flow into the Bay. You will also find important information such as weed management and soil health along with key contacts for free technical assistance. Armed with this information, you can join the thousands of farmers, citizens, businesses, and communities working together for a cleaner Chesapeake Bay.

Sincerely,
Your Partners in Conservation:

*Maryland Department of
Agriculture*

Soil Conservation Districts

University of Maryland Extension

*USDA Natural Resources
Conservation Service*



THE CHESAPEAKE BAY CLEANUP

For more than four decades, Maryland has worked to restore clean water in the streams and rivers that feed the Chesapeake Bay. But more work is needed to rein in the Bay's top threats to water quality—excess nutrients and sediment runoff.

In 2023, Maryland announced it would embrace the latest scientific recommendations to improve our land and clean our waterways. If you own horses in Maryland, this booklet will show you how to comply with our state's environmental laws, protect natural resources on your farm, improve the health of your horses, and do your part to protect the streams and rivers that feed the Chesapeake Bay.



Front Cover Photo: Belgian Draught



Connemara Pony

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Maryland's



Nutrient Management Regulations

What Horse Owners Need to Know...

DO YOU NEED A NUTRIENT MANAGEMENT PLAN?



If you have 8,000 pounds or more of live animal weight or your farm generates at least \$2,500 in gross income, you

are required by Maryland law to manage your operation using a nutrient management plan that has been approved by the Maryland Department of Agriculture. Gross income from selling or boarding horses and other horse related and agricultural activities would count toward the \$2,500 threshold.

Nutrient management plans help farm operators minimize nutrient losses to the environment while balancing farm profits. Plans are developed by consultants who have been certified by the Department's Nutrient Management Program. Farmer-operators may become certified to write plans for their own operations through the Farmer Training and Certification Program. Information on certified consultants and how to become certified is available at mda.maryland.gov/HOW.

Costs to have a plan written for your operation vary. University of Maryland Extension plan writers offer this service free of charge. Private consultants usually base fees on acreage and complexity. Go to mda.maryland.gov/HOW for a directory of certified nutrient management consultants who can prepare a plan for your farm.

KEEP YOUR PLAN UP TO DATE AND SUBMIT YOUR AIR BY MARCH 1ST

To continue protecting water quality, you'll need to update your plan before it expires. Instead of submitting every plan update to MDA, an Annual Implementation Report (AIR) summarizing nutrient applications made during the previous year is required by March 1st of each year.

FOLLOW YOUR NUTRIENT MANAGEMENT PLAN

Your nutrient management plan will include instructions on how to manage and apply manure and other nutrient sources to fields as a crop fertilizer. Please read and follow your plan!

KNOW THE RULES

Maryland's nutrient management regulations include special requirements to protect waterways. Download *Farming with Your Nutrient Management Plan* at mda.maryland.gov/HOW for more information.

Stream fencing—To protect local waterways from livestock impacts, regulated operations are required to install pasture management practices under the guidance of the local soil conservation district. Their conservation specialists will help you apply for cost-share grants and financial assistance to install stream protection measures. A 35 ft. setback is required for sacrifice lots located near streams. See the *Numbers to Know* section on the back cover of this booklet for contact information.

Nutrient Application

Setbacks—Nutrient applications adjacent to streams require a minimum 10-foot setback when directed application methods are used or when animals are pastured. A 35-foot setback is required for broadcast applications and animal sacrifice lots. Hay may be harvested from the setback area. Follow the instructions spelled out in your nutrient management plan.

Winter Restrictions on

Applying Manure—All operations—regardless of size—are prohibited from applying manure and other nutrient sources to fields between December 16 and March 1. *Livestock manure deposited directly by animals is exempt from this requirement.*

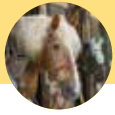


Horse operations with 8,000 lbs. or more of live animal weight or \$2,500 in gross farm income are required to follow nutrient management plans.



LEARN MORE...

Go to: mda.maryland.gov/HOW or call the Maryland Nutrient Management Program at 410-841-5959 to find out if you need a nutrient management plan.



