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Tools to Help Horse Owners Deal with Muddy High-Traffic Areas

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Abstract

Muddy and overstocked horse paddocks are a common sight at riding stables. The University of Vermont equine program has improved the conditions at the horse facility by renovating the worst portion (gate area) of the paddocks, thereby allowing drainage under the compacted area. After the renovation of three paddocks one fall, the decrease in mud and ice was so remarkable that the four remaining paddocks were renovated in the spring. A full-color pictorial guide was created to show others how the renovation process works.

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Introduction

Nearly every horse owner has had to deal with mud and ice in high traffic areas in paddocks or pastures. These muddy spots are usually found at the gate, feed, and watering areas. With high horse traffic, the soil quickly becomes compacted and will no longer support healthy pasture growth. Weeds easily compete with the grasses/legumes, or in many cases, the trampling and compaction stifle all plant growth. Water runs across mud and manure before entering the closest stream or river without the benefit of filtering by healthy vegetation. Besides the potential environmental contamination, horses and owners must deal with dangerous mud and ice issues. Extension personnel are often called upon to assist with clientele's equine pasture issues.

Equine Facility Challenges

Equine businesses depend upon a constant flow of clientele, many of whom are minors, to keep business thriving. To ensure rider safety, riding stables tend to place higher priority on a calm, safe school horse than on the health of the paddocks. If a school horse stays in the barn on rainy or snowy days (to enhance pasture health), the horse may be fractious and excitable during its next lesson. If the horse acts up and the client falls off, at best, the client may not return. At worst, the client may be injured and try to sue the facility for negligence. Given the choice, equine operations usually sacrifice the pasture rather than risk injury or worse.

Because multiple, calm horses are necessary for a successful lesson program, the pastures and paddocks are frequently overpopulated. Paddocks are often arranged for convenience for turnout and access to the barn, rather than the best drainage or layout of the land. In addition, horse owners often do not factor in forage received from pasture as a part of their horses' daily nutrient requirements. Smaller farms also may not have adequate equipment or knowledge to maintain pasture health.

Renovating Heavily Compacted Areas

To address these challenges, improvements were made to paddocks at the University of Vermont. The university's Ellen A. Hardacre Equine Facility has several typical equine paddock issues (Figure 1). The gate is at the lower end, which leads to water running across compacted ground in the gate area. Paddocks are large enough for exercise, but not enough to meet to nutrient needs. Although there is a grass buffer strip between the paddocks and a French drain (culvert with large rocks) to move water, the grass is not adequate to cleanse the yearly runoff. Furthermore, since horses are

turned out in all weather conditions, mud and ice accumulates throughout the year, posing a higher potential for horse and human injury.

Figure 1.
Muddy and Icy Paddock Prior to Renovation



In an attempt to address some of these issues, the Greener Pastures project was undertaken. We renovated a 15 x 76 foot strip of land along the front of each paddock. Renovation involved replacing 8 inches of compacted topsoil with a layer of geotextile filter fabric, 4 inches of large stone (1 ½ - 1 ¾ inch), covered by another layer of fabric, then 4 inches of dirty pea stone on the topmost layer (Figure 2). The "large stone sandwich" allowed water to flow underneath the compacted top surface to a slightly angled PVC pipe buried under the travel lane to the grass buffer and into the existing French drain.

Figure 2.
Layers in Renovated Area



Practical Aspects of the Renovation Process

The width (into the paddocks) of the renovated area was determined by both the amount of area needed to lead a horse in and turn it around prior to releasing it, and the available width of the filter fabric roll. The entire length of the front of each paddock was renovated. The depth of each type of stone was approximately 4 inches, and, although the upper layer was hard pack, it was no harder than the previously compacted ground, and the mud and ice issues were significantly reduced.

The two layers of geotextile filter fabric were necessary to prevent both the soil (bottom) and the pea stone (top) from filling in the air pockets that allowed water to pass through to the drainage pipe. The university hired a contractor to do most of the work, because the farm labor and equipment was not available due to other farm commitments. As a result, each paddock (labor and product) cost approximately \$1,400 dollars to renovate. The worst three paddocks were done as a trial in the fall of 2004, and the difference was very distinct between those renovated and those not (Figure 3). Thus, the other four paddocks were renovated the following spring (2005).

Figure 3.
Paddock in Foreground Is Renovated (Spring 2005)



Benefits of Renovated Areas

There have been several significant outcomes of the Greener Pastures project.

- Both people and horses are no longer subjected to mud up to a foot deep or ice in the gate areas and travel lane of the paddocks.
- Water runs under, rather than through, manure in newly renovated high traffic areas in the paddocks.
- The university stable is providing a better example to the community and students by being a better steward of the land.
- The resulting *Greener Pastures: Sacrifice a Little Pasture to Save a Lot* publication provides horse owners a step-by-step, pictorial guide to the process, which includes materials and cost involved.
- Individuals can easily adapt the process to their unique situation, and can decrease costs significantly by doing the work themselves.

Impact

The fall and winter seasons of 2006/2007 were unseasonably warm and wet; however, the renovated areas of the paddocks have held up reasonably well. Although renovation of portions of the paddocks at UVM has not addressed overuse issues, it has increased the safety for horses and humans, helped decrease the negative impact of UVM horses on the environment, and set a good example for the community. The Greener Pastures project and publication have been the focus of several presentations (Vermont, Maine, Ohio, New Hampshire, New Jersey) and are being used by NH Natural Resource Conservation District personnel, the New England Small Farm Institute, and others.

Acknowledgement

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References

Greene, B., & Gilker, R. (2006). *Greener pastures: Sacrifice a little pasture to save a lot*. University of Vermont.

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