

Let's Learn About the Difference Between Soil & Dirt

Abundant, nutrient-rich soil is vital for humanity and the planet — and we're losing too much of it.

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/EINPresswire.com/ -- Abundant, nutrient-rich soil is vital for humanity and the planet — and we're losing too much of it.

The terms 'dirt' and 'soil' are often used interchangeably, but they actually describe quite different things.



The Soil Science Society of America defines dirt as: "displaced soil." In other words, it's soil that is no longer in the ground, supporting ecosystems. It's the remnants of once healthy soil that has been uprooted, stripped of its nutrients, and is now a mere nuisance, something to be cleaned up, not put to good use.

Soil, on the other hand, is a complex and heterogeneous compound made up of various minerals like sand, silt, clay, and other materials derived from rocks, shells, and other pieces of earth that have broken down over thousands of years. And, importantly, soil is alive. It's teeming with microorganisms, insects, and fungi. Dirt, by contrast, is a barren environment that not even a lowly nematode would call home.

Another major distinction between soil and dirt is their structural makeup. Dirt is generally homogenous deposits of just a few types of mineral with particles of similar sizes and shapes. Soil's more varied composition with many different sized particles creates a variety of textures and air pockets, which provides aeration and moisture drainage for plants and other organisms. When a growing medium is compacted, roots cannot burrow deeply enough, and if water cannot drain, root rot can set in.

That different structure also changes the way the two substances react to pressure. Dirt, unlike

soil, does not compact when it gets wet, which is why it's so much more prone to run-off. Healthy and life-rich soil can survive blowing winds, running water, and the mechanical forces of human behavior like farming much longer than dirt, which is quick to erode from the landscape.

Where Does Soil Come From?

The natural processes that produce new soil occur over thousands or even millions of years. That's how long it takes for a boulder to break down into rocks and pebbles that in turn break down into particles of sand and dirt, which are eventually fortified by decaying organic matter. When left to nature's devices, it takes several hundred years for just a centimeter of topsoil to form, and thousands of years more of organic matter decaying and enriching the soil before it's able to promote plant life.

Humans, being the innovators that we are, naturally have come up with a clever solution for speeding up the process. Since ancient times, humans have kept compost piles filled with organic waste like fruit rinds, egg shells, and the like. In just weeks or months, instead of years, a well-tended compost pile can convert pounds of waste into a beautiful, nutrient-rich superfood called humus that transforms dead dirt into lush and thriving soil.

Adding worms to make vermicompost can further support the development of desirable nutrients as well as microorganisms that help stabilize the ecosystem within soil, while simultaneously absorbing carbon that might otherwise end up in the atmosphere and even detoxifying some pollutants.

Why Is Soil So Important?

A huge majority of the foods we eat and many of the fibers that makeup the products we use every day are grown by farmers. The nutrients and compounds that give our foods and fibers desirable qualities all derive from the soil in which they are grown. Simply put, the better the soil, the better the end product, and without plenty of high quality soil, farmers would be unable to produce many of the foods and materials we depend on.

Not all soils are of equal value. They need constant oversight and management. For example, when left unattended, salts in groundwaters can build up in soil leading to salinization. Virtually all plants need a small amount of salt to survive, but too much is a surefire way to kill them.

Healthy Soil:

Has the right balance of compounds for growing plants

Has plenty of room for roots to grow and access air and water

Supports a diverse population of microorganisms and insects

Is fortified with lots of nutrient-rich, decaying organic matter

More than just an essential part of human life and the economies of the world, good soil supports the planet's ecosystems, including forests, jungles, marshes, and grasslands. Soil is a crucial part of the food chain in a variety of environments, promoting biodiversity and nurturing both wild and domesticated animals.

What Causes Soil Erosion?

It's an unfortunate reality, but as a result of both natural processes and, to a greater extent, human activities, the amount of arable land on this planet is shrinking every year. Too much soil is sadly being lost to salinization, pollution, desertification, and erosion. And that doesn't account for arable lands and soil deposits that are simply paved over to make room for roads and buildings.

Soil erosion, also known as soil loss, is one of the most pressing issues facing agriculture today. It refers to the degradation or depletion of the upper layer of soil on a land mass, which occurs as a result of the movement of water, air, plants, and animals. Soil erosion linked to human activity is referred to as anthropogenic erosion, and one of the primary causes is industrial farming.

The advent of mechanization was a revolution in farming. Gas-powered vehicles enable farmers to till their lands more quickly and more deeply than they ever could with traditional tools like ox-drawn plows. That advantage comes with an alarming tradeoff, however. Tillage erosion, which is soil erosion directly caused by aggressive plowing, is reducing the available supply of good soil to farmers.

In fact, the rate of soil erosion occurring today is estimated to be 13 to 40 times faster than it would be if not for the impact of humans. Tillage erosion is now a major threat to ecosystems all over the world, even surpassing water and wind erosion as the primary cause of soil loss in many places.

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