Manage That Manure

A 1,000 pound horse produces 40-50 pounds of manure every day! Everyone who owns horses has a responsibility to protect local streams from manure runoff. Here are some best management practices that all horse operations—*large and small*—can use to keep manure and its nutrients out of waterways.

STORE HORSE MANURE PROPERLY

Do not store piles of manure in places where runoff or floodwaters may wash it away. 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 wall on three sides to make handling easier. Soil conservation districts provide free technical assistance to design manure storage structures. Depending on the size of your operation, cost-share funding may also be available. Contact your local soil conservation district to find out about federal and state cost-share programs.

TRY COMPOSTING

There are many benefits to setting up a small composting facility for your horse manure. Composting reduces the size of your manure pile by up

to 50%, kills weed seeds, fly larvae, and other pathogens, and makes an excellent pasture and garden fertilizer as long as it's not spread too heavily. Unlike raw manure, which consumes plant nutrients while decomposing, composted manure immediately provides plants and pasture grasses with essential nutrients.

TIPS FOR SUCCESSFUL COMPOSTING

- Begin by building a pile of manure and stall waste that is at least 3 ft. x 3 ft. x 3 ft.
- Cover the pile with a roof, tarp, or sheet of plastic. A cover keeps the pile from getting too wet in the winter and too dry in the summer.



American Paint



Composting is a great way to recycle manure resources.

- Keep the pile as damp as a wrung out sponge—no wetter or drier!
- Add air to the pile. Turn by pitchfork, with a tractor, or by inserting a few PVC pipes into the center of the pile like chimneys to increase airflow.
- When the pile gets as big as you can manage comfortably, start a second pile and allow the first to continue composting.
- Add garden waste and lawn clippings to your compost. Don't let grass clippings clump together—spread clippings out to allow airflow.
- Use only herbivore manure in your composting system. Do not use dog and cat feces that may contain pathogens.
- Don't place your composting structure where surface water can reach it.

Is it Finished?

Your compost should be ready to use in two to three months in warm weather. It will take longer to decompose in winter. Your compost is ready when the pile is half its original size and the material looks and feels like fertile garden soil.

Remember...

Compost should smell earthy, not unpleasant. It should be moist and crumbly. Properly composted manure kills parasites. Once manure is composting, odors and flies should not be present. If your compost is not heating up or has a bad odor, check to see if it is too wet or too dry and turn the pile more frequently.

BEST PRACTICES FOR COMPOSTED MANURE AND STALL WASTE

- Collect raw manure from sacrifice lots and stalls every 1-2 days.
- Apply the compost according to your nutrient management plan or University of Maryland Extension recommendations.
- Do not apply fresh, uncomposted stall waste directly to your fields. The microbes in raw manure draw nitrogen from the soil and can stunt plant or pasture growth until the manure composts naturally.
- Any bedding material, including sawdust/shavings, can be composted. Your local Extension office can provide the correct recipe.
- Don't let that manure become a mountain!

MORE REASONS TO MANAGE MANURE PROPERLY

- Be a good neighbor—manure problems can be very unpleasant for neighbors.
- Manure creates a breeding ground for insects, especially filth flies.
- Internal parasites hatch from manure as often as every three days.
- Manure left on the ground and in the loafing area creates conditions that may cause health problems for horses.
- Runoff from manure piles is a major source of nutrient pollution entering the Bay and its tributaries.

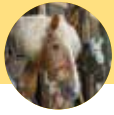


Manure storage structure with Jersey walls and concrete floor.



LEARN MORE...

Go to: mda.maryland.gov/HOW or call your local soil conservation district or Extension office listed on the back of this booklet for FREE help from the experts.



Give Mud the Boot

Mud can be a big problem whenever animals congregate, especially around gates, watering troughs, barn entrances, and feeding pads. If mud in these areas is making you and your horses miserable, follow these tips.

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. Always work to conserve water. Use a bucket of water rather than a hose to wash horses.

