Say Goodbye to Mud and Dust
Sacrifice Areas and Other Great Tools

If you have horses then perhaps you have spent some time sloshing around in a paddock trying to catch a horse that has become thoroughly caked with mud. And, as you were slip-sliding around, you may have said to yourself, “So which part is the fun part? The mucky paddock or the filthy horse?” Or maybe your problem is dust. Are your neighbors with the log home fuming at you because the dust cloud rising up from your property leaves their house looking like it hasn’t been cleaned in years? Well, take heart, there is hope—just because you have horses doesn’t mean you have to have mud or dust! Read on to learn about sacrifice areas and other great ways to transform your horse place.

Mud, Dust and Horse Health

First, it’s a good idea to remember that mud is not only inconvenient and unpleasant, it also creates an unhealthy environment for your horse. Mud harbors bacteria and fungal organisms that can cause problems such as abscesses, scratches, rain scald, and thrush. Mud is also a breeding ground for insects like mosquitoes and flies that can carry diseases and cause allergic reactions for both you and your horse. Horses fed on muddy ground can ingest dirt or sand particles with hay, increasing the chances of sand colic, a very serious digestive disorder. Standing in mud can lower body temperature, causing unthriftiness and even hypothermia. Mud also creates a slick, unsafe footing that can cause slips and injuries for horses AND humans!

And mud in the winter is dust in the summer. Research shows that exposure to dust is a potentially serious health risk—for horses and their owners. It can cause inflammation and constriction of the airways, decreased lung capacity and function and it aggravates equine health problems such as Chronic Obstructive Pulmonary Disease (often called Heaves) and Pneumonia. Plus, it increases the risk of developing infection by overloading the lung’s primary defense mechanism.
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Mud, Dust and the Environment

A horse property with overgrazed, barren pastures not only means mud in the winter and dust in the summer—it can also have some very serious environmental impacts. First picture the ideal horse pasture with lots of lush, green, healthy grass. When rain travels across a pasture full of grass, soil tends to stay where it is because the roots hold it in place. The grass also absorbs many of the nutrients from manure, preventing nutrients from being washed away by the rain.

Now picture the opposite: an overgrazed pasture with little grass and lots of bare spots. When rain travels across this pasture, there is little grass to hold soil in place so the water will gather soil particles as it goes. Nutrients from manure will be carried away also because there isn’t any grass to absorb them. Eventually, this rainwater will carry the soil and nutrients to a body of water like a stream, river, or lake.

When soil and nutrients end up in streams, rivers, and lakes, it can have serious consequences. Soil can smother fish eggs and cause water to become cloudy and hard to see through, making it hard for fish to see their prey. Nutrients cause problems by increasing the growth of algae in water. Algae not only reduces enjoyment of our lakes for water recreation, algae also use up the oxygen in the water that fish need in order to survive.

Not only this, but come next summer, winter mud holes will become bare spots with potential as weed beds or dust beds.

What You Can Do

1. Create a Sacrifice Area

If you want green, healthy pastures full of grass instead of mud, the most important thing you can do is protect your grass plants! How do you do this? There are two critical points when grass plants need a break from your horses: 1) During the winter when grass is dormant (not growing) and 2) During the growing season when grass has been grazed down to approximately three inches. These are the times when horses need to be OFF your pastures. So where do you put your horses during these times? That’s where the sacrifice area comes into the picture.

Sacrifice Area Basics. A sacrifice area is a small enclosure such as a paddock, corral, run, or pen meant to be your horse’s outdoor living quarters for part of the year. It
is called a sacrifice area because you are giving up the use of that small portion of land as a grassy area to benefit your pasture.

**When to Use Your Sacrifice Area.** Your horses should be confined to the sacrifice area during the winter and early spring. Keeping horses off dormant, rain-soaked and/or frozen pastures is critical if you want to maintain a healthy pasture next spring and avoid a muddy mess. During the winter grass plants are dormant, which means they can’t re-grow like they do during the spring, summer, and early fall. Dormant grass plants simply cannot survive continuous grazing and trampling in winter months. Leaving horses on pastures during the wet winter months will compact the soil, dramatically reducing pasture productivity during the growing season. When horses step on soggy ground, the soil is pressed together, squeezing out the pockets of air in the soil. Plants need air in the soil so their roots can breathe and so water has a place to soak into the soil and reach the roots.

The sacrifice area can also be used in the summer when your pastures have been grazed down to three inches. This ensures that the grass plants have enough reserves left after grazing to permit rapid re-growth. Vigorous plants will out compete weeds, grow new leaves, utilize nutrients more effectively and will prevent soil erosion and mud come next winter. Put horses back on pastures when they have re-grown to about six to eight inches. For more information on keeping grass plants healthy, see the *Five Keys to Better Pastures* tip sheet.

