

# Living, Regenerated Soil

95% of our food is grown in soil.  
But one-third of the world's soils have become degraded—turning them from living soil to degraded dirt.

## Living soil contains:

**Living Organisms:** A full quarter of the world's biodiversity makes its home in soil: nematodes, fungi, beneficial bacteria, mites and insects, and earthworms. These organisms perform vital functions in the soil, including maintaining soil structure, regulating soil's ability to filter and hold water, decomposing organic matter, suppressing parasites and diseases, breaking down pollutants, forming symbiotic relationships with plants, and sequestering carbon.



CO<sub>2</sub>

**Organic Matter:** Waste, residue, and metabolites from plants, animals, and microbes feed nutrients into the soil—and those nutrients, in the form of humus, in turn feed the plants and organisms that live in it. Much of this organic matter contains carbon, so this carbon is sequestered in the soil and in the bodies of soil microbes, rather than released into the atmosphere, where it contributes to global warming.

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NO<sub>2</sub>  
NO<sub>3</sub>

**Minerals:** Living soil contains nitrogen, phosphate, and potassium, as well as trace minerals like zinc, iron, copper, manganese, magnesium, molybdenum, and boron.

**Water:** Soils absorb and help purify water, benefiting plants and the human water supply. Studies show that living soil may hold at least ten percent more water than dirt.

**Air:** Soil contains large air spaces, allowing for proper drainage.



# vs. Dead Dirt

CO<sub>2</sub>

## Dead dirt contains:

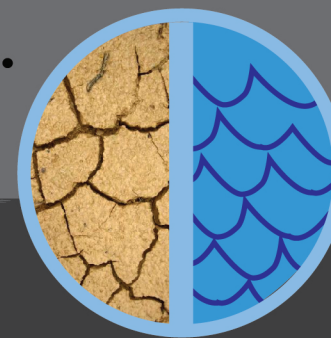
**More Chemicals:** Soils sprayed with copious amounts of chemical pesticides and fungicides have less organic matter than living soil, because the chemicals kill beneficial microorganisms in addition to pests.



**Few Organisms:** Soil degraded through massive amounts of chemical inputs and excessive tillage contains far fewer living organisms than living soil. Without these living organisms, soil becomes less fertile, retains less water, is less stable (and more likely to succumb to erosion), and sequesters less carbon.

**Chemical Fertilizer Overload:** Degraded soils rely on chemical fertilizers to provide nutrients to crops, rather than fostering biodiverse microorganisms and the various nutrients they provide. As a result, soils are overloaded with nitrogen, phosphate, and potassium, and develop deficiencies in trace minerals.

**Less Air:** Excessive tillage can cause soil to become compacted, meaning it is less porous—so it will absorb and retain less water.



**Less Water:** Soils degraded through excessive chemical use and compacted due to excessive tillage absorb less water, making them more susceptible to drought and flooding.

Through regenerative farming methods—which restore and protect living soil—the world could produce up to 58% more food and help reverse global warming.

Art by Rob Hanson, Green America  
Sources: United Nations Food & Agriculture Organization, USDA, Rodale Institute, Navdanya