PLANT VEGETATIVE COVER

Planting a vegetative cover around buildings or on steep slopes can help minimize erosion and absorb nutrients while improving the appearance of your property. Commonly used covers include native grasses, shrubs, and groundcovers. It is important to reseed areas around watering troughs to maintain vegetative cover.

INSTALL A HEAVY USE PAD

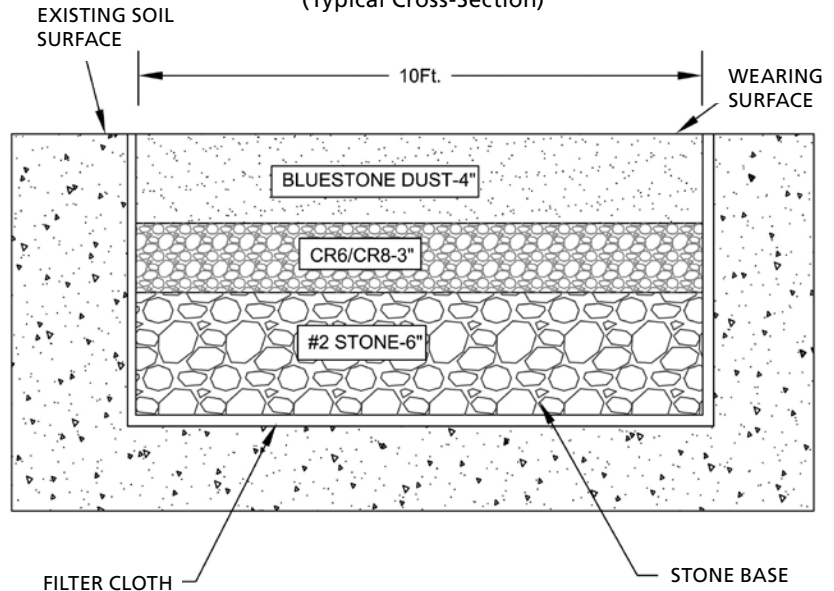
Horse farms may be eligible for state or federal cost-share assistance to install a concrete pad and other artificial surfaces to stabilize areas that

are disturbed because of frequent and intensive use by livestock. Contact your soil conservation district to see if you qualify. Smaller operations can install a heavy use pad using the following instructions.

DO IT YOURSELF—HOW TO INSTALL A HEAVY USE PAD

Stone and geotextile fabric are the main components of a heavy use pad. They allow water to slowly drain away without mixing with the soil.

Heavy Use Area Detail (Typical Cross-Section)



This heavy use pad is easy to install if you have a front loading tractor with a tooth bar that can do simple excavation work. If not, you may need to hire someone with the necessary equipment.

Don't skimp on the size of the pad. If you're installing a pad around a trough, make it at least the length of one horse on each accessible side of the trough. Install gutters and downspouts on all buildings to divert water away from the heavy use pad. Downspout extenders, gravel trenches, and low berms are easy ways to reroute water. Contact your local soil conservation district listed on the back of this booklet for free advice on safely rerouting runoff.

- Excavate the area to a depth of 8 to 12 inches.
- Level the site.
- Install class SE non-woven filter fabric. If the fabric isn't wide enough, refer to the manufacturer's recommendations for overlap.



Completed heavy use pad.



- Add 6 inches of #2 stone (2 ½ inches in size).
- Compact stone with a roller or drive over the pad with a tractor.
- Install 3 inches of CR6 or CR8 stone. (CR6 ranges in size from dust to 3/4 inch wide. CR8 is smaller.)
- Top with 4 inches of bluestone dust or wood chips.

- Compact and level stone.
- Inspect regularly and repair as needed.

GIVE MUD THE BOOT TO REDUCE...

- Hoof health issues
- Bacterial and fungal leg infections
- Fly breeding areas

PREVENT WATERBORNE DISEASES

West Nile Virus is transmitted to humans and horses by mosquitoes. Minimize standing water around your property to eliminate mosquito breeding areas.