**Size**

The size of a sacrifice area can vary from that of a generous box stall, about 16 feet by 16 feet, to that of a long, narrow enclosure where the horse could actually trot or even gallop to get some exercise. If you want your horse to be able to run or play in his paddock, an enclosure of about 20 to 30 feet wide by 100 feet long is needed. The amount of land
you have available, the number of horses, their ages, temperaments and the amount of regular exercise they receive all play an important role in determining the size you choose to make your sacrifice area.

Chore Efficiency
For chore efficiency, your sacrifice area should be convenient to your barn to make it easy for you to care for your horse and maintain the area. A good option is to have one sacrifice area per horse set up like a run off each stall. This chore efficient arrangement gives the horse free access to the stall, and you’ll have a clean, dry, convenient place to feed. (Use Dave’s drawing: “Barn Sacrifice Areas”)

2 Prevent Mud in Your Sacrifice Area

- **Location, location, location.** Choosing the right location for your sacrifice area can go a long way in reducing mud. Look for an area on high, dry ground. Don’t choose a bowl or depression that will gather water. Well-drained, gravely soils work best for sacrifice areas. A slight slope will help with drainage, but too much of a slope will create an erosion problem. Surround your paddock with grassy areas for a natural filtration effect. Pastures, lawns, gardens or other vegetated areas work well for this. Also, prevent water pollution by keeping some distance (at least 100 feet, if possible) between your sacrifice area and any streams, ditches, or other water bodies on your property.

- **Clean Often.** Picking up the manure in your sacrifice area every day or at least every three days greatly reduces the amount of mud. In fact, removing manure on a regular basis is probably the single most important aspect of eliminating mud in your sacrifice area! When it rains, manure soaks up the rainwater and holds onto it like a sponge. If you leave wet manure piles sitting in a paddock, your horse will eventually step on them, grinding the wet manure into the dirt. Regular removal of manure will also help reduce your horse’s parasite load and reduce breeding sites for flies and other insects. The manure you pick up can be composted and reap-
plied to your pastures during the growing season, another plus for your pasture management program. For more information on composting, see the *Five Easy Steps to Compost* tip sheet.

- **Gutters and Downspouts.** Installing gutters and downspouts to divert rainwater away from your horse’s sacrifice area will dramatically reduce mud. In an area that gets 39 inches of rain annually, 14,000 gallons of rainwater would run off a double stalled run-in shed (14 feet by 32 feet) in one year. You can begin to imagine that by diverting thousands of gallons of water away from your horse’s sacrifice area, you will greatly reduce the amount of mud you have! Good sites to divert clean rainwater to include a pond or wetland on your property, an undisturbed area of your pasture, or even a rain barrel or other storage system. Be sure to protect downspouts so your horses don’t destroy them. This can be done with heavy PVC, hot wire or by simply making the downspout area inaccessible to horses. Visit [http://clallam.wsu.edu/waterquality/gutters.html](http://clallam.wsu.edu/waterquality/gutters.html) for more ideas.

After you have your gutters, downspouts and outlets in place, take a look at the surface flows. Watch during the next big rain event to see how the water travels. If surface flows run into your paddocks and horse areas you may need to look at other means for diverting away this water. Possibilities for dealing with surface water include french drain lines, water bars (like a speed bump for water runoff), swales, grassed waterways, ditches, and dry wells. Each of these techniques can be useful for keeping rainwater out of your paddock and reducing mud. For more information, contact your local Conservation District—they can give you advice based on the specific needs of your situation.

- **Footing.** Using some type of footing like gravel or hogfuel (chipped woodl) in your...
Sacrifice areas and other great tools

A sacrifice area will also reduce mud. Horse footing materials keep a horse up and out of the dirt and allow rainwater to percolate through and drain. A variety of footing materials exist—check around in your area to see what products are available and what others have used successfully. Different footings have different advantages and disadvantages. For example, hogfuel is less expensive than gravel and will naturally break down the nitrogen in urine and manure. This process eliminates the urine smell often present in outdoor confinement areas. However, hogfuel is not as effective at keeping an area dry as gravel and hogfuel will break down and need to be replaced more often than a footing like gravel. If you go with gravel as a footing, be sure to get it in a size no larger than 5/8 inch. If gravel is too large, it will be uncomfortable for your horse to walk and stand on. Gravel that is too large can even cause lameness or bruising. Sand is another footing and can work in some situations but avoid feeding horses on it. Ingesting sand with hay can result in serious sand colic problems and expensive vet bills. You might want to try a combination of footing types, perhaps using the gravel in the high traffic areas and hogfuel in the rest, or a sand or gravel base with hogfuel on top. Use at least 3 inches of footing throughout your paddock. If you already have a lot of mud you may want to either remove some of the existing mud or else plan to put in footing on at least a 1:1 ratio (for 6 inches of mud you’ll need at least 6 inches of footing). When it comes to footing, the more the better!

