Don't forget about grassed waterways

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Abstract
Most of Iowa is in the middle of a dry spell, and forecasters say we're in for continued dry weather this season. But when the weather turns wet again, it's especially important to have grassed waterways ready to handle the runoff. A grassed waterway is an area where grass is left to grow permanently to drain runoff into designated outlets, without exposing bare soil to erosion. Most soil conservation plans should feature grassed waterways in their design.

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Above: grassed waterway in a cornfield.

A wide, shallow, sod-lined waterway can reduce the flow of water and provide a cushion of grass for the water to "ride," preventing erosion and the formation of gullies. Waterways also can be used as outlets for concentrated water coming from terraces, diversions, or adjacent properties, or they can act as filters, settling out crop residues and fine sediments. But be careful—settling out too much sediment can cause a buildup of soil in the middle of a waterway, directing runoff into the field. Grassed waterways are most effective when used in combination with other conservation or erosion control strategies such as crop residue management, terraces, and buffer strips.

Because rainfall and runoff result in a constant cut-and-fill process in waterways, planning, inspection, and maintenance are necessary to keep waterways in optimum condition.

Manage the general shape of a waterway

A shallow trough shape is preferred because it is a natural shape that allows for the collection and managed flow of water, and it is less likely to meander. It is also easy to cross and is easy on farm machinery.
Avoid gullies along the waterway

Don't plant endrows that run parallel to the waterway. Consider using contour cropping techniques to keep crop rows perpendicular to the waterway. When operating tillage equipment, go a couple feet into the waterway before raising the implement out of the ground, then cross the waterway and enter the field on the contour on the other side. Crossing that way helps establish cultivation patterns that direct runoff into the waterway.

Keep adequate grass cover to maintain optimum flow velocity. Waterways should carry water off the field at a slow speed—an adequate grass cover helps slow the flow of water. If the grass cover degenerates, small channels form inside the waterway. When spraying, shut the sprayer off before crossing the waterway to maintain good grass cover. If commercial applicators are used, emphasize to them that they must do so as well. If the grass cover is diminished, be sure these areas are reseeded and that grass is reestablished as quickly as possible. During a dry year, establishing new grass in a waterway may require the use of mulch.

Mow waterways

Mature grasses trap sediment, causing the waterway to lose its shape, eventually forcing runoff to circumvent the waterway altogether. Use a mowing program to preserve a shallow bowl-shaped waterway. Allow for bird nesting by mowing before May 10 and after July 15.

Reshape a filled-in waterway

If sediment does settle into the center of the waterway, or if the bottom of the waterway becomes flat or humped in the middle, runoff is forced to the sides or even outside of the waterway. Use sound conservation strategies on the land above the waterway to keep soil on the crop field, and at the first sign of a filled-in waterway, reshape and reseed to ensure proper function.

Construct and inspect suitable waterway outlets

Install a waterway outlet structure where the runoff dumps into an outlet or into the road ditch. Structures are especially important where water falls from one level to another. Get help from the local conservationist in designing an outlet structure that can prevent gullies and gulches from cutting back into the waterway.

Final thoughts

If the grass stand is poor or difficult to establish, fertilize the grass periodically and evaluate the results. Don't "nibble" at the edges of a waterway—maintain proper width with every tillage pass. Inspect waterways frequently and repair minor rills or gullies by reshaping and reseeding. A waterway is not a thoroughfare—tire tracks and livestock hooves can start gully formation. Control burrowing animals such as badgers, groundhogs, and moles. Because running water tends to swirl around obstructions, keep the waterway free of rocks, tree stumps, or debris.

The Natural Resources Conservation Service [1] (NRCS) can help producers who have concerns about the economic impact of establishing grassed waterways. Under the
Conservation Reserve Program (CRP), waterways are considered a continuous sign-up practice. If eligible, most waterways could be enrolled in CRP. Check with your local NRCS office for specific information on eligibility requirements.

It's easy to be absent-minded about maintaining waterways during dry spells, but a gully-washer will soon enough point to the need for adequately maintained waterways. Producers should make sure their soil conservation plans use grassed waterways to protect the soil.

### Suggested grass species for waterways

**Smooth bromegrass**: hardy and aggressive; popular in Iowa; protects a waterway channel; thrives on fertile, well-drained soils

**Kentucky bluegrass**: used extensively in waterways; grows well in Iowa; lacks the root depth of other grasses

**Reed canarygrass**: perennial that grows equally well in dry and wet areas; works well in waterways that are too wet for other grasses

**Timothy**: not as deep-rooted as other grasses; requires fertile soil; does not thrive in wet soil or during hot, dry weather

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