- Correct drainage problems in fields and empty standing water in containers.
- Just one-half inch of water in a discarded can or container will support dozens of mosquitoes.
- West Nile Virus vaccinations are available for horses.
- If you suspect that your horse has been infected, contact your veterinarian.



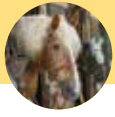
Gutter Talk

- **Divert clean rainwater away from animal confinement areas.**
- **Develop a roof runoff management system around buildings.**
- **Protect downspouts from animal and livestock damage—you can use heavy PVC pipe, electric fencing, or a permanent barrier.**



LEARN MORE...

Go to: mda.maryland.gov/HOW or call your local soil conservation district listed on the back of this booklet for FREE help from the experts.



Keep Your Pasture Green



Thoroughbred

Paddocks, riding rings, trails, and pastures are continuously disturbed areas, under constant physical stress from horses' hooves. Overgrazed pastures can lead to exposed bare soil that easily erodes. Your local soil conservation district can develop a grazing plan for your operation that is based on your pasture soils, acreage, and grasses. These plans are provided free of charge and include advice on the best way to use your land. Contact information for soil conservation districts is included at the end of this booklet. Here are some best management practices that can help you minimize overgrazing and reduce soil erosion right away.

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 for help in selecting an appropriate site.

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. Here are some common problems to look for:

- Areas of bare ground

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

SWITCH TO ROTATIONAL GRAZING

Heavily overgrazed pastures offer little feed for horses and may cause colic if soil is ingested while grazing. Maryland pasture grasses generally grow from mid-March through mid-October. Here is an easy way to manage your pastures based on grass height:

- Do not actively graze pastures until grasses reach six inches in height.
- Remove horses when actively grazed pasture grasses are reduced to three inches.
- Allow the pasture grass to regrow to six inches before returning the animals.

- Move horses from one pasture to another during the growing season to help reduce overgrazing and increase pasture productivity.
- In small pastures, horses should be rotated to another pasture about every two weeks or when growth is three inches or less.

Did You Know?

- **As a rule, one or two acres of well-managed pasture can support one mature horse during the grazing season with rotation.**
- **Four or five acres without rotation will support only one mature horse for the entire grazing season.**

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). Contact your local Extension office or soil conservation district for specifics.



A sacrifice lot gives stressed pastures time to recover and can help manage your horse's weight.

MINIMIZE SPOTTY GROWTH

Manure clumps are a major cause of spotty pasture growth. Most horses will not graze in areas where manure is present. On small parcels, manure should be picked up and removed daily. Dragging can also break up manure. 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 seeds 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.

Poor Pasture Conditions May Cause...

- **Colic and respiratory problems**
- **Dust problems**
- **Degraded water quality**
- **Poor nutrition which may result in a poor coat, weight loss, and parasites**



Periodic dragging can break up manure and minimize spotty growth.

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.

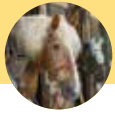
- The area may have grass, wood chips, stone dust, or just plain dirt.
- The intent is to "sacrifice" a small area of your property in order to give your pastures time to recover.
- Locate sacrifice lots on high ground, as far away from waterways and wells as possible.
- Sacrifice lots near streams will need to comply with the Nutrient Management Program's 35 ft. setback requirement.
- 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.
- Collect manure from sacrifice areas daily and place in a manure storage structure, if possible.



SCAN THE QR CODE with

your mobile device to watch a short video on Pasture Management.





Protect Local Streams



(CREP) provides qualifying landowners with attractive land rental payments and financial incentives to establish buffers that are 35 ft. or wider next to waterways. Ask your soil conservation district if you qualify for CREP.

There are many benefits to establishing buffers. Native trees, shrubs, grasses, and groundcovers planted along streams and around animal confinement areas help trap and absorb pollution-laden runoff before it reaches streams or groundwater. In addition, streamside buffers:

- Slow excessive flows and reduce erosion and soil loss
- Provide food, cover, and habitat for fish, birds, and wildlife
- Keep water cooler in the summer

Your local soil conservation district can provide free technical assistance to design stream protection measures for your operation.

