Edible Evanston

A program of Citizens' Greener Evanston
Act Locally. Breathe Globally.

Soil Health & Climate

Edible Evanston's Vision:
Inspiring and supporting a culture of sustainable food growing and sharing throughout the Evanston community

Earth Week for Everyone

Tim Sonder

April 23, 2021

The foundations of life on this planet

- Everything comes down to the substance we call “earth.”
- Most life depends on soil

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How can we benefit by *improved* soil health?

- Slows climate change
- Improves water quality
- Grows nutrient dense foods

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We are all stewards of the soils we depend on

Be part of the Soil-Health Solution

- Be an activist consumer.
  Know your farmer and their farm practices
- Manage your own yard and garden for soil health
- Advocate for policy

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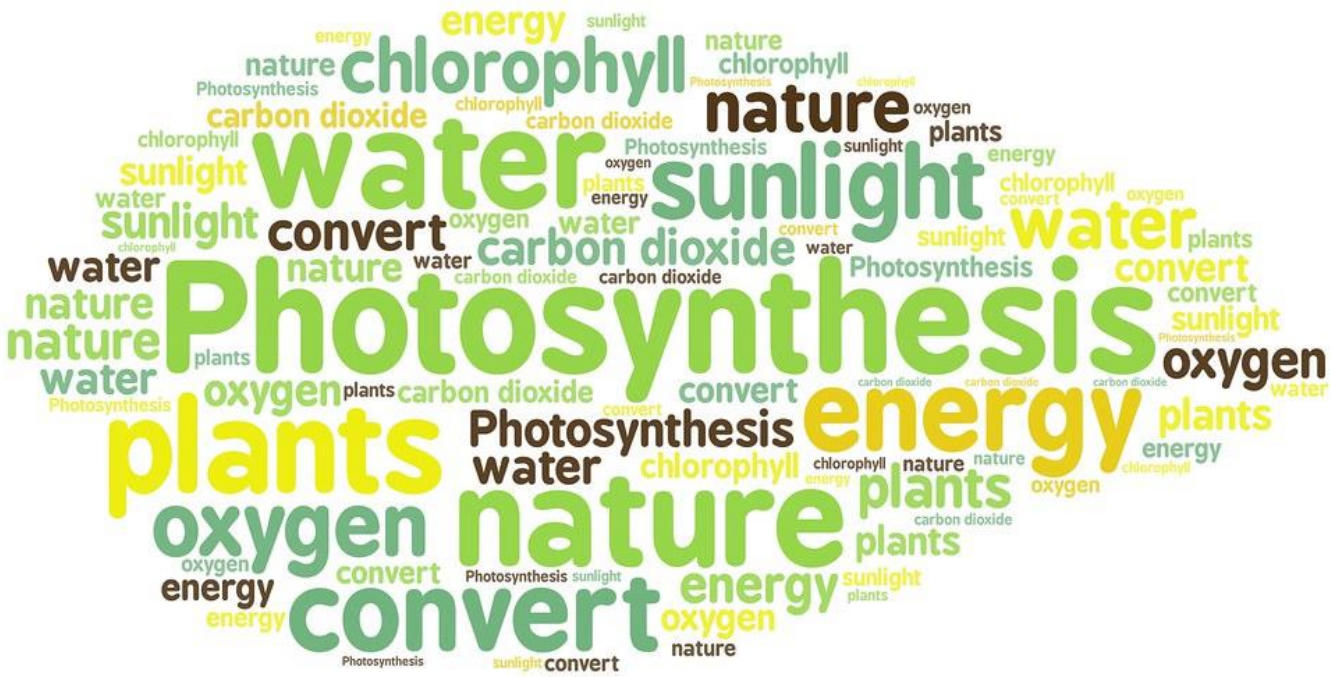
It’s all connected

