

Soil Erosion – Caused By Water Concern With Solutions

Soil is known as one of the five natural resources that are important to maintain, sustain and conserve. Good soil is essential to our survival. Without it, not enough food can be produced for people or animals.

- ✓ **Soil**
- ✓ **Water**
- ✓ **Air**
- ✓ **Plants**
- ✓ **Animals**





Soil has two main forces that cause movement that is known as soil erosion.

✓ Water

- ❖ Raindrops impacting unprotected soil, dislodging a soil particle that then is swept away by moving water.
- ❖ Sometimes just the volume of water rushing by erodes soil.

✓ Wind

- ❖ Wind blows hard enough on unprotected soil, dislodging soil particles that are then swept away by the wind.

>>>The focus of this module is soil erosion due to WATER <<<



Managing soil to keep it productive has been an on-going effort.



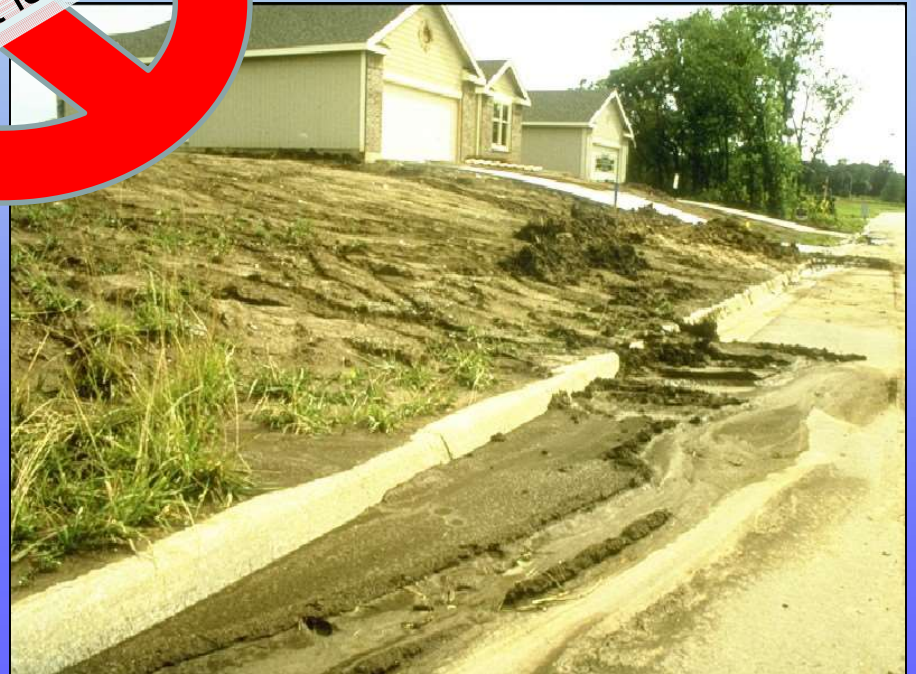
Productive soil is soil that is full of nutrients, organic matter, teeming with micro-organisms and other life.

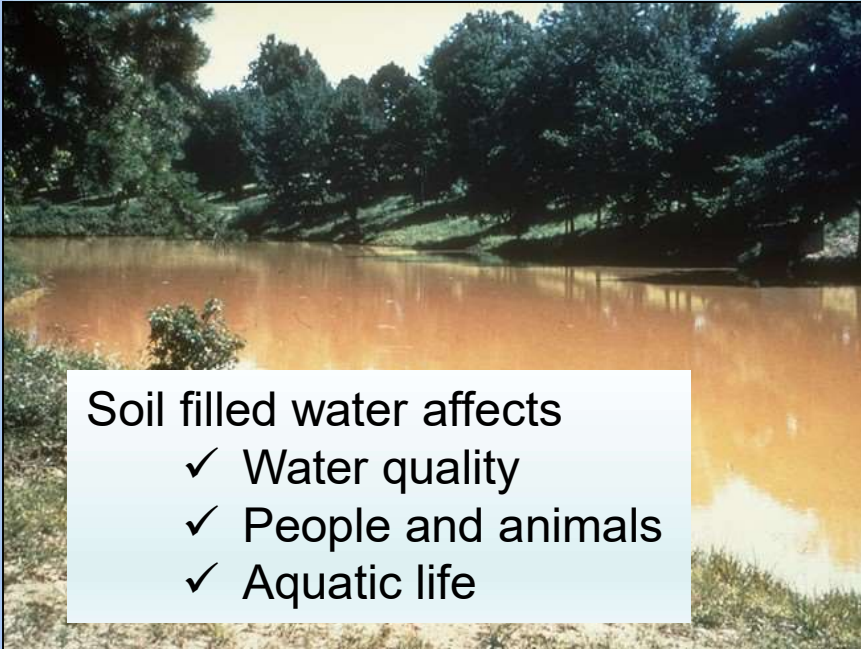


Soil left unprotected washes away through the process of erosion leaving it unproductive.