Maryland’s nutrient management regulations require regulated horse operations to install pasture management practices under the guidance of local soil conservation districts to protect streams from livestock impacts. But it’s a good idea for all horse operations—large and small—to keep animals away from streams. Contact your soil conservation district for free help in designing stream protection measures for your operation.

- Cost-share assistance is available to install stream protection practices for operations with 8,000 pounds or more of live animal weight. Contact your soil conservation district for details.

INSTALL A WATERING TROUGH

Selectively placed watering troughs can make pasture management easier. Watering troughs prevent erosion and water pollution by excluding horses from streams, springs, and other environmentally sensitive areas. Ask your local soil conservation district about cost-share funding for this practice. Watering troughs:

- Provide a clean, reliable, easily accessible water supply for your horses.
- Allow you to divide large pastures into smaller units and rotate horses from one pasture to another to maintain good forage quality.
- Can help reduce erosion from messy or muddy areas resulting from horses having uncontrolled access to springheads or streams.
- Can reduce hoof problems by providing water in dry pastures.

KEEP HORSES OUT

Exclusion fencing and crossings prevent horses and other livestock from trampling streambanks, destroying vegetation, and stirring up sediment in the streambed.

- 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 waterway. This allows vegetation to stabilize streambanks and reduces sediment pollution.

PLANT STREAMSIDE BUFFERS

Maryland’s nutrient management regulations require a 10 to 35 ft. “nutrient application setback” adjacent to surface waters and streams. Contact the Nutrient Management Program for guidance. Maryland’s Conservation Reserve Enhancement Program



Arabian



MORE TIPS

- Use farming practices that reduce soil erosion and increase water infiltration such as filter strips and grassed waterways.
- Do not mix, apply, or dispose of weed control chemicals, used motor oil, or other toxic substances onto the soil or where they can leach into groundwater. Contact your Extension office or the Maryland Department of Agriculture for the best method of disposal in your area.
- Plant and maintain native trees, shrubs, and groundcovers along streams and around animal confinement areas to trap and absorb pollution-laden runoff before it reaches streams or groundwater.
- Locate livestock sacrifice areas away from streams and the downslope of your well.

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

Avoid excessive fertilizer and pesticide applications that may cause plant disease and become a potential source of groundwater and surface water pollution. Have your soil tested to develop a nutrient management plan that reflects the nutrient needs of your pasture (see next section).

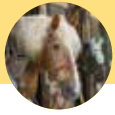


LEARN MORE...

Go to: mda.maryland.gov/HOW
or call your local soil conservation district listed on the back of this booklet for FREE help from the experts.

Haflinger





Know Your Soil



An inexpensive soil test can help you determine the type and amount of fertilizer needed for good pasture growth.

There is an old saying, “Take care of your soil, and your grass will take care of itself.” Soils vary widely, even across your pastures. So to begin, you must know your soil type, pH (acidity or alkalinity), and its capacity to hold water and nutrients.

TEST YOUR SOIL

Establishing and maintaining a dense, vigorous pasture/grass that will withstand the constant trampling of horses is not easy. 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, cut down on fertilizer costs, and can improve your horse’s nutrition. Test soil at least every three years to determine your pasture’s 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. Visit extension.umd.edu/resource/soil-testing-and-soil-testing-labs for a list of soil testing labs and sampling instructions.

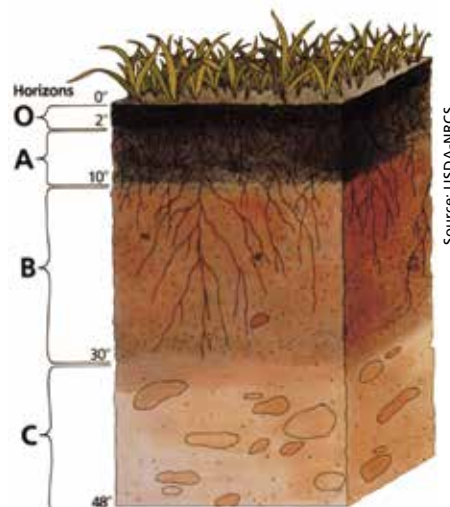
SANDY VS. CLAY—HOW WELL DOES YOUR SOIL HOLD WATER?

