

**Summary**

The quality of water in livestock pastures (and beyond) can be improved by allowing limited access to streams. Generally, a buffer zone is created by fencing animals away from the stream. Crossings are provided to allow access to pasture on both sides of the stream while providing water to livestock. The economic benefits include reduction in injury to cattle, improved health and retention of pasture due to less erosion. Although the construction and maintenance of buffer zones and crossings can be challenging, they are excellent ways to improve water quality in areas frequented by livestock.



**Factors to consider before initiating a water quality project:**

Have you:

- Considered other sources of water?
- Examined the watershed supplying the stream (including velocity, quantity of water and potential debris)?
- Considered whether the new crossing will change natural drainage patterns?
- Committed to construction and maintenance of the water quality project?
- Committed to sacrificing the land needed for the buffer?
- Committed to investing the time and resources needed for long-term success of the project?
- Sought professional assistance and cost-share?
- Obtained the necessary permits?
- Agreed to follow NRCS construction guidelines

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**Sources of Professional Help and/or Cost-sharing**

Natural Resources and Conservation Service (NRCS)  
615-277-2531

University of Tennessee Extension 865-974-7346

Tennessee Department of Environment and Conservation  
888-891-8332

Tennessee Department of Agriculture  
Forestry Division .....615-837-5411  
Water Resources ..... 615-837-5225

Tennessee Wildlife Resources Agency 615-781-6500

County Soil Conservation Districts

# Improving Stream Water Quality on Beef Cattle Farms



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Cattle, creeks, trees and pastures are an integral part of most Tennessee farms, with each component important for commerce and the environment. An ongoing concern for beef producers practicing open grazing is the need for a reliable supply of clean water. Pastures with creeks are particularly beneficial. Problems arise when pasturing occurs adjacent to creeks and particularly where livestock have access to both sides of the creek. Consequences of pasturing in stream-side areas include water contamination (with *E. coli* bacteria), soil erosion, loss of bank stabilization, damage to wildlife habitat and altering aquatic life. This pamphlet presents an overview of the steps beef producers can follow for protecting creeks from livestock grazing. A checklist is provided to help in determining if such a project should be undertaken.

## **Determining Fencing and Stream Crossing Requirements**

The quality of water in streams used by livestock can be improved by limiting the amount of access. Alternative water sources can be used for total exclusion. However, in most situations the animals will be fenced out of the stream with access only in specified locations. These locations generally coincide with a crossing to allow animals access to pasture on both sides of the stream. Either conventional barbed wire or high-tensile wire can be used.

## **Erecting Fences and Establishing Stream Crossings**

Stream crossings should be constructed according to NRCS specifications. The guidelines usually involve some grading to provide gentle slopes where geotextile fabric can be placed, followed by a covering of gravel. Strands of fence are constructed across the stream, preventing animals from traveling up and down the stream. To accommodate heavy water flow following excessive rainfall, install the bottom wire several feet above the stream (and out of the channel) with drop-down chains or other devices that move freely as water passes underneath. When constructing fences on either side of the stream (usually 35 feet from the stream bank), be sure to provide access to the area inside the fence to allow for maintenance (mowing, spraying, etc.).

## **Plant Vegetation in the Buffer Zone**

Vegetation should be planted in the buffer strip to protect the soil from eroding, with special attention to native species. Trees, shrubs and even native grasses can be planted. Professionals with the TDA Division of Forestry or the Tennessee Wildlife Resources Agency can assist with site preparation, species selection, planting design and locating a planting contractor.

