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A Guide to Managing Pasture Water: Stabilized Stream and Pond Access Sites

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A Guide to Managing Pasture Water



“Stabilized Stream and Pond Access Sites”

THE NEED TO MANAGE PASTURE WATER

By properly managing your pasture water, you not only provide high-quality water to maintain the health and productivity of livestock on your farm, but you also contribute to maintaining the water quality downstream – water that is used for livestock and human consumption, as well as recreational activities like fishing and swimming.

Pasture conditions that promote frequent gatherings of cattle near streams and ponds may increase sediment, nutrient and pathogen loading of these water sources from manure deposition, as well as bank erosion. However, such water-quality problems may be controlled by grazing management or pasture characteristics that alter the timing, frequency, duration or intensity of cattle congregating near pasture streams and ponds. The most appropriate practices will depend on: the characteristics of pasture and water sources; costs, labor and management to install and maintain a management practice; economic resources, including government cost-sharing to fund the installation of a management practice; and benefits beyond water-quality improvement, such as improved forage quality, providing equipment crossings, or improved hunting that will result from a particular practice.

Benefits of Stabilized Stream and Pond Access Sites

Development of a stabilized access site to a stream or pond will allow grazing animals access to these water sources at selected sites while providing the opportunity to protect the remainder of the banks with exclusion fencing. This action may lessen the potential for erosion from stream banks or pond dams by maintaining vegetation and eliminating hoof traffic in sensitive areas.

Because of the discomfort caused by the footing and/or the confined areas associated with stabilized access sites, use of stabilized access sites may reduce the proportion of time cattle are present in pasture streams and ponds. As a result of this change in cattle distribution, the amounts of manure and urine deposited in the water source will be reduced, lessening the risks of pollution from manure nutrients and health problems from pathogenic organisms.

In addition to improving water quality, development of stabilized access sites on streams may provide crossings for animal movement or truck and machinery traffic.

Selecting the Best Stabilized Access Structure

There are a number of approaches to developing stabilized access sites. The best option for you will depend on the characteristics of the site, purpose(s) of the structure, desired length of use, the level of investment and availability of labor for construction and maintenance, and governmental regulations in your state.

Options to Stabilize Access Sites to Streams or Ponds

ROCK AND GRAVEL

Advantages

- Materials may be less expensive than other methods, if present on farm
- Can be constructed without diverting water
- Appropriate for streams and ponds
- Good longevity, if properly installed

Limitations

- Requires considerable excavation
- Materials may sink into mud, if not supported with geofabric
- Difficult to maintain level surface needed for cow footing and preventing stream turbulence
- Difficult to maintain access ramps

Stabilized access may decrease the potential for stream bank and pond dam erosion.

GEOFABRIC, WEBBING AND GRAVEL

Advantages

- Webbing provides 6-inch deep cells that hold gravel
- Geofabric under webbing prevents gravel from mixing with mud
- Requires less excavation than rock alone
- Can be constructed without diverting water
- Relatively easy to construct with a level surface
- Easy to extend up access ramps
- Good longevity, if properly installed

CONCRETE

Advantages

- Good longevity, if properly constructed
- Less excavation than rock and gravel crossings
- Requires minimal maintenance

Construction tips

- Visit www.iowabeefcenter.org/content/grazing20%management.html

TIRE BLOCKS

Advantages

- Materials may have relatively low cost, if near a supplier
- Can be extended up access ramps
- Diverting water during construction is not necessary
- Good longevity if properly constructed

Construction tips

- Visit www.iowabeefcenter.org/content/grazing20%management.html

GABION WIRE BASKETS

Advantages

- Galvanized wire basket holds crushed rock and gravel in place
- Relatively easy to construct
- Good longevity if properly constructed

Construction tips

- Visit www.iowabeefcenter.org/content/grazing20%management.html

Limitations

- Materials are expensive
- Inappropriate for ponds
- Requires annual maintenance

Construction tips

- Visit www.iowabeefcenter.org/content/grazing20%management.html



Limitations

- Materials are expensive
- Requires diverting water during construction
- Expensive to extend up access ramps
- May be slippery unless surface is roughened

Limitations

- Illegal to use in some states. Must contact state environmental authority regarding regulations before building a tire block crossing
- Considerable excavation required.
- Require large equipment to move blocks into place
- Wires binding blocks may break, releasing tires



Limitations

- Materials are expensive
- Considerable excavation is necessary for construction
- Geofabric may be needed to prevent materials from sinking into mud
- Most appropriate for intermittent streams



CONCRETE SLATS

Advantages

- Lowest cost option if obtained as surplus from manufacturers or from renovating or demolishing livestock confinement buildings
- Little, if any excavation, required
- May be moved to different locations

Limitations

- Used for temporary access sites
- Most appropriate for low water crossings
- May be lost in flood conditions
- Difficult to extend up access ramps

Installing Stabilized Access Structures

The key to controlling installation costs and longevity of stabilized-access structures is site selection. It is most desirable to have a location with a rock or gravel bed with gently sloping banks. If such a site is not available, measures will have to be taken during construction to limit bed scouring and reduce the slopes of access ramps.

Excavation will be necessary to prepare the site for installation of most structures. Beds must be dug to a depth that is adequate for the surface of the stabilizing materials to be 2 to 3 inches below the surface of the bed to limit downstream turbulence and erosion. Access ramps need to be excavated to a slope of at least 4:1 (horizontal:vertical) and bermed or terraced at the top to divert precipitation runoff. Soil on sides of the ramps should be sloped to at least 3:1 towards the ramp.

Stabilized access sites to streams should be 10- to 16-foot wide. Narrower structures may save on construction costs, but they may cause more injuries to cattle and damage to fencing because of crowding and will limit the use of the crossing for farm equipment.

After installation, the surface of the structure should be 2 to 3 inches below the surface of the stream bed. Gravel crossings should have 2 inches of hoof contact area. Concrete crossings must be roughened to prevent slipping.

Maintenance of Stabilized Access Sites

After installation, the sides of the ramps should be seeded with a mixture of a rapidly growing small grain like cereal rye and a perennial sod grass. Gravel will need to be reapplied as necessary to maintain cover on the surface of structures, particularly if geofabric or polyethylene webbing is used.

Fencing may be necessary to maximize use of the access sites and protect the remaining banks of the stream or ponds. Because of the possibility of flooding, it is preferable to fence stream water gaps with temporary electric fence. Two strands of polywire on fiberglass posts will control livestock traffic and may be easily replaced if lost. The polywire may be charged from a strand of high tensile electric fence run across the tops of the banks. Pond access sites may be fenced either with permanent fencing or floating electric fence.

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