

## Erosion Reduction at the Bressner Pastures

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Native bluestem pastures are primarily managed for abundant forage production and good livestock performance. But other benefits from properly managed pastures include clean runoff water, habitat for wildlife, carbon sequestration, and scenic views. Reducing sediment and other impairments in the runoff from the Bressner pastures is important because it contributes about 10% of the drainage area for the Yates Center Reservoir, a multipurpose water supply constructed in 1990.

Soil erosion is a natural process and generally not a major concern in pastureland. However, certain activities by cattle and ranchers can accelerate the process resulting in gullies started by ruts that concentrate water flows. Cattle trailing, ranch roads and feeding during wet periods are high on the list of activities that subject the prairie sod to erosion damages.

Cattle are creatures of habit and commonly “trail” to water, salt and mineral feeders, and shade which can form paths that lead to gullies. Gullies also start along fences where stocker cattle travel steadily during the first few days after turnout during the spring. Where small gullies have started along fences, cattle paths, and pasture roads, *placing short “kickout” berms of earthen fill will divert concentrated runoff onto good sod.*

Where cattle trail along fences, *short stub fences can be installed to direct their movements toward the center of the pasture*, especially on steeper slopes. Even those unwanted osage orange trees can be cut and placed to direct cattle traffic. At turnout time for stockers, *a low-stress handling procedure called “pitch-and-catch” will settle the cattle and minimize trailing along the fences.*

What about healing actively eroding gullies? The key is to slow the flowing water in the channel if it cannot be diverted away. Starting at the upper end of smaller gullies (often a headcut), *place available materials such as used net wrap held by rocks or tree branches at intervals to slow water flow and trap sediments.* Annual grasses and weeds will soon establish and eventually be replaced by native species. Larger gullies often require structures made of rock or earthen fill designed by an engineer to be fully effective.

Pasture roads can also lead to gullies as repeated vehicle traffic, especially during wet times and on steeper slopes, breaks the sod cover and forms ruts. Negative *impacts can be reduced by following the contour of the land and altering routes* whenever possible. Also, use lightweight vehicles with broad tires such as ATVs and UTVs if available and suitable to the task.

Winter feeding sites are another source of sediment, minerals and bacteria in runoff. *Moving feeding locations to new areas often will alter traffic patterns, reduce spot damage to the sod, and encourage cattle to consume dormant forage in lightly used areas of the pasture. Feed in open*

*areas away from ponds and streams during suitable weather* while saving sheltered spots for extreme conditions. Feeding supplements in larger amounts just 2-3 times per week will also reduce vehicle traffic.

Spring burns that remove both the standing dead material and the surface layer of mulch leave the soil vulnerable to sheet and rill erosion until new plant growth is sufficient to provide protection. Whenever possible, *burn native pastures when the soil and mulch layers are moist* in order to leave a protective layer on the soil surface. In the patch burn-patch graze system, the higher rates of sheet and rill erosion than may occur in the heavily grazed third of the pasture are likely offset by greater protection in the remaining two-thirds.

Remember that maintaining good grass and mulch cover will slow runoff, trap sediments and increase infiltration, thus, **Rule #1** in reducing soil erosion in pastures. **Rule #2** is to minimize livestock and human activities that lead to concentrated flows of runoff. And, YES, runoff rains will come again.