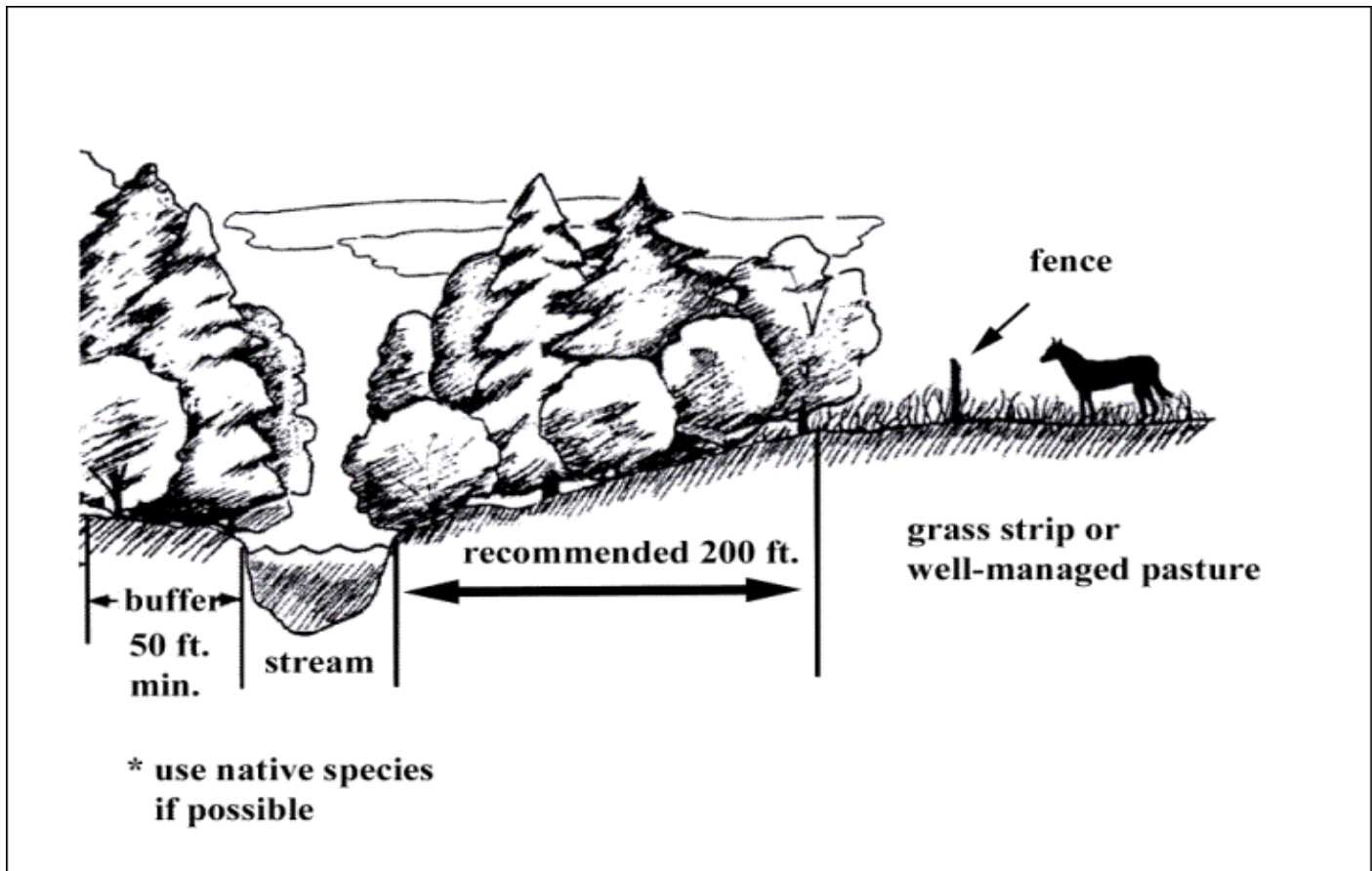




VEGETATED BUFFER STRIPS: SLOW THE FLOW TO PROTECT WATER QUALITY

Establishing vegetated buffer strips along lakes and streams is a simple and inexpensive way to protect and improve water quality on your property and in your community. Buffer strips consist of planted or naturally occurring vegetation, such as shrubs, trees, and plants. The vegetation serves as a filter, straining out sediments, nutrients, pesticides and other pollutants before they reach the water body. Buffer strips stabilize streambanks and shorelines, and prevent bank erosion and slumping. Runoff slows down and loses much of its erosional force when it passes through the strip of vegetation. Trees and shrubs along streams and lakes provide shade to keep water cool, improving habitat for aquatic organisms, and provide cover and habitat for wildlife. The wider the buffer strip, the greater its effectiveness. Strips between 50 and 200 feet wide may be required, based on soil type, size and slope of the pasture, and vegetative cover. A good rule of thumb is at least 50 feet wide, while keeping as much distance as possible between fencing and surface water.



