UNIVERSITY OF MINNESOTA
EXTENSION

Equine Fencing Options

Krishona Martinson, PhD and Jennifer Earing, PhD
University of Minnesota

Horse Program

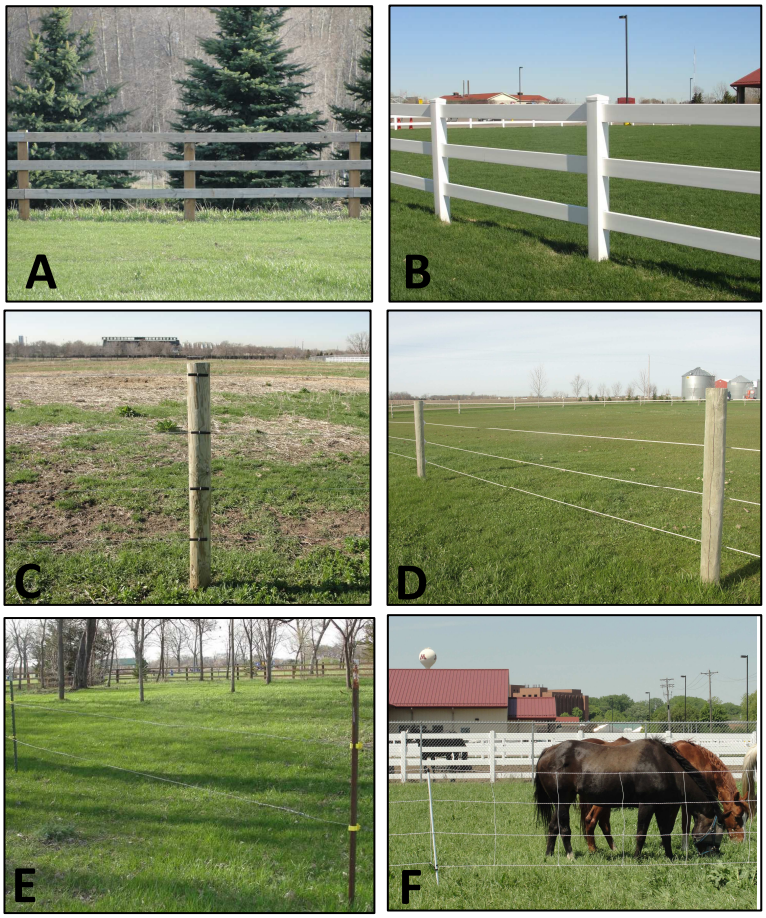
Providing research-based information to Minnesota Horse Owners

Deciding on a fence is a major decision and investment for many horse owners. Purpose, budget, safety, installation, containment, durability, and appearance are all important factors to consider. There is no ideal fence for all horse owners or farms. Fence selection will likely vary according to individual needs or the potential uses around the farm.

Planning. The best materials and the best intentions are worthless if the fencing system is not properly planned. Design a pasture and paddock system that will centralize access to the barn, work areas, and feed storage systems. A centralized location will improve efficiency and management and will reduce labor and operating expenses. Future expansion opportunities should be considered. Design fences with long term goals in mind so that they do not have to be torn down and redesigned if expansion is needed. Gates should be placed near corners closest to the direction of travel. Gates should be large enough to get equipment and several horses through at once. Avoid placing gates in low areas where water may pool. Dry lots, or sacrifice paddocks, provide an opportunity to move horses off the pasture during adverse weather events (excessive rain or drought), or times of pasture rest. Sacrifice paddocks can vary in size but should provide a minimum of 400 square feet per horse. The size should be increased proportionally as the number of horses increase.

Budget. A fence can be a major investment, and should include the cost of maintenance. Some fences may have high initial costs but low maintenance costs. Conversely, some have lower initial costs but high maintenance costs. Owners should consider affordability both initially and in the long term and choose the fence that offers the best features within an acceptable price range. Quoting fence prices can be difficult; however, Table 1 discusses different fences, and cost and maintenance estimates.

Figure 1. Common equine fencing options including A, wood fence (post and rail); B, PVC (post and rail); C, high tensile wire; D, high tensile rope; E, electric wire; and F, temporary.



Safety. A properly installed and maintained fence should provide safety for both horses and people. There are several factors to consider in fence safety. First, a horse has limited eyesight. Therefore, a fence should be highly visible, especially to running or startled horses. Second, it must be solid enough to repel a running horse yet flexible enough to

prevent injury. The fence should not have sharp edges (no barbed wire) or projections such as nail heads or wire ends. Spaces between boards, rails, and wire should be large enough for a head to hoof to pass through without becoming stuck, or small enough to prevent penetration. Right angles or 90° corners tend to increase injury potential compared to gradual turns in a fence line.

Table 1. Fence types, costs and longevity.

Fence Type	Cost*	Maintenance	Expected Life (years)	Installation Labor Required*
Wood (post & rail)	High	High	15-20	High
PVC (post & rail)	High	Low to Mod	20-30	High
Steel Pipe	High	Low	20-30	High
High Tension Wire	Mod to Low	Moderate	20	High to Mod
Electric Tape	Mod to Low	Low	10	Low
Electric Wire	Low	Low	20-25	Mod to Low
Temporary	Low	Low to Mod	< 10	Low

* Depends on post spacing. Mod = moderate

Installation. Do you have the time and expertise to install the fence yourself, which will save money on installation costs, or do you need to hire a professional contractor? Improperly installed fences will be less effective with higher maintenance costs. Make sure you have the expertise, time, and equipment to properly install the fence yourself, or that the contractor you hire has previous experience installing the fence.