Ingredients

- water, sunlight, and carbon

Engine

- photosynthesis



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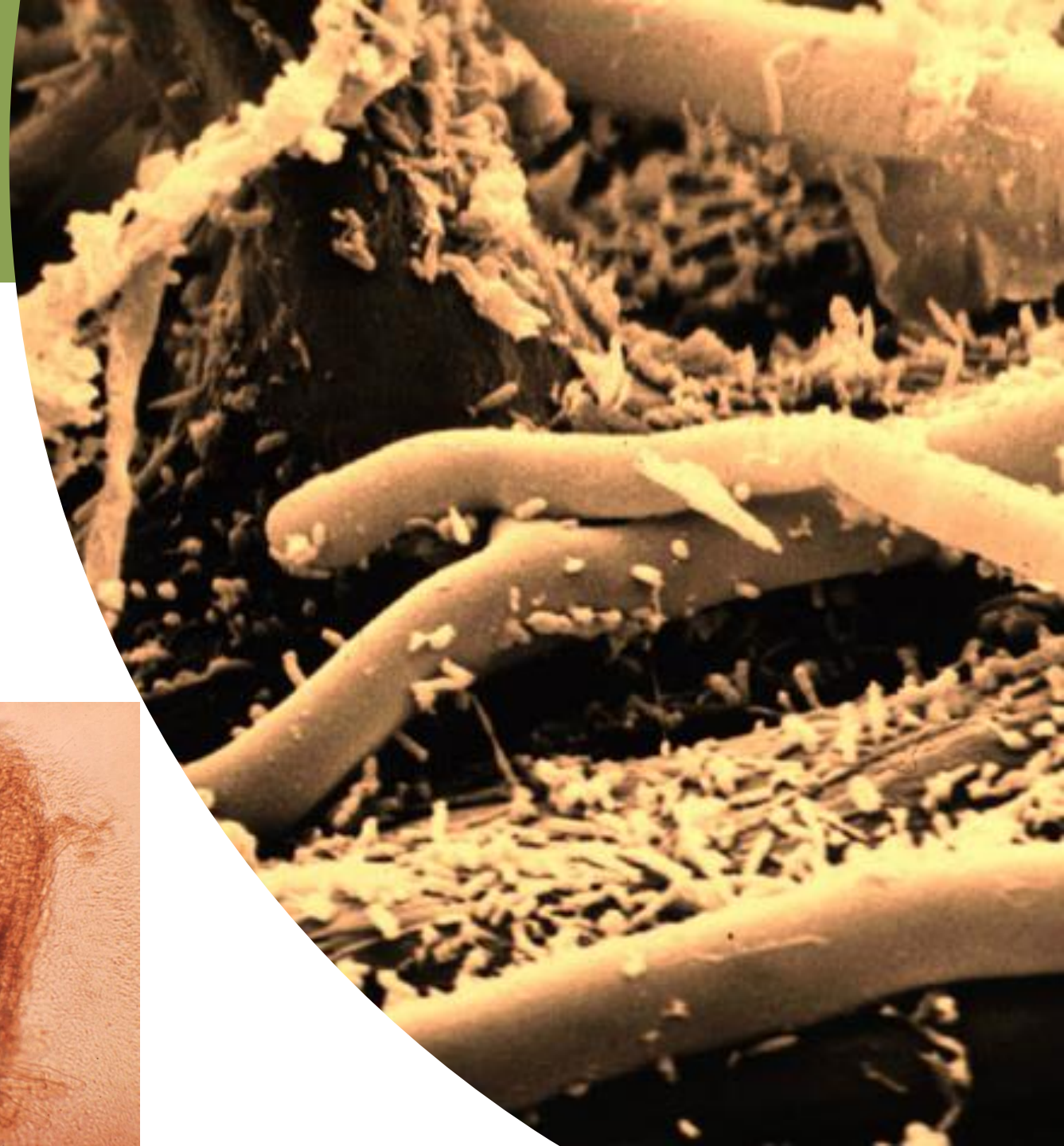
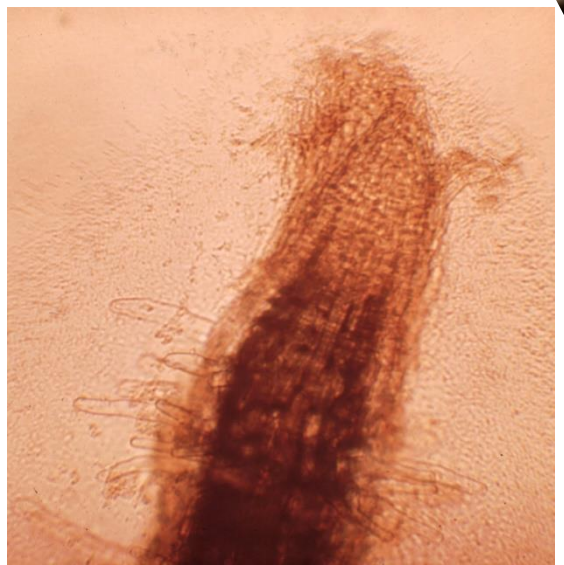
What is soil?

