Some interesting facts about soil.

A few weeks ago I wrote about the importance of soil and how long it takes to form just one inch of the precious resource. According to Wikepedia, “Soil is the naturally occurring, unconsolidated or loose covering of broken rock particles and decaying organic matter (humus) on the surface of the Earth, capable of supporting life. In simple terms, soil has three components: solid, liquid, and gas. The solid phase is a mixture of mineral and organic matter. Soil particles pack loosely, forming a soil structure filled with voids. The solid phase occupies about half of the soil volume. The remaining void space contains water (liquid) and air (gas). Soil is also known as earth: it is the substance from which our planet takes its name.”

Here are some interesting facts about soil:

- Soil makes up the outermost layer of our planet.
- Topsoil is the most productive soil layer.
- It has varying amounts of organic matter (living and dead organisms), minerals, and nutrients.
- Five tons of topsoil spread over an acre is as thick as a dime.
- Soil scientists have identified over 70,000 kinds of soil in the United States.
- An average soil sample is 45% minerals, 25% water, 25% air and 5% organic matter.
- Different sized mineral particles, such as sand, silt, and clay, give soil texture.
- Lichens help break rocks apart to form soil.
- Fungi and bacteria help break down organic matter in soil.
- Plant roots break up rocks which become part of new soil.
- Roots loosen the soil and allow oxygen to penetrate. This benefits animals living in the soil.
- Roots hold soil together and help prevent erosion.
- Five to ten tons of animal life can live in an acre of soil.
- Earthworms digest organic matter, recycle nutrients, and make the surface soil richer.
- One earthworm can digest 36 tons of soil in one year.
- Mice take seeds and other plant materials into underground burrows where this material eventually decays and becomes part of the soil.
- Mice, moles and shrews dig burrows which help aerate the soil.
- Clays, the smallest particles making up soil, are less than 1/12,000 inch in diameter. A single handful of pure clay contains more particles than there are men, women and children on earth.
- For every pound of tissue it produces, a plant must extract 400-500 pounds of water from the soil.
- Although plant roots appear stationary, their tips move through the soil constantly to exploit moist areas. The roots of certain grasses can grow at the rate of one half inch per day.
- The tips of small plant roots move through the soil with a twisting screw-like motion. Mature trees can have as many as five million active root tips.
- A single spade full of rich garden soil contains more species of organisms than can be found above ground in the entire Amazon rain forest.
- Although the soil surface appears solid, air moves freely in and out of it. The air in the upper eight inches of a well-drained soil is completely renewed about every hour.
- The plants growing in a 2 acre wheat field can have more than 30 thousand mile of roots- greater than the circumference of the earth.

- An acre of rich grassland soil is home to as many as 1 million earthworms. Earthworms in captivity have lived as long as nine years.
- About 10 percent of the world's land is used to grow plants to feed either animals or humans. About 20 percent of the land in the U.S. is used to grow crops.
- Soil can act as either a sink or source of greenhouse gases. An estimated 30 percent of the carbon dioxide, 70 percent of the methane and 90 percent of the nitrous oxide released to the atmosphere each year pass through the soil.
- Worldwide, an estimated 25 percent of the soils used for agriculture are being degraded at an unacceptable rate.
- The American Midwest has the largest area of prime farmland soils in the world. Other large areas are in South America and Eastern Europe and Russia.
- In 1950 there was more than half an acre of grain land for each person on earth. By 1990 there was less than one-third acre per person. By 2030 there will be only one-fifth acre of grain land for each person on earth.

So next time you think of soil as just "dirt" remember that the food you eat, the air you breathe, and the surface you walk on all originate from soil.

"Nature has endowed the earth with glorious wonders and vast resources that man may use for his own ends. Regardless of our tastes or our way of living, there are none that present more variations to tax our imagination than the soil, and certainly none so important to our ancestors, to ourselves, and to our children" - *Charles Kellogg*