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. The amount of water that soil can hold will determine:

- When you can put your horses in the field in the spring
- Grass yields in the summer
- The filtering of animal and human wastes
- The amount of fertilizer and/or composted manure to apply
- The placement and durability of structures
- The presence of a wetland
- The rooting depths for plants and trees

A SOIL PROFILE

Soil is made up of distinct layers called horizons. This illustration shows the soil layers and their relative depths. Topsoil (Horizon A) is usually the darkest layer of the soil because it has the highest proportion of organic material. It is also the most susceptible



to erosion. It takes nature hundreds of years to make just one inch of topsoil. When topsoil washes away, it’s bad news for your pasture.

BEST MANAGEMENT PRACTICES THAT IMPROVE SOIL HEALTH

- **Reduced Till**—Use no-till or reduced tillage practices to reduce erosion, preserve the soil structure, encourage aggregation, and keep the soil healthy.
- **Forage Planting**—Over time, plant several forage varieties in your pastures for diversity to build healthy soils, manage erosion, and feed soil microorganisms.
- **Prescribed Grazing**—Manage grazing wisely based on pasture grass heights outlined in the *Keep Your Pasture Green* section. Remember, proper grazing builds healthy soils.
- **Manure Recycling**—Use manure to fertilize your pastures. Manure makes a great natural fertilizer and soil conditioner. It helps build healthy soils that are rich in organic matter and full of life—both above and below the ground.



LEARN MORE...

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Appaloosa



Control Weeds

Weeds spread quickly, so look for new weed patches on your property regularly. Act immediately to treat them by using one or more of the weed control practices listed below. Team up with neighbors to improve effectiveness. Be sure to correctly identify weeds for proper control. Remember, weed control alone is not enough. It is also necessary to modify the practices that caused weeds to become established in the first place!

LEARN TO SPOT WEEDS BEFORE THEY...

- Choke out desirable plants
- Reduce the productivity of your pasture and natural areas
- Spread RAPIDLY!
- Affect the health of your livestock

PREVENTION

Good land management and proper fertility will help keep desirable vegetation healthy and weeds under control. Buy quality clean hay, straw, and bedding. Look for weeds on your property and remove them promptly. Well managed grazing will inhibit weed establishment and encourage the healthy development of pasture grasses.

LIVESTOCK TRANSPORT

Because livestock and wildlife can easily carry and spread weed seeds on their coats or in their feces, avoid moving livestock from a weedy area to a weed-free area. Some weed species, if eaten, will make livestock sick.

MECHANICAL CONTROL

Mow weeds as needed before they go to seed. Pull small weed patches and weeds near streams by hand.



DID YOU KNOW?

Japanese stiltgrass (*Microstegium vimineum*) is an invasive weed that has become increasingly common in pastures and hayfields. This non-native weedy grass thrives in shady areas and along forest edges. Contact your local Extension office for treatment options.

CHEMICAL CONTROL

Herbicides can harm natural resources if used incorrectly, but are effective when applied in the right amounts and at the proper stage of plant growth.

If you hire a professional applicator, he/she must be licensed and certified by the Maryland Department of Agriculture's Pesticide Regulation Section. Trained personnel are issued identification cards from the Department and the business license number must be displayed on the service vehicle. Call 410-841-5710 or visit egov.maryland.gov/mda/pesticides to search a database of licensed companies and certified pesticide applicators.

If you are a do-it-yourselfer and decide to apply herbicides to control weeds:

- Ask your local Extension office for recommendations on herbicides for your problem.
- Buy only the amount of herbicide that you need, for the current weed problem.
- Read and follow all label instructions.
- Wear protective clothing specified on the label.
- Keep herbicides away from waterways.