Soil is *not* Dirt

Healthy soil is teeming with bacteria, fungi, nematodes, worms, protozoa and arthropods—billions in a just a teaspoon of soil





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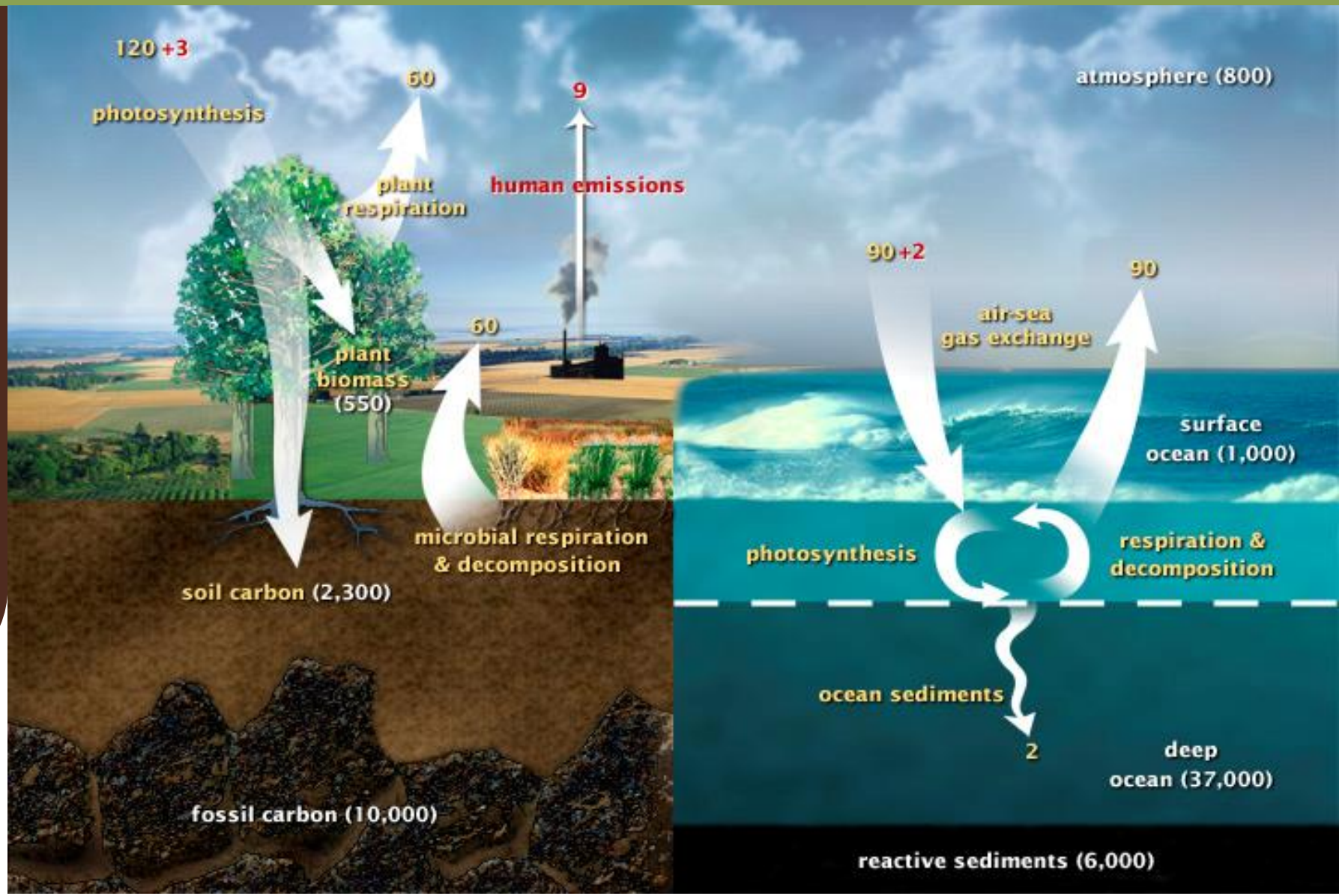
The Carbon Cycle

The fast carbon cycle shows the movement of carbon between land, atmosphere, and oceans.

