

## CLEAR CHOICES CLEAN WATER HEALTHY SOILS

This month we will be highlighting the Clear Choices Clean Water – Healthy Soils pledge! Healthy soils excel at absorbing rain and preventing stormwater runoff. As a result, our waterways are cleaner, and our gardens need less help from us. #cleanwater #healthysoil

Take the pledge to grow soil health at: <https://indiana.clearchoicescleanwater.org/pledges/healthy-soils/>

Healthy soil is key to healthy water! How? Healthy soil absorbs and retains water, which reduces erosion. Healthy soil can also store more nutrients, which means less fertilizer and fewer pesticides are needed. Fewer nutrients and less sediment polluting our rivers, lakes, and streams mean cleaner, safer water!

#cleanwater #healthysoil #stormwater

- Video: <https://www.youtube.com/watch?v=K5lpjFXjz4>

Even if you don't have a lot of land, you can still help make a difference. Just by covering bare soil in your yard or planting a cover crop on a small garden plot helps prevent erosion and builds fertile soil!

#cleanwater #healthysoil

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Learn something new today with one of these ground-breaking soil facts!

#cleanwater #healthysoil

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USDA-NRCS SOIL HEALTH INFOGRAPHIC SERIES #005



what's underneath

Earthworm populations consume  
**2 tons**

of dry matter per acre per year, partly digesting  
and mixing it to form *healthy* soil

*Source: Earthworms a Penn State publication by Sjoerd Duiker, Assoc. Prof. of Soil Management and Richard Stehouwer, Assoc. Prof. environmental Soil Science*



Want more soil secrets?  
Check out **[www.nrcs.usda.gov](http://www.nrcs.usda.gov)**

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what's underneath

One teaspoon of *healthy* soil contains



**100 million-  
1 billion** individual  
bacteria

*Source: Soil Biology Primer page c-1 (Elaine Ingham, Andrew R. Moldenke, Clive Edwards)*



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science of healthy soil

healthy  
**soil is**

made of about **45%** **minerals**

**25%** **water**

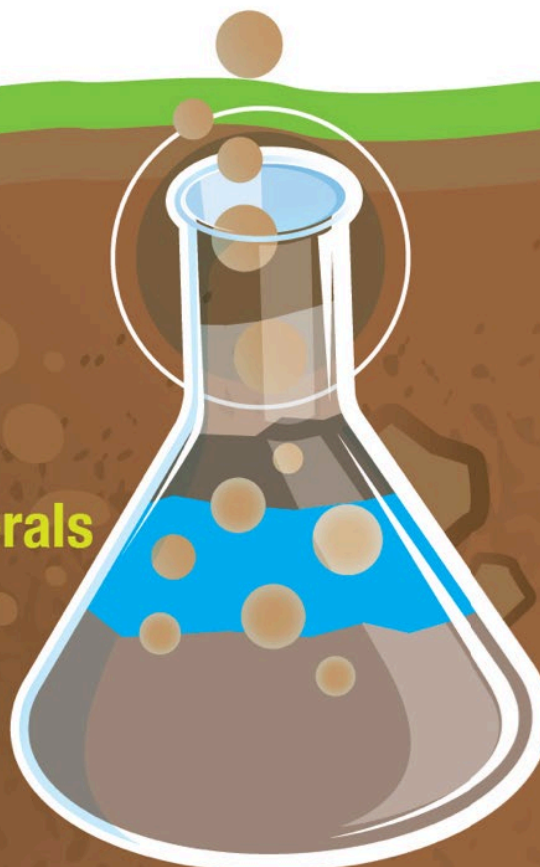
**5%** **organic matter** **25%** **air**

*Source: The Nature & Properties of Soils page 17  
(Nyle Brady, Ray R Weil)*



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Agriculture

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what it does



healthy soil is key to feeding

9 billion 

by 2050

*Source: The United Nations*



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# DID YOU KNOW?

unlock the  
SECRETS  
OF THE SOIL

FOR EACH **1%** INCREASE  
IN *organic matter*  
U.S. CROPLAND COULD STORE THE  
AMOUNT OF *water* THAT  
FLOWS OVER NIAGARA FALLS  
IN **150** DAYS



• Like a "water savings account," healthy soils capture and store more water for plants to use when they need it.

• Earthworms, arthropods, and decaying roots create "macro-pores" into which water can flow to then be stored in the soil. Bacteria, fungi, and other soil life build and stabilize smaller "micro-pores" that further increase the soil's capacity to hold water.

Calculation based on approximate averages for diverse soils as follows:  
U.S. Cropland = 400 million acres  
ADDITIONAL water holding capacity per acre with each 1 percent organic matter increase = 25,000 gallons  
400 million acres x 25,000 gallons = 10 trillion gallons  
Average water over Niagara Falls per day = 65 billion gallons  
(750,000 gallons per second x 60 seconds x 60 minutes x 24 hours)  
The math: 10 trillion gallons / 65 billion gallons = 152

Natural Resources Conservation Service  
[www.nrcs.usda.gov](http://www.nrcs.usda.gov)

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Unlock the secrets of soil with the USDA Natural Resource Conservation Service's 'starter kit' on soil health. This guide includes basic information on the benefits of healthy soil. It was originally developed for farmers, but much of the information applies to anyone with their own backyard garden.

Access it here: <https://bit.ly/USDAsoilSecrets>





Wondering which plants are considered cover crops? Here are some common ones that will get the job done! Others include cereal rye, wheat, oats, clover, and other legumes, turnips, milkweed, and daikon oilseed radishes. #healthysoil #cleanwater

Pledge to keep something growing year-round at <https://indiana.clearchoicescleanwater.org/pledges/healthy-soils/>



**Hairy Vetch**



**Oats & Radish**



**Attain healthier soil  
with cover crops!**

**Benefits include:**

increased organic matter, improved  
water filtration, decreased runoff and  
soil erosion, suppressed weeds and  
pests, and much more!



**Buckwheat**



**Red Clover**