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Install and maintain terraces for conservation

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Install and maintain terraces for conservation

Abstract

If you have sloping fields in your operation, terraces are a good water and soil management structure to adopt to minimize soil erosion and conserve soil moisture on steep slopes. The kinds of terraces that can be used (narrow-based, broad-based, or terrace channels) are flexible and can be adapted to your needs and the soil type, and they can be spaced according to the potential for erosion and equipment considerations.

Keywords

Agronomy, Agricultural and Biosystems Engineering

Disciplines

Agricultural Science | Agriculture | Bioresource and Agricultural Engineering | Plant Pathology

INTEGRATED CROP MANAGEMENT

Install and maintain terraces for conservation

If you have sloping fields in your operation, terraces are a good water and soil management structure to adopt to minimize soil erosion and conserve soil moisture on steep slopes. The kinds of terraces that can be used (narrow-based, broad-based, or terrace channels) are flexible and can be adapted to your needs and the soil type, and they can be spaced according to the potential for erosion and equipment considerations.

One important function of terraces is in limiting soil erosion by slowing and reducing the energy of runoff. Some terraces collect drainage water and direct the flow of water underground, rather than overland as runoff. If erosion is a serious problem on sloping land, a terrace system is one option to consider to slow down and control surface runoff and reduce soil erosion.

Like any conservation practice, once a terrace has been established, it requires hands-on management and maintenance for optimum performance. Properly constructed terraces in Iowa are usually engineered to handle a 10-year storm without being overtopped (overflow). Most existing terraces can handle a little overtopping if the grass is properly established on the back slopes. But once severe overtopping occurs, the terrace could be seriously eroded and require extensive repair.



Improper maintenance resulted in overtopping of this terrace.

[Enlarge](#) [1]

To keep terraces functioning properly and to achieve the objectives of establishing them, the following needs to be done. First, check the height of the terrace ridge. Older terraces may have been affected by past tillage operations. Inspect the ridge to see whether tillage has disturbed or lowered it. Rehabilitate low spots by adding soil and reestablishing grass cover. Practice good tillage techniques in the future and avoid moving soil from the ridge of the terrace.

Also check for excessive up slope erosion, which can lead to sediment deposits in the terrace channel. Sediment deposits can dramatically lower water storage capacity. If sediment deposits have become a problem, work with a contractor to clean out the terrace channel and restore storage capacity. Sediment also may bury a stand drainage pipe. If the terrace was designed for some sediment buildup, the standing drainage pipe can be extended.

Inlets or standing drainage pipes should also be clear of crop residue and foreign material.

Clear away dirt and crop residue and check for inlet damage from machinery or livestock. Repair or replace broken and bent intakes pipes and set up warning flags or paint inlets pipes to make them visible to machinery operators. If livestock have damaged intake pipes, build a temporary fence around them.

Slow and standing water could indicate trouble. If, after a normal rainfall, terraces do not completely drain in 2 days or less (except in cases of very heavy rainfall), check the conditions around the inlet and outlets structures for plugged tile. If you cannot find and clear an obstruction, get a contractor to resolve the problem.

A small buffer strip around the standing drainage pipe can settle out sediment before it gets to the standing drainage pipe and enters the tile. Make sure that vegetation on the slopes and around the standing drainage pipe is healthy and free of weeds, trees, and brush. A little grass near standing drainage pipes can settle out suspended sediments before they enter tile lines, but if the grass too thick, it can plug inlets.

Soil types, slopes, and tolerance for in-field erosion determine terrace design and structure throughout the state. If you have questions about establishing or maintaining terraces, check with local Natural Resources Conservation Service office for more specific information about constructing and maintaining terraces.

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