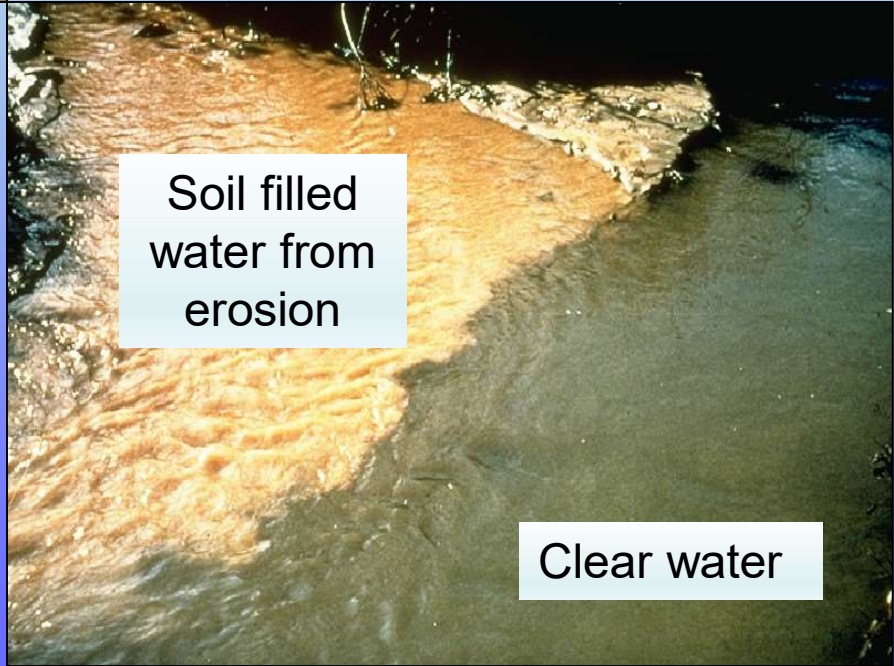
Even in urban areas, with eroded soil it is difficult to grow grass, trees or flowers.






Soil filled water affects

- ✓ Water quality
- ✓ People and animals
- ✓ Aquatic life



Soil filled
water from
erosion

Clear water

A high-speed photograph of a water droplet falling into a pool of water. The droplet is captured mid-fall, just above the surface, creating a series of concentric ripples. The water is a deep blue color, and the droplet is a clear, rounded shape. The background is a soft, out-of-focus gradient of blue and brown.

Soil Erosion “Caused By Water” Control Practices

Conservation Tillage



A practice known as “conservation tillage” reduces the amount of raindrops hitting the soil directly.



Bare soil erodes at a much higher rate.



There are times soil tillage is of use.

Crop Rotation



Rotating crops, planting a different crop every one or two years helps reduce the need for excess tillage which leads to more erosion.



But if planting and other farming needs can be met by disturbing the least amount of soil through no-till, less soil erosion is likely.




Here, crops are growing with most of the surface covered by raindrop protecting crop residue.



Planting into the previous crop's residue helps protect soil and promotes soil microbial activity.



