

A
Deeper
Look
by Delisa Renideo

No Soil, No Life

Earth Day is April 22, so I've decided to explore how animal agriculture impacts our earth.

Many of you are probably already familiar with some of the distressing facts:

- Animal agriculture is responsible for more greenhouse gas emissions than all forms of transportation combined, according to the 2006 United Nations report: Livestock's Long Shadow.
- It takes from 2500 - 5000 gallons of water to produce one pound of beef. Many people in the world are already experiencing a shortage of drinking water.
- Rain forests in Central and South America are being cut to provide pasture and grow feed crops for cattle destined to end up in fast food hamburgers. One quarter-pound burger represents the clearing of 55 square feet of forest.
- These cleared rain forests generally become deserts in a few short years, a process called desertification. This destroys biodiversity and makes the land unable to sustain the indigenous populations.
- Animals raised for food produce 130 times more manure than the human population in the U.S., causing pollution of water, air, and soil. People living in mid-western farming communities often find their well water polluted by farms in the area.
- Approximately 85% of soybeans are grown for animal feed. Approximately 70% of U.S. grain is

fed to animals. This is terribly wasteful, as it takes about 16 pounds of grain to produce 1 pound of beef. At the same time, over a billion people are suffering from starvation.

I'm going to talk about dirt!

Rather than continue listing all the environmental problems caused by animal agriculture, I'm going to focus on one that may sound less significant. I'm going to talk about dirt.

Soil is one of those things we don't usually think about at all, unless we are planting a garden. And even then, we usually just dig it up enough to stick some plants in the ground, without considering how miraculous topsoil is and how absolutely ESSENTIAL it is for life.



Topsoil is a mixture of organic material, tiny rock particles containing minerals, and billions of microorganisms and worms that are breaking down the organic material and creating rich soil. Topsoil has spaces in it for water and oxygen to move around and for the microorganisms to transport nutrients and fix nitrogen in the soil. If the soil becomes very compacted, all this natural work cannot be done and the topsoil can die. Topsoil provides a rich "skin" over the surface of the underlying rock and clay. This skin is typically only 6 - 12 inches thick. And topsoil provides the ingredients needed for plants to grow.

Plants are amazing alchemists. They

synthesize amino acids from the combination of sunlight, water and soils, providing the protein that makes up the bodies of all animals, including humans. The plants also fashion carbohydrates from these same ingredients, providing the energy needed for life. Soil is therefore of critical importance to life.

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Simply put: **no soil, no life.**

The problem is, humans have taken these amazing soils for granted and made some terrible choices, causing loss of topsoil at a rate far exceeding nature's ability to make new soil. Approximately one-third of U.S. topsoil has already been lost and some farming areas in the central part of the U.S. have lost 75% of their topsoil. Every continent is experiencing serious loss and degradation of topsoil. It takes anywhere from 200 - 1000 years to form an inch of topsoil, so this loss of topsoil isn't something we can readily fix.

Where is our topsoil going?

Most of our soil is lost by water or wind erosion. It washes away into our rivers and oceans and blows away in the wind. This happens as a result of clearing land.

There is no such thing as bare soil in nature. If you've ever had a garden, you know that nature quickly brings in weeds to fill in the bare spots. Bare soil is easily washed away by water or blown away by

wind. Plant roots are necessary to hold soil in place, and the natural cover of organic materials provides healthy nutrients for all the microbes busily at work in our soils.

Humans have cleared land for many purposes, but the biggest reason for clearing land is animal agriculture. We have cut down forests to grow crops that are fed primarily to animals. In other areas, overgrazing has caused the lands to become bare. In Central and South America, rain forests are cut to provide grazing lands for cattle, but soon the poor soils there cannot withstand the grazing pressure and the next step is desertification.

Tilling the soil contributes to soil erosion, and dumping chemical fertilizers, pesticides and herbicides on soil causes the death of the microbes that are such a necessary ingredient in healthy topsoil.

Each of us can help by reducing the pressure on our agricultural lands... In addition, we can learn to appreciate this overlooked aspect of life, our precious topsoil.

So even though animal agriculture contributes the most to soil degradation, the standard cultivation of plants for human consumption does its share of damage as well.

Each of us can help by reducing the pressure on our agricultural lands by choosing a plant-based diet, by purchasing organically grown produce, and by learning no-till and organic methods of gardening in our own backyards. In addition, we can learn to appreciate this overlooked aspect of life, our precious topsoil.

Remember, **no soil, no life.**

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