- Do not spray in the morning when bees are active.
- Handle and mix all herbicides on a concrete slab to protect groundwater resources.
- Contain and clean up spills immediately.
- Be sure herbicides will not reach and kill desirable trees and shrubs.
- It is best to keep horses out of pastures when applying herbicides.
- Contact your county's Extension office or hazardous waste disposal program for information on proper disposal of unwanted herbicides.

MARYLAND NOXIOUS WEEDS

The Maryland Noxious Weed Control Law requires landowners to eradicate or control weeds designated as noxious on all types of land including:

- Johnsongrass
- Musk Thistle
- Shattercane
- Plumeless Thistle
- Canadian Thistle
- Bull Thistle
- Check with your local Extension office for more information.

SOME COMMON WEEDS THAT ARE TOXIC TO HORSES

Plant Species	Poisonous Parts	Poison Symptom
 EASTERN BLACK NIGHTSHADE (<i>Solanum ptychanthum</i>)	Green berries and leaves	Marked thirst, diarrhea, loss of appetite, inability to stand, irregular gait, coma
 BUTTERCUPS (<i>Ranunculus species</i>)	Fresh leaves and flowers	Excessive salivation, decreased appetite, colic, diarrhea
 POISON HEMLOCK (<i>Conium maculatum</i>)	All parts, especially leaves	Nervousness, twitching of muscles, salivation, lack of coordination, dilation of pupils, paralysis, birth defects, death
 WHITE SNAKEROOT (<i>Ageratina altissima</i>)	Leaves and stems	Marked trembling of skeletal muscles, lack of coordination, general body weakness, constipation, inability to swallow or stand
 PURPLE MINT (<i>Perilla frutescens</i>)	Leaves, stems, and flowers	The affected animal stands away from the herd, usually with its head down, breathing very hard and loudly, usually with froth around the mouth and nose; pneumonia, death
 WILD CHERRY (<i>Prunus serotina</i>)	Wilted leaves and young twigs	Nervousness, rapid and labored breathing, trembling or jerking muscles, blue color of mouth lining, bright red venous blood, bloating, bitter almond type odor in rumen gas, convulsions, and coma

Keep in mind that when sprayed with herbicides, wilting plants can be very tasty to horses. If you suspect that your horse has eaten a toxic plant, contact your veterinarian immediately for an emergency visit.



The leaves, buds and flowers of the hydrangea are toxic to horses. Do not plant too close to the fence or where horses can eat them.

BEWARE OF CERTAIN LANDSCAPE PLANTS

There are several common flowers, ornamental landscape plants, and trees that are poisonous to horses. Do not plant these species too close to the fence or where horses can eat them. For more information on plants that are toxic to horses, contact your local Extension office. If you suspect that your horse has eaten a toxic plant, contact your veterinarian immediately.

- Azaleas and Rhododendrons
- Black Locust
- Boxelder Maple
- Buckeye
- Cherry
- Clover (alsike, red and white)
- Daffodils
- Foxglove
- Hydrangea
- Milkweed
- Mountain Laurel
- Oaks
- Red Maple
- Tall Fescue
- Yews



LEARN MORE...

Go to: mda.maryland.gov/HOW or call the Maryland Department of Agriculture's Weed Protection Section at 410-841-5920.

Go the Extra Mile...

GET A FREE CONSERVATION PLAN





Contact your local soil conservation district for free assistance in developing a Soil Conservation and Water Quality Plan for your operation.


FREE CONSERVATION PLANNING

Did you know that there is a simple way to address all your of your farm’s natural resource concerns instead of tackling problems one by one? Consider getting a **Soil Conservation and Water Quality Plan**. These plans identify and prioritize environmental concerns for your entire operation. *They are developed **free of charge** by technical experts in your local soil conservation district* and will provide you with a blueprint for making environmental improvements as time, need, and money allow. A typical Soil Conservation and Water Quality Plan includes:

- Farm map
- Soil information
- Inventory of natural resources
- Engineering notes
- Recommended best management practices, including weed and pest management

Getting a conservation plan is a voluntary decision that is based on the needs and objectives of you, the landowner or operator. Best management practices proposed in these plans are also based on your input and needs. Conservation plans are “flexible” and may be altered as your operation or objectives change. What’s more,

soil conservation staff can help you navigate state and federal cost share programs that help cover costs to install many types of best management practices.