Yellow numbers are natural fluxes, and red are human contributions in gigatons of carbon per year.

White numbers indicate stored carbon.

Diagram adapted from U.S. DOE, Biological and Environmental Research Information System.



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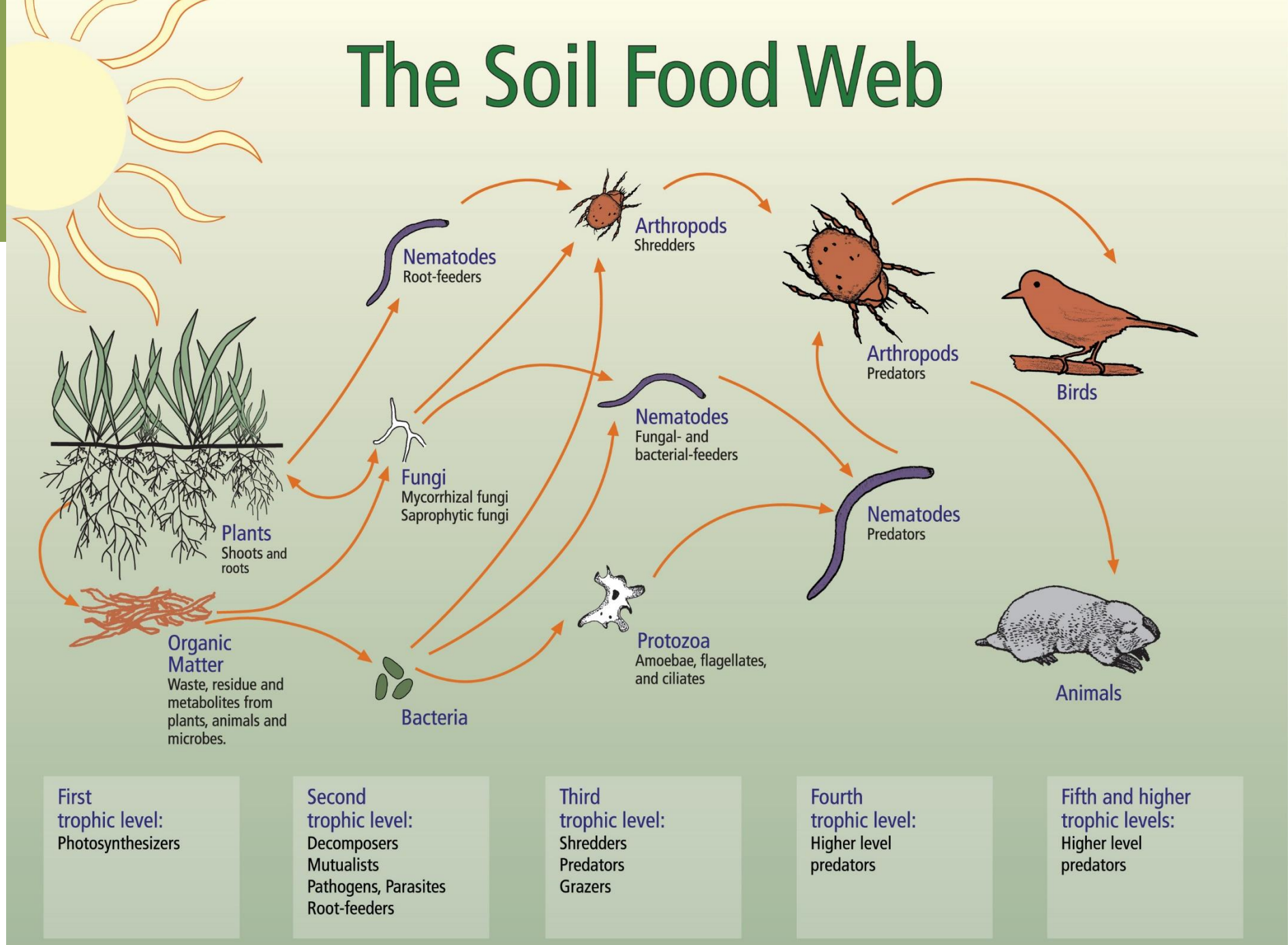
Soil-food web