Note: MA DEP regulations prohibit hitching or keeping animals within 100 feet of the bank of any public water supply reservoir, brooks, or streams tributary to a reservoir.

This information is available in alternative format by calling our ADA Coordinator at (617) 574-6872.

Produced by the Massachusetts Department of Environmental Protection, Municipal Services Section, Western Regional Office, 436 Dwight Street, Springfield, Massachusetts, 01103. 413-784-1100, TDD 413-746-6620. October 2000.

Don't be discouraged if you have very small areas to work with. Any buffer strip is better than none at all!

Establishing a Buffer Strip

Buffer strips consist of planted or naturally occurring vegetation, such as trees, shrubs, legumes, or grasses. Establishing a natural buffer is the simplest and least expensive option. Simply determine how much land area you can devote to the buffer, and commit to stop mowing or removing vegetation from the area. With a little patience, plant material will naturally become established and grow. Plants establish themselves in succession, and it will probably take several years for trees and woody shrubs to develop in your buffer strip. The advantage of a natural buffer strip is that the native plants that do become established are adapted to local conditions, require no maintenance, and are a natural part of the ecosystem.

If the vegetation has been removed, or you wish to accelerate the development of your buffer strip, plant horse-friendly native trees and shrubs. Check with your local cooperative extension service, veterinarian, or consult a field guide of toxic plants to determine what is safe for your horses. If you can not restrict horses from the buffer strip, you may need to fence off saplings to prevent horses from nibbling tender leaves and shoots. While the trees and shrubs are being established, plant grasses and legumes to hold and stabilize the soil.

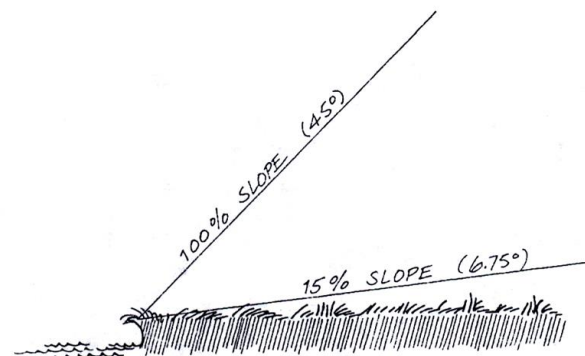
Regardless of what type of buffer strip you decide to encourage on your property, remember to:

- Keep as much distance as possible between your field boundary and surface water.

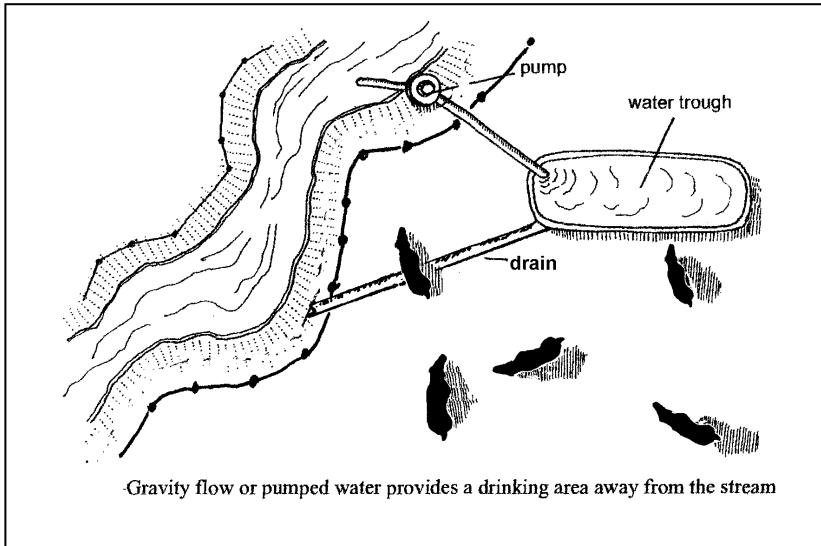
Recommended Buffer Strip Widths

Based on Slope

Slope of Land (%)	Minimum width of Buffer Strip (feet)
0	50
5	70
10	90
15	110
20	130
25	150

