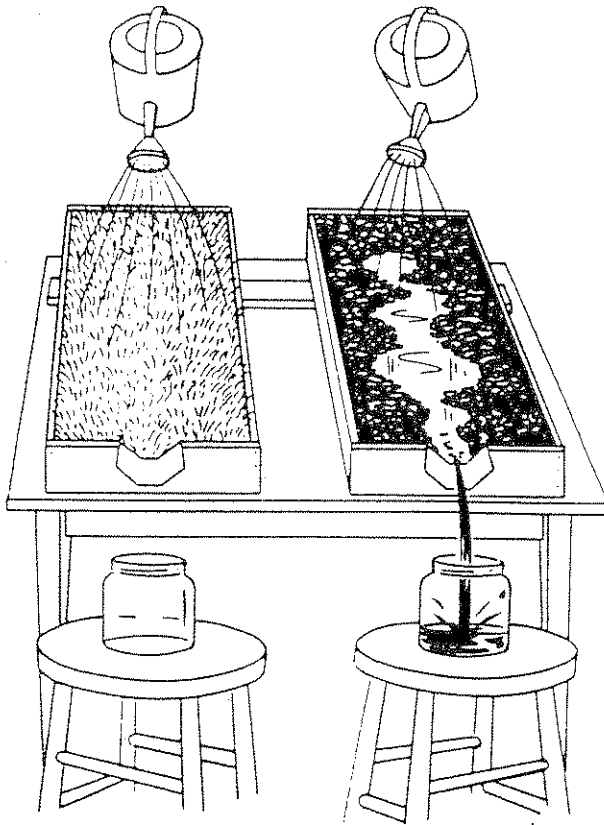


X. How Does Crop Cover Affect Soil Loss?

On land that must be cultivated and cannot be kept in grass all the time, farmers can keep the land covered as much of the time as possible by using crop rotations. By growing a cultivated crop like corn followed by a small grain crop and 1 or more years of grass-legume meadow, the land can be covered much of the time. Mulches can help in gardens.

You will need two small boxes about 16 inches long, 12 inches wide, and 4 inches deep. (These boxes can be used for several activities so they are worth making and keeping on hand.) Make them watertight by lining them with plastic material, tin, or tar paper.



a foot will be satisfactory, although you can get various results with different heights.

INTERPRETATION

You will find that the water will rush off the bare soil into the fruit jar, taking soil with it. The flow will stop soon, but the jar will contain muddy water.

The water that flows from the sod will be reasonably clear. It will take longer for the flow to start and it will continue longer. Also, not as much water will reach the jar. The amount of water in the two samples before the experiment will affect the results somewhat. Unless the soils are waterlogged, however, the activity will be successful. The samples need not be completely dry.

This activity illustrates one of the most fundamental principles of soil and water conservation—the protection grass gives soil against the pounding of raindrops and the movement of running water.

The grass breaks the force of the raindrops so that the soil is not pounded and broken apart by this impact. The grass roots open up channels to let water get into the soil. Organic matter

At one end of each box cut a V-notch 1 to 1½ inches deep and fit with a tin spout to draw runoff water into a container (see drawing).

You will also need 2 flower sprinklers, at least a quart in size (half gallon is better); 2 half-gallon wide-mouth fruit jars; and 2 sticks of wood about 1 inch thick.

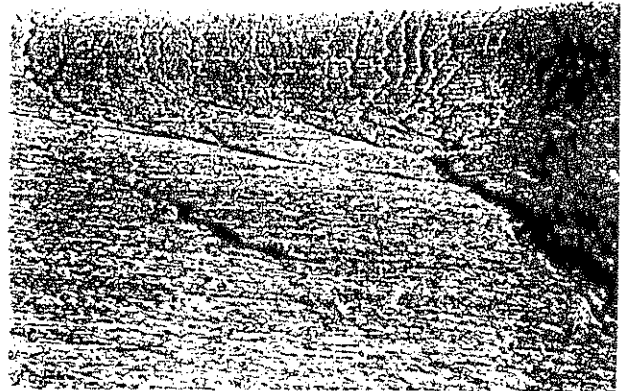
Cut a piece of sod from a pasture, lawn, fence row, or the like, to fit one of the boxes. Trim the grass with scissors so that it is not more than an inch high. This makes it easier to handle.

Fill the other box with soil from the same place—no grass, just soil, but don't try to pick a very poor soil. The idea is to have the same kind of soil in the boxes, one with grass, the other bare.

Set the boxes on a table so that the spouts extend over the edge. Place the sticks under the other end to give them slope.

Put the empty fruit jars on stools placed beneath the spouts.

Fill the two sprinklers with water and pour the water on both boxes at the same time. Pour steadily and at the same rate for both boxes. Hold the sprinklers the same height from the boxes. About



This is what happens when heavy rains fall on bare fields.



Grass protects the soil and increases meat and dairy products.

enter more readily, as we learned in Activity IX. And as the water runs off, the stems of grass slow it down so that it does not have enough speed to disturb the soil.

Experiments show this is true. For example, on one plot at La Crosse, Wis., where corn had been grown every year for 6 years, the annual soil loss was 89 tons per acre. On a plot in bluegrass sod, however, the annual soil loss was only

