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## Consider permanent vegetation for steeply sloping soils

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# Consider permanent vegetation for steeply sloping soils

## **Abstract**

In Iowa, row crops planted in fields with slopes of greater than 18 percent will experience erosion rates greater than "T," regardless of soil type and type of tillage. Producers should consider removing row crops from these areas and establish permanent vegetation. This article discusses how to determine slope and ways to deal with sloping land in row cropping.

## **Keywords**

Agronomy, Agricultural and Biosystems Engineering

## **Disciplines**

Agricultural Science | Agriculture | Agronomy and Crop Sciences | Bioresource and Agricultural Engineering

# INTEGRATED CROP MANAGEMENT

## **Consider permanent vegetation for steeply sloping soils**

In Iowa, row crops planted in fields with slopes of greater than 18 percent will experience erosion rates greater than "T," regardless of soil type and type of tillage. Producers should consider removing row crops from these areas and establish permanent vegetation. This article discusses how to determine slope and ways to deal with sloping land in row cropping.

### **Determination of slope**

Try checking the county soil survey (the best method), or estimate the slope by looking at the landscape. Your county soil survey classifies soils with different slopes as part of the soil map inventory. Slopes range from 0 to 1 or 0 to 2 percent, which are nearly level, to slopes greater than 25 percent, which are very steep. You also can estimate "by eye." Keep a level gaze while looking at the up-slope part of the field (assuming eye level is 5 feet 7 inches above the surface). If your line-of-sight intercepts the soil within 31 feet or less, the slope is 18 percent or greater and using the slope for row crops should be avoided. (Keeping a level gaze can be difficult--sighting across the top of level may be helpful.)

How large can the sloping area be before it is determined to be a problem? There is not a definitive answer to this question. Sometimes, it is a judgment call, but the area should be large enough to manage. If the area is less than the width of an average tillage pass, it may be too small to manage. However, just because a sloping area of land seems small or may fall within the somewhat artificial boundaries of a field (for example, at fence lines) does not mean it should not be managed in ways that best suit it.

Possible solutions for removing sloping land from row cropping and using it in other ways include strip cropping, pasture, enrolling it in CRP, or establishing strips of permanent vegetation within a field as waterways.

### **Strip cropping**

Using a strip cropping system with small grain or hay on steep slopes helps avoid sloping fields and minimizes soil erosion. The Natural Resources Conservation Service (NRCS) defines strip-cropping as "growing crops in a systematic arrangement of strips on the contour to reduce erosion." Thus, the crops are arranged so that a strip of grass or cover crop is alternated with a strip of row-crop.

The area of strips depends on the size of the field and the length of the slope. Strip crops also can be used as an alternative cash crop if you do not have livestock on your operation. For more information about strip cropping, contact the NRCS or your county Iowa State

University Extension office.

## Pasture

Using steep slopes as pasture may be as simple as building a temporary electric fence if the area is small, or setting a permanent fence if the area is large enough to justify the expense and effort. If you do not have livestock, it is also possible to pasture steep slopes, perhaps by developing a working relationship with a neighboring livestock producer.

If the area is large enough to consider pasture then some long-term thinking may be in order. Is row cropping the best use for the land? If there are a lot of areas in a field with steep slopes, perhaps the tract of land is more valuable to livestock grazing.

## Conservation Reserve Program (CRP)

Current guidelines for enrollment in CRP are based on environmental benefits. Check with your local [NRCS office](#) [1] or your [county Iowa State University Extension office](#) [2] for more information on CRP and special conservation programs.

## Permanent vegetation

Using permanent vegetation as a waterway may be the best use for small areas of steeply sloping land. Waterways provide a cushion of grass for runoff to flow out of the field, and thereby reduce erosion.

Establishing permanent vegetation on a steep slope requires a good plan for seeding. It may require a grass seeder, some light tillage, or even frost seeding, depending on weather conditions and susceptibility to erosion during establishment. Because there are many variables across the state, check with your local NRCS office or your local Iowa State University Extension office for more information on seeding on steep slopes.

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