

Saving Your Soil and the Chesapeake Bay

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The topsoil on your property is a valuable resource and the foundation for a healthy landscape. Loss of soil through erosion can mean trouble for local streams and rivers and the Chesapeake Bay. Water flowing from the landscape after rain or irrigation can carry sediments and nutrients that pollute our waterways.

Sediments include soil particles and other solid materials that wash from the land. They can cloud water and reduce light penetration. In the Chesapeake Bay, less light in the water contributes to the death of underwater grasses. The grasses provide habitat for aquatic life such as crabs and fish. Sediments also accumulate in stream beds and river bottoms, destroying habitat and hindering recreation.

Eroding soil can carry nutrients, such as nitrogen and phosphorus. Excess levels of these nutrients in water lead to an overabundance of algae growth that blocks sunlight and depletes oxygen.

If you are losing soil from your property, there are several things you can do to stop it.

Look for the following signs of erosion:

- Tree roots, small stones, or rocks becoming exposed.
- Small gullies beginning to show.
- Buildup of silt in low areas.
- Soil splashed on windows and outside walls.
- Widening or deepening of stream channels.

Susceptibility to erosion

The main reasons for soil erosion in residential landscapes are:

- lack of sufficient vegetative cover, especially during the fall and winter months; and
- gardening on steep slopes.

How erosion occurs

- **Rainfall.** Raindrops separate soil aggregates and splash soil particles a short distance. The particles are then easily carried along the surface and into waterways.
- **Surface flows.** When rain falls faster than the soil can absorb it, the water runs off of the land and carries soil particles with it.
- **Slopes.** Erosion of a slope increases with the steepness and the length of the slope.
- **Poor soil.** Overworked soil and soil that lacks organic matter (decomposed remains of plants and animals) doesn't resist erosion well and can't absorb as much water as healthy soil. Because most landscape plants won't grow well in it, poor soil may lead to more erosion.
- **Wind.** Exposed soil can be carried away by the wind. Topsoil is lost and may be deposited in water.

How to fix the problem

Cover the soil. Plants and mulch guard the soil from the impact of water droplets from rain or irrigation. Look for bare soil on your property and try to establish plant cover.

- Learn how to choose grasses, perennials, shrubs, and trees that fit your landscape. Call the Home and Garden Information Center or a local nursery for help with plant selection.
- Use mulch around established plants and spread straw over newly seeded areas. Mulch protects the soil and helps intercept runoff.
- Direct downspouts onto grass or mulched planting beds. Use splash blocks to direct water over a wider area in order to reduce its impact on the ground.

Improve your soil. You can improve soil structure by adding organic matter. Good soil structure provides channels through which water and air can travel, improving drainage and aiding root growth. If you take care of your soil you can expect healthier landscape plants and a more productive garden.

- Compost yard wastes and use planting beds as a place to recycle fallen leaves. These materials provide organic matter for your soil and nutrients for your plants.
- Use raised beds with framed solid sides for garden plots. The sides will keep soil in place and help you avoid compacting the soil when working in the garden.

Plant cover crops in your garden. Cover crops, also known as green manures, are planted in the fall and tilled under at least 2 weeks prior to spring planting. During the growing season, you can seed cover crops between rows, even before crops are removed. Cover crops provide the following benefits:

- Keep soil covered during fall and winter.
- Increase organic matter content of soil.
- Pick up and hold nutrients that might otherwise leach out of soil.
- Reduce erosion.
- Break up compacted soil.

Here are a few cover crops you can grow:

Winter Rye Rapeseed Clover
 Hairy Vetch Buckwheat Oats
 Winter Wheat Annual Ryegrass

Legume cover crops, which include hairy vetch and clover, can increase the amount of nitrogen in the soil and reduce fertilizer needs. If soil is very low in nutrients, grow a mixture of legumes and grasses for 6-12

months. Mow the crop before seed formation.

Stabilizing slopes with plants

Use grasses or shrubs to hold slopes. Trees are generally too large and may pull out or fall over. Choose plants that won't need much care.

Plants that are good for stabilizing slopes:

Coralberry, <i>Symphoricarpos</i>	s, ps
*Cypress spurge, <i>Euphorbia cyparissias</i>	s
Fetterbush, <i>Leucothoe racemosa</i>	sh
Little Bluestem, <i>Schizachyrium scoparium</i>	s
Moss pink, <i>Phlox sabulata</i>	s
+Prairie cordgrass, <i>Spartina pectinata</i>	s
Red Osier dogwood, <i>Cornus stolonifera</i>	s, ps
Sweet fern, <i>Comptonia peregrina</i>	s, ps
Willow, <i>Salix</i> (several varieties)	s, ps

s = sun, sh = shade, ps = part sun (3-6 hours)

*good for dry, poor soil; can be invasive if in rich soil
 +aggressive spreader

Do not use grass clippings on a stream bank for mulch or in an attempt to stabilize the bank. The grass clippings can overfertilize the water. Leave grass clippings on your lawn to recycle nutrients or use them as mulch in planting beds.

Gardening on slopes

Gardening on level ground is best. If you must garden on a slope, plant along the contour instead of up and down the hill. Construct terraces with landscape fabric placed behind landscape timbers or rock walls.

References:

- "Easy Reference to Sustainable Landscape Management and Water Quality Protection," Virginia Cooperative Extension, 1994.
- "Maryland Master Gardener Manual," Home and Garden Information Center, University of Maryland Cooperative Extension Service, 1996.
- "Soil Conservation Around Your Home," Chesapeake Bay Foundation, 1989.
- "Yard Care and the Environment Series," University of Wisconsin Extension, 1993.

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