 **LEARN MORE...**
Go to: mda.maryland.gov/HOW or call your local soil conservation district listed on the back of this booklet for FREE help from the experts.


 **SCAN THE QR CODE** with your mobile device to watch a short video on how we can help small farms.



GET THE CREDIT YOU DESERVE!

Have you installed a conservation practice on your farm without the help of state or federal cost-share assistance? If so, we want to hear from you! Please let us know about any best management practices you have installed on your own to protect soil and water resources. Qualifying projects help protect local streams while ensuring that our state’s equine community gets the credit it deserves for its conservation work. These are the types of practices we are looking for:

- Cropland converted to hay or pasture
- Dry waste storage structures
- Barnyard roof runoff structures
- Stream fencing
- Alternative watering systems
- Composting systems
- Rotational grazing
- Heavy use areas, and more!

 **LEARN MORE...**
Contact your local soil conservation district listed on the back of this booklet to have your project evaluated.





NUMBERS TO KNOW

For more information or free assistance in planning or implementing the best management practices described in this brochure, contact the agencies listed.

Please visit mda.maryland.gov/HOW for quick access to all the links in this booklet or call for a more personal experience.

MARYLAND DEPARTMENT OF AGRICULTURE

Nutrient Management Program
410-841-5959

Plant Protection And Weed Management Section
410-841-5920

Pesticide Regulation Section
410-841-5710

Maryland Horse Industry Board
240-344-0000

Maryland's Soil Conservation Districts

Allegheny.....	301-777-1747, ext. 3
Anne Arundel	410-571-6757
Baltimore County	410-527-5920, ext. 3
Calvert.....	410-535-1521, ext. 3
Caroline.....	410-479-1202, ext. 3
Carroll	410-848-8200, ext. 3
Cecil.....	410-398-4411, ext. 3
Charles	301-638-3028
Dorchester	410-228-5640, ext. 3
Frederick County	301-695-2803, ext. 3
Garrett	301-501-5856, ext. 3
Harford	410-638-4828
Howard	410-313-0680
Kent.....	410-778-5150, ext. 3
Montgomery.....	301-590-2855
Prince George's.....	301-574-5162, ext. 3
Queen Anne's	410-758-3136, ext. 3
St. Mary's.....	301-475-8402, ext. 3
Somerset	410-621-9310
Talbot.....	410-822-1577, ext. 5
Washington County ..	301-797-6821, ext. 3
Wicomico	410-546-4777, ext. 3
Worcester.....	410-632-5439, ext. 3

University of Maryland Extension Offices

Allegheny.....	301-724-3320
Anne Arundel	301-226-7470
Baltimore County	410-887-8090
Baltimore City	410-856-1850
Calvert	410-535-3662
Caroline	410-479-4030
Carroll	410-386-2760
Cecil	410-996-5280
Charles	301-934-5403
Dorchester	410-228-8800
Frederick	301-600-1594
Garrett	301-334-6960
Harford	410-638-3255
Howard	410-313-2707
Kent	410-778-1661
Montgomery	301-590-9638
Prince George's	301-868-9367
Queen Anne's	410-758-0166
St. Mary's	301-475-4484
Somerset	410-651-1350
Talbot	410-822-1244
Washington County	301-791-1304
Wicomico	410-749-6141
Worcester	410-632-1972



Maryland Department of Agriculture

Office of Resource Conservation

50 Harry S. Truman Parkway
Annapolis, MD 21401

mda.maryland.gov/conservation
410-841-5865

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Portions of this booklet adapted from: *Tips on Land & Water Management for Small Farms & Livestock Owners in Western Washington*

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