Using Geotextiles for Feeding and Traffic Surfaces

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Mud robs Kentucky beef and dairy producers of performance from their cattle herds in winter and spring. To help avoid the problems associated with mud and reduced performance, producers should consider using concrete pads or lower-cost all-weather surfaces wherever animals congregate (e.g., feeding areas, animal traffic areas, and loafing areas). Although concrete is probably the most desirable surface for durability and low maintenance, an all-weather surface can be constructed of geotextile fabric, rock, and fine surface cover for less than one-third of the cost of concrete. Rock over bare soil in Kentucky requires approximately 12 inches of depth for stability, but using rock over geotextile fabrics can reduce rock depth by half. Repeated maintenance usually required for rock pads is also reduced because the fabric keeps the rock in place.

Floor or Pad Construction

Geotextile fabrics are basically of two types: a “geotextile” fabric material, or a plastic-derivative cross-hatched “snow fence” type grid material. Both are used in the highway industry to support rock bases for roadbeds and to distribute the loads of vehicle traffic. Figure 1 illustrates the recommended construction details for animal-use pads.

The dense grade material is generally available from suppliers of highway surface material and is typically composed of aggregate no larger than 0.75 inch, with mostly finer aggregate and fines. The lime surface should be sifted so that it will not have a large portion of fines. However, some fines are desirable for packing and stability.

On-farm trials and a trial installation on the University of Kentucky Woodford County beef unit have been very successful in illustrating the effectiveness and durability of geotextile and rock pads. An Extension publication (AEU-68) developed by the Biosystems and Agricultural Engineering Department at the University of Kentucky provides additional construction information and a list of suppliers of the geotextile fabric materials (Turner, 1996). A list of suppliers is also available at the following Biosystems and Agricultural Engineering Web site: <http://www.bae.uky.edu/> under “Departmental Research and Extension Information/Resources.”

Costs

As shown in Table 1, the cost of geotextile pads is about $0.49/ft², while concrete costs in the range of $1.50/ft². One reason for the lesser cost is that less rock is required for stability when geotextile fabrics are used.

Facility Layout

Width, slope, and drainage. Feeding pads next to a bunk should be at least 10 to 12 feet wide, depending on the animals’ size. Slopes should be 3/4 to 1 inch per foot away from the feed bunk. The bunk and pad should be located in a generally well-drained area that offers good drainage away from the site and where excess manure buildup can be stored if the pad is not scraped daily. For traffic surfaces, widths should be 8 to 12 feet. Traffic lanes should be slightly crowned in the center of the lane.
**Layouts.** Figures 2, 3, and 4 present typical layouts for feeding pads and facilities for cattle using geotextile pads. These installations will improve animal performance, while reducing erosion and runoff from feeding sites.

**Figure 2.** Large round bale feeding pad using hay rings.

**Figure 3.** Large round bale feeding pad with drive-by all-weather road feeding.

**Figure 4.** Geotextile pad for feeding with portable trough.

**References**

