

## Erosion: Losing a Valuable Resource

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In a matter of minutes, one rainstorm can undo thousands of years of hard work of building a fertile soil surface and carry it away. What are we talking about? Soil erosion of course! Soil is a precious natural resource that we rely upon every single day to grow the products we use such as our food, fiber, and fuels. This natural resource provides the water and nutrients that are needed to have a productive crop but is a resource that can be lost very easily through the process of erosion. Through this article, we will cover what soil erosion is, how it is caused, types of erosion, and very importantly, how we all can work to prevent soil erosion.

One thing that is easy to observe with the earth's surface is that it is always undergoing change from a variety of forces such as weathering, erosion, deposition, earthquakes, and many more. These processes are either constructive in that they are building up the surface of the earth while others are destructive as they are tearing down at the surface of the earth. When we are talking about soil erosion, from our observations we know this is certainly a destructive force.

What is erosion and how does it get started? Before we can talk about erosion, it bears importance to discuss the process, which precedes erosion known as weathering. Put simply, weathering is the process that involves breaking down rocks and minerals on the earth's surface through agents such as water, ice, acids, salt, and temperature changes. With exposure to these forces, several things are changed about the rocks and minerals such as the color, texture, and composition of the rocks. Weathering breaks down and loosens the surface minerals of the rocks so that agents of erosion can come in and transport this sediment away to a new location.

Weathering is the process that is involved with the formation of our soils. Over time, rocks are exposed to the elements where they are broken down until they reach the smallest particle of rock possible, soil. This is a process that does indeed take time that is anywhere in the range of 500-1,000 years depending on specific environmental conditions at the site. With the surface minerals loosened by weathering, now we move to erosion. Erosion is the transporter that carries away the weathered sediment primarily by wind or water. Both natural means and those with human influences cause erosion.

When heavy rains come in a short amount of time, there is a large amount of water moving and trying to get away. As the water is moving, it is going to transport just about anything that comes in its path, especially loose soil particles that easily detach and go with the water if there is no vegetative cover in the field to anchor the soil in place. Drought is also a natural cause of erosion as it creates a dry soil that is very light and easily transported by any act of wind thus creating dust storms. Over time, the common practice was to conduct a deep plowing of the soil each year to prepare the soil for planting. This deep plowing left the soil exposed to drying out by means of the sun and thus allowing wind erosion to take place.

Erosion also takes place with a lack of vegetative cover in both wooded areas and agricultural fields. The roots of the plant serve several functions such as taking in water and nutrients for the plant but also to anchor the plant in place. Not only is the plant firmly anchored in place by the roots, but the soil is as well which keeps it in place and not carried away by means of wind or water.

Several methods can be utilized by everyone to keep erosion at a minimum given the amount of time it takes to build the soil surface. One strategy is the installation of windbreaks, which are simply a line of trees that are planted on a property in a location where the prevailing wind comes from. The idea with this practice is to slow the wind down as it will hit the trees, go up and over the trees, all while being slowed down in the process thus helping to keep wind erosion to a minimum. Specifically for homeowners, you can place mulch around the landscaping at your home, which will create a barrier between the soil surface and any wind that could carry soil away.

Cover crops is the most common strategy that many have heard about as a method to help with erosion. Cover crops do just as the term implies, they cover the ground when a cash crop such as corn or soybeans is not in the field. The roots of these plants help to anchor the soil in place and if you plant legumes such as clovers or peas, you get some nitrogen as an added bonus. Other plants such as radishes have deep taproots, which help to break up hard layers in the soil and allow for better air and water movement.

Together, we all can do our part to protect our valuable natural resources, especially our soil. If you have a question on how you can prevent erosion on your land, contact the Paulding Soil & Water Conservation District and see how we can help you out!