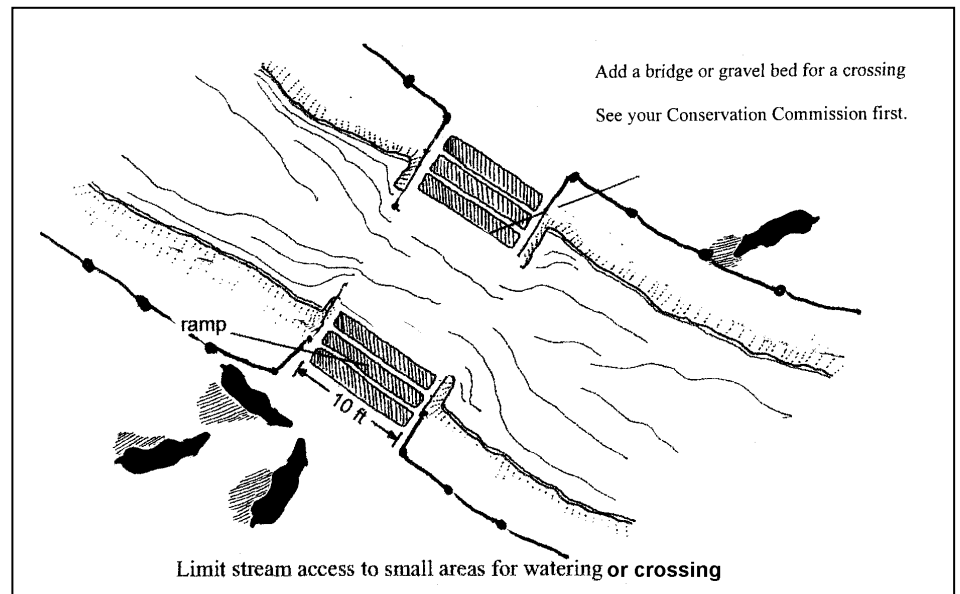


Source: Finley 1987 in *Establishing Vegetative Buffer Strips Along Streams to Improve Water Quality*. Pennsylvania State University. 1996.



- If at all possible, restrict access to streams and lakeshores. Provide alternative water sources, such as filling a stock tank with a garden hose or installing an automatic waterer, to keep horses out of the stream.

- If horses must rely on stream or lake water for drinking, limit their access with fencing and construct a ramp fence system. Note: Contact your Conservation Commission first.



What else can you do to protect and improve water quality?

- Minimize hard or impervious surfaces on your property, and maximize pervious surfaces to encourage infiltration and reduce runoff.
- Maintain vegetation, preferably trees and shrubs, along steep slopes, drainage channels or ditches, and around all bodies of water.
- Do not apply manure in the buffer strip! Maintain a distance of at least 100 feet between areas of manure application and the nearest surface water body.
- Establish other grassed or vegetated strips between fields. These vegetated strips will intercept pollution, slow down the flow and velocity of runoff, and encourage infiltration.

References and Other sources of Information:

The Buffer Handbook: "A Guide to Creating Vegetated Buffers for Lakefront Properties." Developed by Phoebe Hardesty, Androscoggin Valley Soil and Water Conservation District and Cynthia Kuhns, Lake and Watershed Resource Management Associates, with funding provided by the U.S. EPA and Maine DEP. 1998

Establishing Vegetative Buffer Strips Along Streams to Improve Water Quality. (1996) Pennsylvania State University College of Agricultural Sciences. Ordering information online at <http://pubs.cas.psu.edu/Pubs>

Horse Owners Field Guide to Toxic Plants. (1996) by Sandra Burger and A. P. Knight. Breakthrough Publications.

<http://neirtnt.ct.nrcs.usda.gov/horse>

This link takes you to the Connecticut Horse Environmental Awareness Program (HEAP). The site contains a series of fact sheets, and educational resources on best management practices (BMPs).

<http://www.extension.umn.edu/distribution/naturalresources/DD7540.html>

"Manure and Pasture Management for Recreational Horse Owners", a series of web sites by the University of Minnesota Extension Service. Includes plans for building a composting bin, detailed discussion of the composting process, information on pasture management, and an extensive list of additional sources of information.

<http://members.aol.com/arblickle/tipsheets/>

This link takes you to Horses for Clean Water, a non-profit environmental education organization based in Washington state. The site has several fact sheets on a number of manure related topics including composting, eliminating mud, and pasture management. A page called "Know Your Resources" lists many other useful web sites, programs and publications, including where to find pest control products, fly masks, bat houses, books, pamphlets, and newspaper bedding. Contact Alayne Blickle, program coordinator, at 425-432-6116 or via email at ARBlickle@aol.com for more information.

<http://ceinfo.unh.edu/aahr1050.pdf>

This link takes you to the online version of the Good Neighbor Guide for Horse-Keeping: Manure Management, an excellent publication developed by the University of New Hampshire Cooperative Extension Service, New Hampshire Department of Environmental Services, and Natural Resources Conservation Service.

<http://www.wisc.edu/farmasyst/worklink.html>

Links to Farm and Home assistance addressing farm management and environmental management for homeowners.

<http://www.nrcs.usda.gov>

The Natural Resources Conservation Service is a Federal agency that works in partnership with the American people to conserve and sustain our natural resources.

Massachusetts Department of Environmental Protection

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