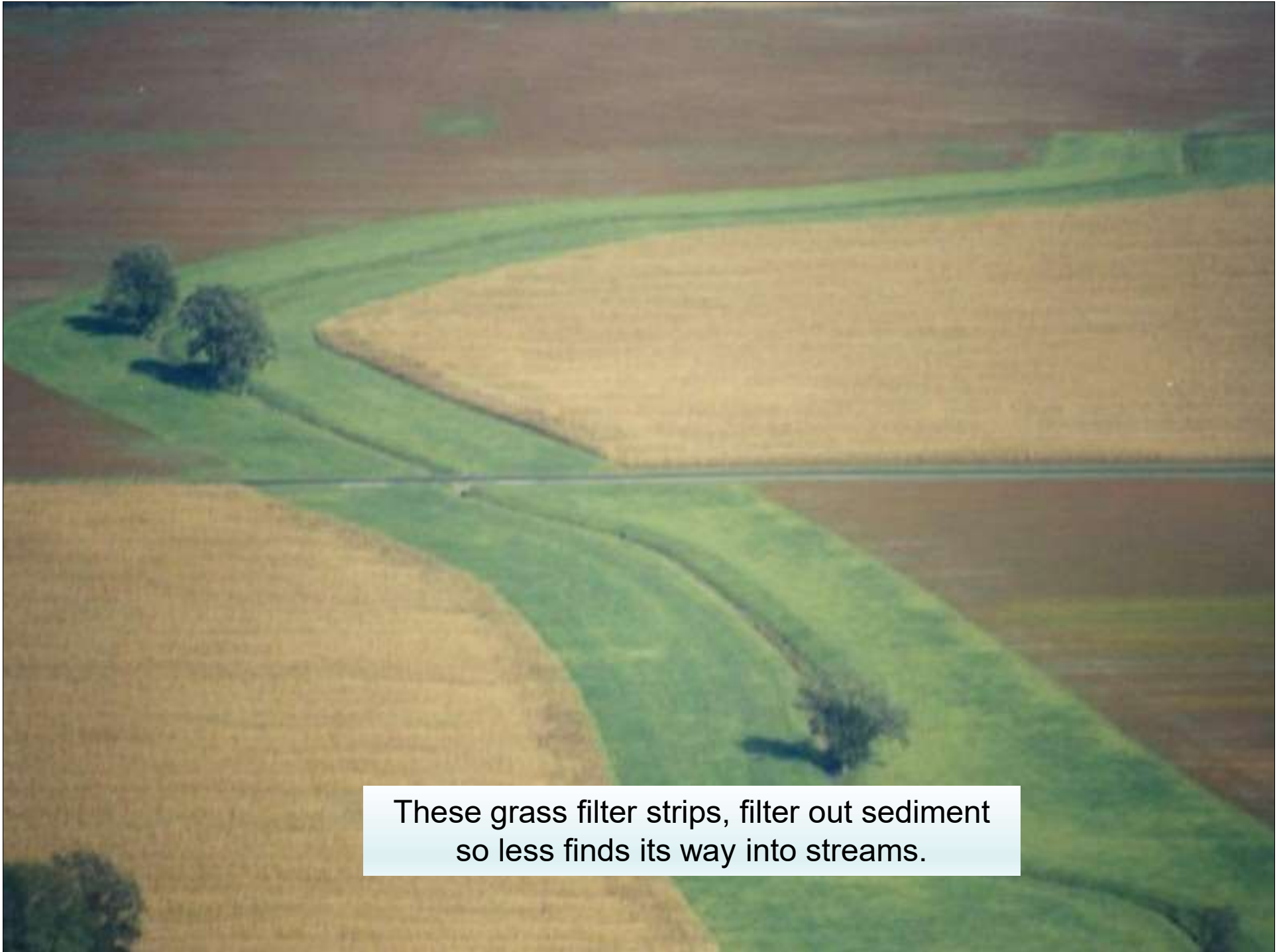
Even after keeping good residue on crop fields, terraces, earthen structure designed to slow water, are sometimes needed to effectively reduce erosion. Keeping the land productive.



Many times terraces are accompanied with grass waterways. The waterway gives the water and sediment coming from the crop field a place to filter and trap more soil.



Grass filters on the edge of a field also trap more soil.



These grass filter strips, filter out sediment so less finds its way into streams.



Lastly, some fields are best left in grass or seeded by to grass. In either case, soil erosion is kept to a minimum.

Soil Erosion



1950's

Land Treatment

- Conventional tillage leaving very little residue after planting.
- No terraces and waterways.
- Erosion estimates, 20 to 40 tons per acre per year.



2000's

Land Treatment

- No-till planting leaving 50 to 80 percent residue after planting.
- Field with terraces and waterways.
- Erosion estimates, 2 to 4 tons per acre per year.

Source: USDA - Natural Resources Conservation Service, RUSLE2

Using these basic conservation practices and others that can be chosen has obtained tangible results.



Enjoy Clear Water