Plants ***feed*** the life in the soil and depend on soil biology ***for their life***



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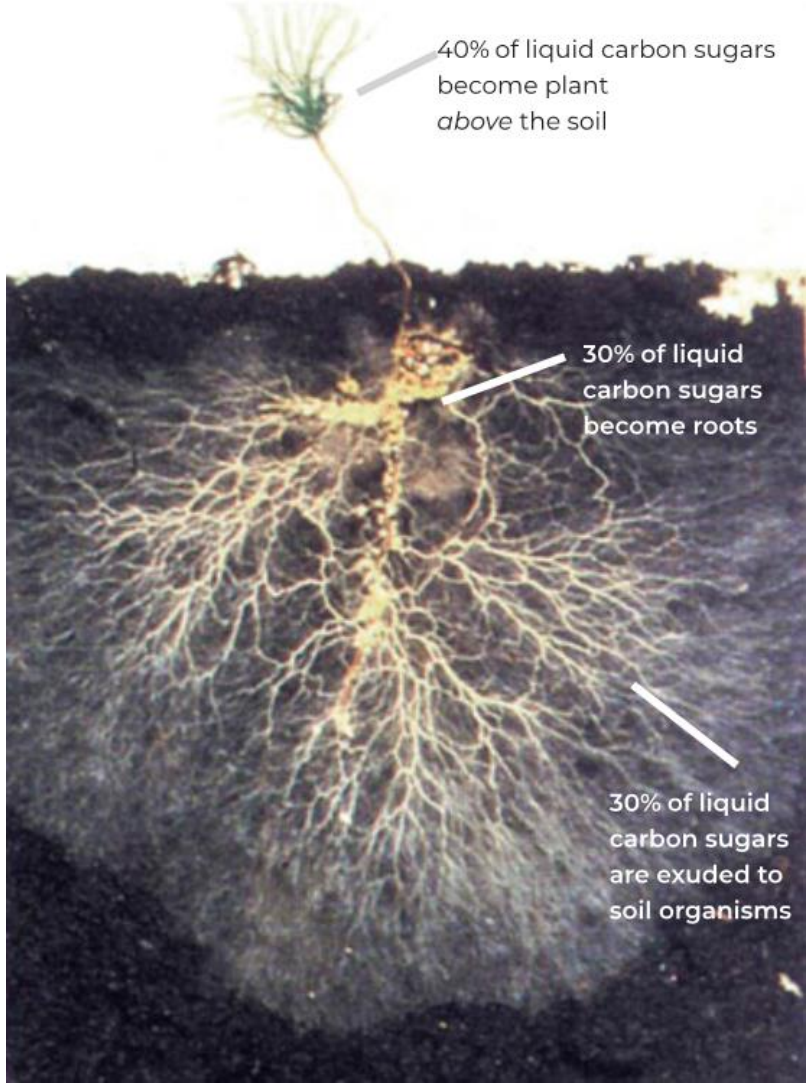
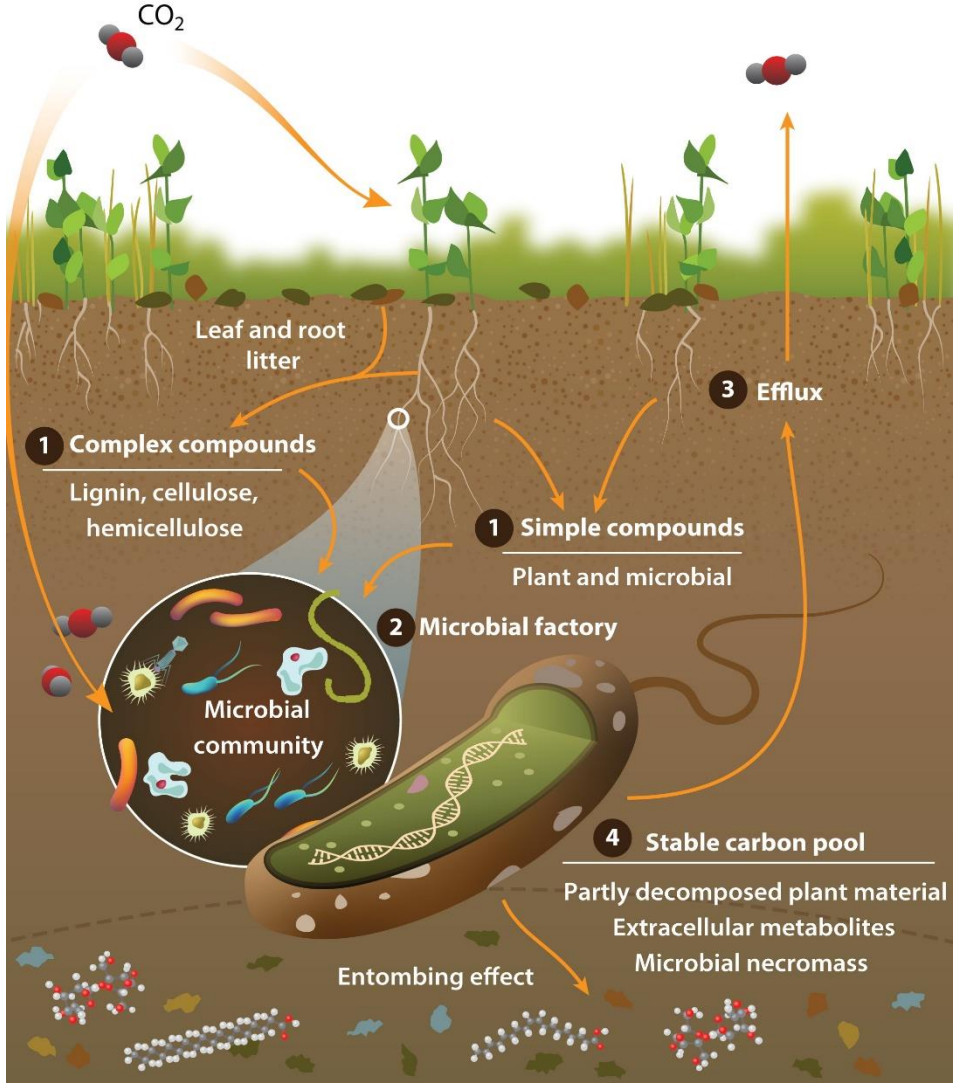
Plants' role in building carbon in the soil