If your soil is very organic and mucky you may want to consider first laying down some type of filter fabric and using another footing on top. Filter fabric can be purchased through garden supply stores or hardware stores. For this you may want to get extra design help from your agricultural resources for this—the local Conservation District, Natural Resources Conservation Service, or Cooperative Extension office.
Fencing and Other Safety Concerns. Choose the very safest fencing you can for your sacrifice area. Whatever type of fencing you choose, you may want to reinforce it with some type of electric tape or hot wire—a good “psychological barrier.” Horses are hard on fences and will test most types but they tend to have more respect for electric fencing.

Be sure that corners are safe and there are no protruding objects where the horse could get hurt, like bolt ends, nails, boards, or the tops of metal T-posts. Also watch out for the corners of roofs and the bottom edges of metal buildings. There should be no wires or cords hanging in the yard and absolutely no junk, garbage or machinery in the paddock. Keep in mind that gates on fences need to be adequately sized for the types of truck deliveries you expect (such as gravel, hogfuel, hay, etc.).

3 Manage Grazing

Now you are ready to integrate your sacrifice area into your pasture management program. In the summer when the majority of the grass in your pasture is grazed to about three inches, take your horse(s) off the pasture and put them in their sacrifice area. Allow them back on when the grass has re-grown to about six to eight inches. In the winter when the ground is wet or frozen and the plants are dormant keep your horses confined to their sacrifice areas. If you are using a rotational grazing system you can also prevent mud by dividing pastures according to how wet they are. That way, in the spring you can let your horses onto the higher, dry areas first. Save the wetter areas until later in the summer when they dry out. For more information on rotational grazing, see the Five Keys to Better Pastures tip sheet.

Remember to begin grazing time gradually—too much pasture can cause serious problems, especially in the spring when grasses are green and lush. Begin pasture grazing time with your horse...
gradually, starting with about an hour at a time, and work up to several hours over a period of weeks. If you have any questions on this consult your veterinarian for their recommendations.

Also avoid bare spots. A bare spot in the summer is mud in the winter and weeds next spring. When you do get the unavoidable bare spot try a “green band-aid” by scattering grass seed.

**4 Fence Horses Out of Wetlands, Streams, and Other Water Bodies**

Fence horses out of wetlands, streams, ponds, or any other water body you have on your property. Easy, cost-effective watering systems are available that can provide water for your livestock away from water bodies. You can also build water crossings and watering points that limit the impact your horses have. Design help is available from your local conservation district, Natural Resources Conservation Service, or Cooperative Extension office. They may even be able to provide you with, or help you find, funding to assist with fencing or watering system costs.

**5 Tarp Your Manure Pile**

Another simple technique for reducing mud on your farm is to tarp your manure pile. If you live in a wet climate, this will keep your manure pile looking like a pile of compost and not a pile of mush. The nutrients you are trying to save will stay in the compost and will not get washed out into the surface waters where they can cause a potential problem. **If you live in a dry climate, a tarp will also help keep your compost pile from drying out. Once manure has become too dry, it will stop composting.** Be sure to store manure as far away as possible from streams, ditches or wetlands to avoid more mud problems and potential environmental concerns.

**6 Plant Trees**

Last, but not least, some great mud management techniques include planting and maintain trees. Trees use a lot of water—for example, a mature Douglas fir tree can drink 100 to 250 gallons per day! Evergreens have the added advantage that
they keep on using water in the winter when deciduous trees are dormant. Using water-loving native shrubs along the outside sacrifice area can help keep the area significantly drier.

Trees can also work very well as a summer dust barrier. Plant a border of evergreens and deciduous trees and tall shrubs between your horse paddocks and your neighbors’ property to help filter out any airborne drifting debris that gets kicked up. Dust barriers along arenas are also a very useful idea and may help keep you and your non-horse neighbors on good terms.

Check with your local conservation district for ideas on native plants that will grow well in your area and for the uses you have in mind. Many conservation districts hold a native plant sale every year. These plant sales are a great opportunity to get native plants at an extremely low price.

Remember that trees in pastures and paddocks need protection from chewing and root compaction by livestock. Fence off trees along the drip zone—the ends of the branches where the raindrops roll off. Consider planting new trees where horses can’t reach them, such as outside fence lines.

By reducing the amount of mud and dust on your horse place you will be creating a healthier place for your horses, a nicer place for you to enjoy, a prettier picture for you and your neighbors—and a cleaner environment for all.

Good horse keeping to you!

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