USDA
United States Department of Agriculture

CONSERVATION CHOICES

# Controlling Ephemeral Gullies

**Conservation practices that help provide the best erosion control from ephemeral gullies.**

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Ephemeral gullies are channels that form in natural concentrated flow areas (see photo below). They are too often filled in by annual tillage and form in the same location after additional runoff events.

Ephemeral gullies can be controlled by using conservation practices such as terraces, water and sediment control basins, grassed waterways, critical area seeding, cover crops or no-till. Each of these practices has limitations as to when and what situation is effective.

The size and slope of the watershed are key factors for deciding what practice is best suited to control an ephemeral gully. The larger the watershed and steeper the slope the more effective the control practice needs to be.

**USDA Program Participants**
The Food Security Act of 1985 (Farm Bill) requires USDA program participants who farm fields designated as Highly Erodible Land (HEL) to control sheet and rill erosion and wind erosion to an acceptable level, control all ephemeral gullies, and maintain wetlands. Uncontrolled erosion puts you at risk of losing USDA farm program benefits and crop insurance eligibility.

Each spring, the Natural Resources Conservation Service (NRCS) conducts compliance reviews on a random selection of highly erodible fields to determine if erosion has been adequately controlled. Non-compliance can affect program benefits.

To learn more about conservation planning assistance, visit the staff at your local NRCS office to improve management for all resource concerns. NRCS staff and your local soil and water conservation district (SWCD) are available to help you make the best choices to protect your operation and resources.



# Ephemeral Gully Control Practices

| Conservation Practice | How it helps/Tips | Comments |
|---|---|---|
| **Grassed Waterways** | | |
|  <br>A shaped or graded channel that is planted to grass or other perennial vegetation to convey surface water at a non-erosive velocity using a broad and shallow cross section to a stable outlet. | • Since grassed waterways are incorporated into the landscape, how you farm around them means everything in how long they will last and how effectively they will serve their purpose.<br>• The waterway design incorporates the predicted volume of runoff and velocity.<br>• Maintenance will be needed to keep water from running along side of the grassed area.<br>• Plant crop rows into the waterway, not alongside it.<br>• Shut the sprayer off before crossing the waterway to maintain good grass cover.<br>• Limit driving on a wet waterway. Tire tracks can start gullies. | |
| **Terraces** | | |
|  <br>Terraces are earthen structures that intercept runoff on moderate to steep slopes. They shorten the slope length, reducing the effects of sheet and rill erosion, and help control ephemeral gully erosion. | • Terraces cross the drainage way, which segments the ephemeral area into short sections.<br>• Ephemeral erosion can still occur between terraces if they are not properly spaced, deviate from the natural contour, or below the bottom terrace.<br>• Keep terraces functioning properly by adding soil to low spots and reestablishing any lost grass cover.<br>• Inlets or standing drainage pipes should be clear of sediment, crop residue and foreign material. | |

| Conservation Practice | How it helps/Tips | Comments |
|---|---|---|
| **Water and Sediment Control Basins (WASCOBs)** | | |
|  <br>An earth embankment or a combination ridge and channel constructed across the slope of minor watercourses to form a sediment trap and water detention basin with a stable outlet. | • Designed to segment the watershed into smaller drainage areas by creating a dam across the drainage way.<br>• The outlet is either an underground outlet that takes water underground and outlets it in a stable area or a restricted flow pipe that limits flow of water below the structure.<br>• Ephemeral erosion can still occur above and below the structure if it is not properly spaced. | |
| **Critical Area Planting** | | |
|  <br>Establishing permanent vegetation on sites that have, or are expected to have, high erosion rates, and on sites that have physical, chemical, or biological conditions that prevent the establishment of vegetation with normal seeding/planting methods. | • In areas with ephemeral gullies, seed perennial grass in the flow channel of the drainage way.<br>• Seed with the natural shape of the land.<br>• Seeding is effective for smaller watersheds with a defined channel or draw that can be seeded.<br>• Controlling larger storm events is a challenge due to water running on the outside of the vegetation or not flowing into the grassed area. | |

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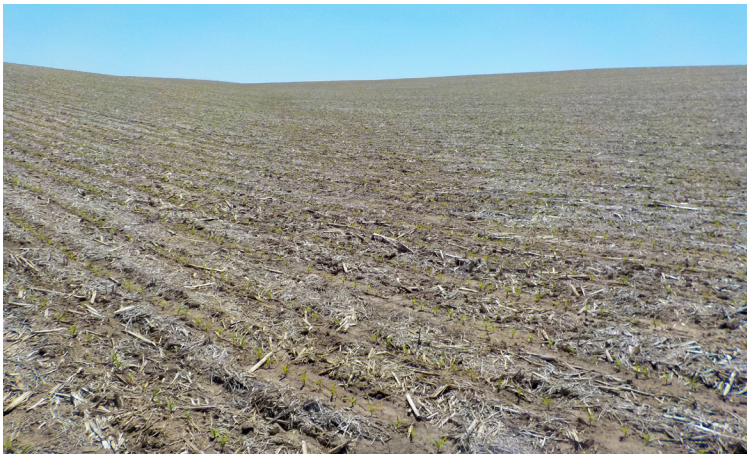
| **Cover Crops** | | |
|  Courtesy of Dan Gillespie, Nebraska NRCS<br><br>Annual crops, including grasses, legumes and forbs, for seasonal cover and other conservation benefits to the soil. Plant prior to grain crop harvest or immediately after harvest. | • Effective in medium to small watersheds when the drainage way is small and flat (not channelized in a ditch).<br>• Use a winter hardy cereal grain, such as rye, and seed it as soon as possible in the fall.<br>• Seed at a rate of about 2 bushel per acre.<br>• In the spring, allow the cover crop to grow to at least 8 inches before terminating with chemical control.<br>• Do not till the cover crop, but instead plant through it.<br>• Seeding with a drill will be most effective, but broadcasting with an ATV or tractor spreader is quick and effective with adequate ground moisture or a timely rain. | |
| **No-Till** | | |
|  <br><br>Growing crops without disturbing the soil from planting through harvest. | • No-till keeps the soil covered, helping to reduce soil erosion.<br>• No-till is effective in reducing ephemeral gully erosion in small watersheds with relatively wide and flat drainage ways (not channelized in a ditch).<br>• It takes several years of continuous no-till for it to be effective in reducing ephemeral gullies.<br>• In a combination no-till/ tillage system, once a depression is stabilized, raise tillage equipment and skip a 20-30 ft. path of the lowest part of the depression to reduce erosion potential from loosening the soil. | |