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Issues:

Healthy, functioning soils are critical for food security, sustainable farms and successful farmers around the globe.

❖ Food Security:

- Billions more mouths to feed in coming decades.
- Emerging economies demanding more food, especially animal products.



- Despite stories on vertical farming, aquaculture and hydroponics, most of our food supply will continue to depend on soils.

❖ Sustainably profitable farming & ranching

- Greater soil functioning can increase crop production with fewer purchased inputs

❖ Storage, processing, delivery and conservation of water and plant nutrients

- Biopores can enhance water infiltration and transmission to subsoil
- Surface litter can reduce evaporative losses



❖ Biological, physical and chemical support for crop growth

- Crops and livestock work with soil organisms in efficient production of nutritious food.



Science:

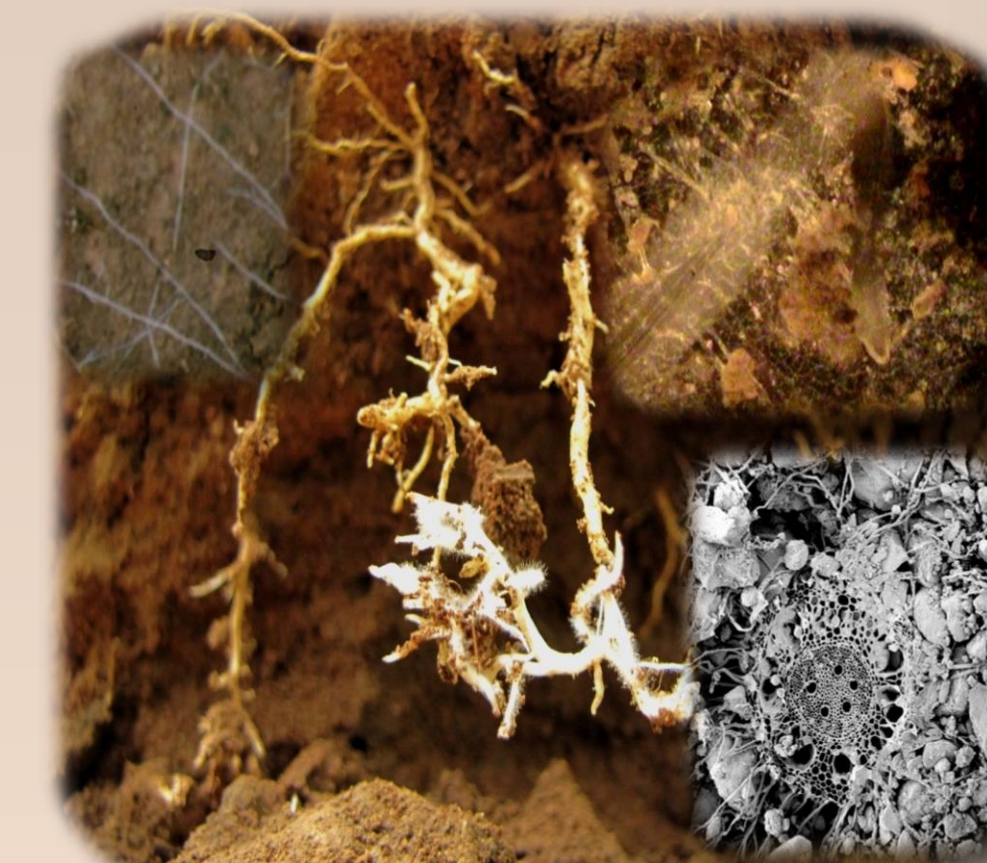
More regenerative, efficient farming systems from research on soil organic matter, nutrient cycles, and rhizosphere ecology

Agriculture uses soil primarily to produce crop plants that (1) feed people or (2) feed animals that people use or (3) provide products such as biofuels, fiber and chemicals. Plants depend on soils, but healthy soils also depend on plants.



Soils supply water and nutrients to plants, but also provide the habitat in which plant roots can interact with the myriad organisms in the soil, from tiny animals like nematodes to microbes like bacteria, archaea and fungi.

Given their complex relationships with soil organisms, crops can hardly be understood apart from the soil ecosystems that surround their roots.



People:

Farmers and soil scientists are leading a soil health revolution in North American agriculture.



Innovative farmers and scientists are finding ways to manage plants to improve soil health as well as feed people, without diminishing the other ecosystem services soils provide such as regulation and purification of water and regulation of atmospheric gases.



After nearly a century of de-emphasizing soil biology and ecological functions, farmers and scientists are now putting soil health front and center in their management strategies. Diverse rotations, continuous no-till, and integrated livestock grazing are allowing high production, enhanced profitability and reduced chemical inputs.



Resources:

Healthy Soil for Life <http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>

McNear Jr., D. H. (2013) The Rhizosphere - Roots, Soil and Everything In Between. *Nature Education Knowledge* 4(3):1 . <http://www.nature.com>

Parikh, S. J. & James, B. R. (2012) Soil: The Foundation of Agriculture. *Nature Education Knowledge* 3(10):2. <http://www.nature.com>

Johnston, A.E., P.R. Poulton, K. Coleman, and L.S. Donald. 2009. Soil organic matter: Its importance in sustainable agriculture and carbon dioxide fluxes, p. 1-57 *Advances in agronomy*, Vol.101. Academic Press.

Soil Science Society of America: #IYS2015