30% of plant energy can feed the soil





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Human roles in releasing plant and soil carbon to the atmosphere

- Erosion
- Oxidation
- Chemical destruction

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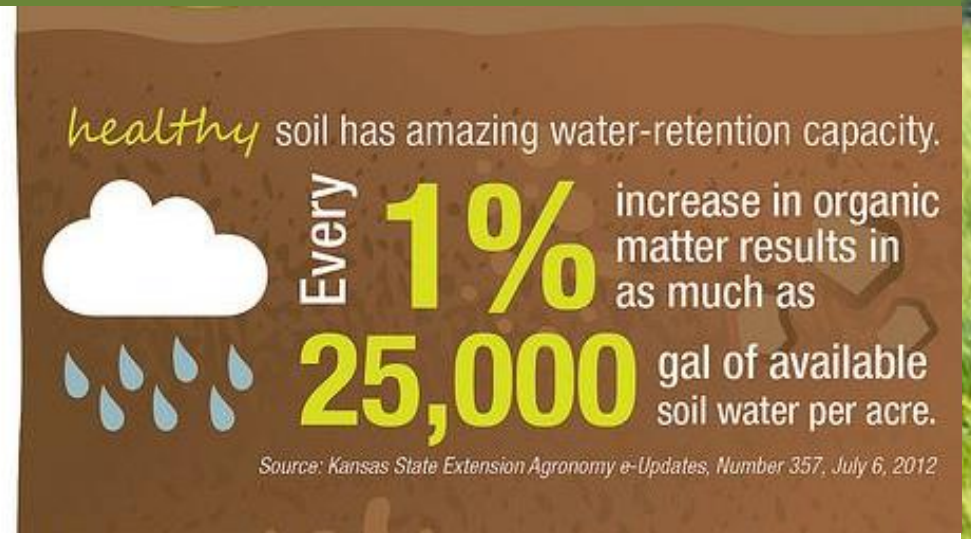
Healthy soil improves water quality and resilience to storms and drought



