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Erosion in northeastern Iowa

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Erosion in northeastern Iowa

Abstract

Over the last 2 years, the northeastern part of the state has been devastated by gully washers and torrential rains. The result has been significant storm damage and erosion. To make matters worse, areas that escaped hard rainfall last year were hit this year. Severe rill and sheet erosion is present in most producers' fields and seems especially severe in fields with Kenyon and Fayette and Downs soils. It is a characteristic of the Fayette and Downs soils to have short slopes; however, the intensity of rainfall has led to the severe damage in these fields.

Keywords

Agronomy

Disciplines

Agricultural Science | Agriculture | Agronomy and Crop Sciences | Soil Science

INTEGRATED CROP MANAGEMENT

A photograph of a person in a field, possibly a farmer or researcher, with large, stylized text overlaid. The text reads 'INTEGRATED CROP MANAGEMENT'. The background shows a field with tall grasses and a person in the distance.

Erosion in northeastern Iowa

Over the last 2 years, the northeastern part of the state has been devastated by gully washers and torrential rains. The result has been significant storm damage and erosion. To make matters worse, areas that escaped hard rainfall last year were hit this year.

Severe rill and sheet erosion is present in most producers' fields and seems especially severe in fields with Kenyon and Fayette and Downs soils. It is a characteristic of the Fayette and Downs soils to have short slopes; however, the intensity of rainfall has led to the severe damage in these fields. On Kenyon soils, slopes are generally much longer compared with Fayette and Downs soils occurring on similar slope gradients. Kenyon soils with slopes less than 6 percent are classified as nonhighly erodible. However, Kenyon soils occurring on slope gradients less than 6 percent often experience severe erosion because of the length of the slope.

So what's behind all the erosion in addition to the intense rainfall? Several factors have combined to amplify the severity of the erosion. First, over the last 10 years, northeastern Iowa producers have shifted more acreage from forages and small grains to soybean production. Second, because of this shift, there has been an increase in silage fed to dairy herds. Both practices have left soils unprotected by permanent forage or crop residues. A third complication is improper maintenance of waterways that have been in place for a long period of time. Over the years, these waterways have done their job and collected sediment; however, now they are filled with sediment to the extent that the erosive water is flowing along the edges of the waterway instead of inside, as originally designed.

There are some practices in northeastern Iowa, however, that have prevented even worse erosion. Many producers are concerned about drought this season and have made fewer tillage passes, reduced the depth of tillage, or used no-till to conserve soil moisture. Because rill erosion characteristically erodes soil to the depth of the tillage operation, it can be reduced with fewer and shallower tillage passes. No-till also has helped eliminate problems. The crop residue remaining on the soil surface helps dissipate the energy of torrential rains, preventing soil particle dislodgement and subsequent erosion.

In some places (for example, Fayette County where erosion problems were severe in 1999), many producers have been working to get their waterways cleaned out and reestablished, to restore their performance. But many reworked waterways were damaged by rainfall before the vegetation was established. Some producers have been forced to remake waterways a second and third time, but the work was made possible thanks to an incentive available to those in declared emergency flood areas in 1999.

For producers in northeastern Iowa and across the state there are opportunities and

programs that provide assistance in establishing soil conservation practices. Practices such as riparian buffers, filters, and newly established waterways are all eligible for Conservation Reserve Program (CRP) dollars. A filter strip on a highly productive soil such as Dorchester could receive a payment as high as \$191 per acre for producers in Delaware and Fayette counties.

Producers are encouraged to consult with their local conservationist. In addition to a potential 20 percent bonus on the rental rate for establishing and enrolling in CRP, there is an available bonus of \$10 per year per acre (whether enrolled for 10 or 15 years), that is paid up front when riparian buffers or filter strips are established. The multiyear bonus payment can mean a \$100 per acre, one-time payment paid up front. Contact your local Natural Resources Conservation Service office for cost-share details on any conservation practice.

Although it remains dry in southern and parts of western Iowa, experience in other parts of the state suggests that producers must be prepared to protect their soil for devastating rainfall to prevent or limit storm damage and erosion.

Definitions of Rill and Sheet Erosion

Rill erosion. An erosion process on sloping fields in which numerous and randomly occurring small channels of only several inches in depth with steep sides are formed by running water.

Sheet erosion. The removal of a relatively uniform thin layer of soil from the land surface by rainfall and largely unchanneled surface runoff.

Source: [Glossary of Soil Science Terms](#) [1], 1996. Soil Science Society of America.

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Links:

[1] <http://www.soils.org/sssagloss/>

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