Containment. The priority of all fences is containment. Horse fencing should be tall enough to discourage jumping. Perimeter fences should be approximately 5 feet high while dividing fences should be at least 4 feet 6 inches high. Appropriate fence heights will depend on horse breeds as well (i.e. warmbloods vs. ponies).

Durability. How long a fence lasts is a function of material type, construction of the fence, weather exposure, size and aggressiveness of horses contained, and how well the fence is maintained. Even good fences can fall into disrepair if problems are not identified and corrected in time. Crowded conditions in an overstocked pasture or paddock can lead to damage due to constant pushing on the fence. With post and rail-type fencing, placing the rails (boards) on the inside of the paddock will help the fence withstand pushing from horses. Weather conditions can play a critical role in choosing a fence material as well. Fences well suited for some climates may not be advisable in others. Check manufacturers' recommendations, independent product test results, and if possible, consult other horse owners who are currently using the fence in your region. Also, keep in mind the difference between permanent and temporary fencing. Temporary fencing can be less expensive and laborious to install, but usually requires more frequent maintenance or replacement. Temporary fencing should not be used as the perimeter fence but is ideal when dividing paddocks during rotational grazing.

Appearance. The appearance of the fence should be the final consideration. An attractive and well maintained fence promotes pride in ownership, increases property value, and gives an impression of professionalism. Consider placing more expensive, eye appealing fences in the well-traveled areas and less expensive fences in other areas. However, the more attractive fences must also be functional. Never let appearance alone lead you to choose a fence that doesn't meet your needs.

Fencing Materials. When choosing a fencing material, consider the pros and cons of each.

Wood Fence (post and rail):
Advantages: Appearance; containment; and safety.

Disadvantages: Wood fencing requires the most maintenance. The fence should be checked periodically for any hardware that might be sticking out. Wood fence maintenance includes painting or staining, and replacing warped or cracked boards. To prevent cribbing on wooden fences or posts, try adding an electric wire to the top of the fence, applying special sprays or paints designed to inhibit cribbing, or using a cribbing strap on specific horses.

PVC or Vinyl Fence (post and rail):
Advantages: No painting or staining; will not rot, warp or splinter; comes in several colors, styles and with different accessories; and some brands come with warranties.

Disadvantages: More costly than wood fence. Can be labor intensive if you do it yourself (but no more than wood). Has the potential to shatter in the winter if hit or kicked by horses; this is not usually covered under warranty (Figure 2). Use an electrified wire in conjunction with vinyl fence to keep horses from running into the fence, as vinyl may break.

Smooth Wire Fence:
Advantages: Available in a number of styles, such as tape, braid, ropes or coated wire; easy to install; and affordable.

Disadvantages: May be considered a temporary fence. Check fence lines to make sure they are maintaining tension; lines may need to be re-tensioned periodically. Many veterinarians warn of laceration risks associated with wire fencing.

Also, horses might have problems seeing smooth wire fences. Using white wire or tying rags or ribbons on the fence can help increase visibility. Keep in mind that a horse's vision is much different from humans. Horses have a 350 degree range of monocular vision (humans have binocular vision) with narrow blind spots directly behind their tail and immediately below the nose. Horses have good sensitivity to dim light but do not perceive colors as distinctly as human. Horses have only 60% of the visual acuity of humans. If you have difficulty seeing the fence, it will likely be invisible to a horse.

Electric Fence Recommendations
The best way to maintain an electrified fence is to make sure the electricity is always on. The average cost of electricity for an electric fence is approximately one dollar a month, the same as a 100-watt bulb. Not maintaining a charged fence at all times can confuse horses and keep them from respecting the fence. The highest strand of electric fencing should be at 48 to 52 inches, while the lowest strand should be at 24 to 28 inches. Be sure to use adequate ground rods with electric fence. A minimum of three 6-foot ground rods are recommended for a large paddock.

Figure 2. PVC or vinyl fence can shatter or break during cold weather when hit or kicked.

General Fence Recommendations
Any tensioned fence should be braced at corners, and gateposts should be set in concrete. Flexible rail and electric fence posts should be set at a minimum of 8 feet or a maximum of 12 feet, depending on the size of the paddock. Vinyl (PVC) and wood fence posts must be installed on 8-foot centers, as most rails (boards) are 16 feet long. Posts can be reinforced with concrete. Wood fences should have a minimum of three rails to ensure horse containment. Finally, consider using screws instead of nails when building a wood fence.

Reviewers: Erin Malone, DVM, and Betsy Wieland, University of Minnesota.

Photo Credits: Krishona Martinson, University of Minnesota.

Find more University of Minnesota Extension horse related information and education opportunities on www.extension.umn.edu/horse. Copyright © 2011, Regents of the University of Minnesota. All rights reserved. For Americans with Disabilities Act accommodations, please call (800) 876-8636. The University of Minnesota Extension is an equal opportunity educator and employer.

IN PARTNERSHIP...

Department of Animal Science
UNIVERSITY OF MINNESOTA

UNIVERSITY OF MINNESOTA
EXTENSION

College of Veterinary Medicine
UNIVERSITY OF MINNESOTA