A Study in Contrasts in North Dakota

Spring wheat showing signs of drought stress

Photo courtesy of Mark Rohrich, Rohrich Farms Ashley

Gabe Brown's North Dakota Ranch has healthy soil and is resilient

Photo courtesy Gabe Brown, brownsranch.us

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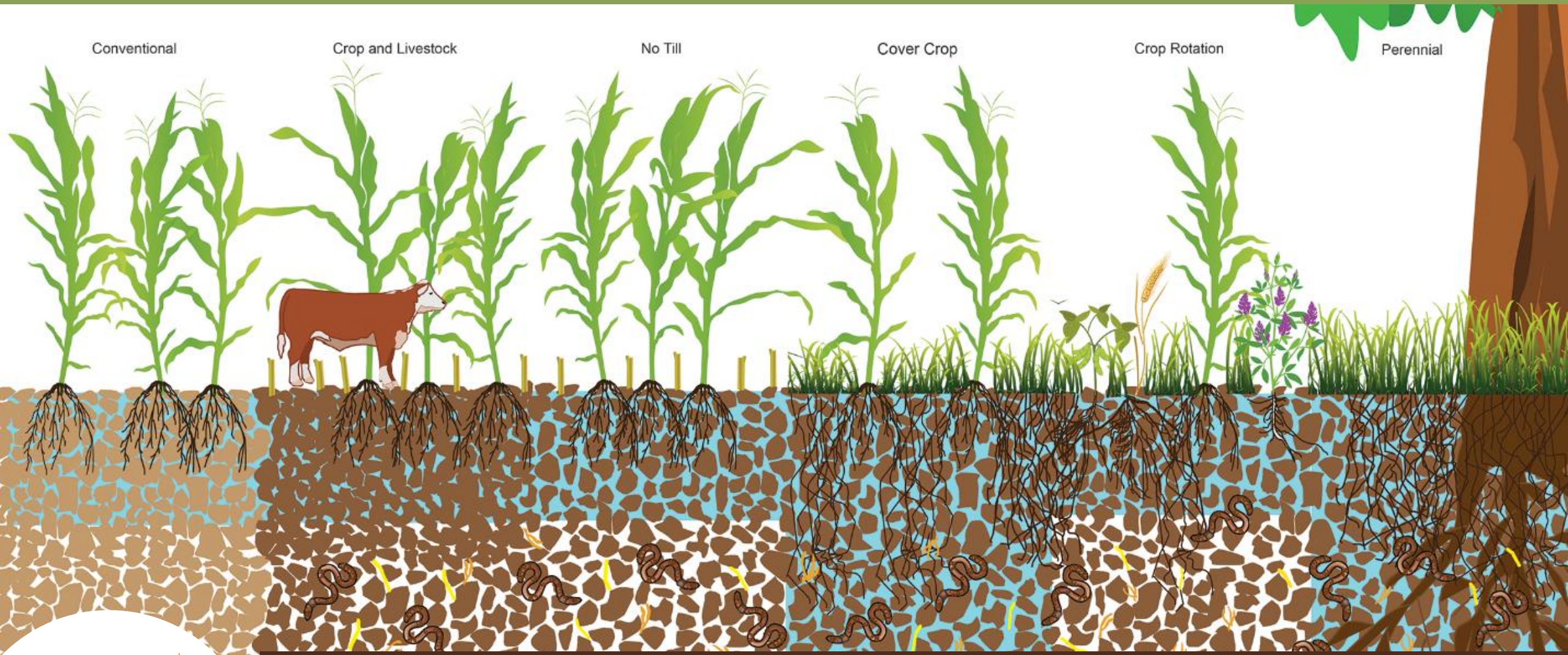
Infiltration vs. run-off



Comparing infiltration rates in soils managed with conventional and alternative farming methods

POLS ONE, Andrea D. Basche, Marcia S. DeLonge, September 19, 2019, https://doi.org/10.1371/journal.pone.0215702

Nutrient Density

human health
animal health
and plant health

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Diverse, living soil quickly builds
soil organic matter and can help provide major benefits

Healthy plants

Healthy foods

Healthy water

Resilient farms

Reduced greenhouse gases

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