

Commentary

Soil health for agronomic purposes

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INTRODUCTION

Soil health refers to a soil's ability to perform its ecological tasks in a manner that is acceptable to its surroundings. In more layman's words, soil health is the result of harmonious interactions between all soil components (living and non-living), such as bacteria, plants, and animals. It's possible that a soil might be healthy in terms of eco-system function but not necessarily help crop productivity or human nutrition directly, which is why there's a scientific discussion about terminology and measures.

Soil health testing is used to measure this status, however it is mostly used for agronomic purposes, for obvious reasons. Soil health is dependent on soil biodiversity (a healthy soil biota), which may be increased by soil management, particularly by paying attention to weeds.

Protect the soil with live coverings and natural (carbon-containing) soil additives. Inorganic fertilisers may not always harm soil health if they are applied at suitable and not excessive rates, and if they increase overall plant growth, resulting in more carbon-containing residues in the soil.

Soil health has partially, if not entirely, supplanted the term "soil quality," which was used in the 1990's. The main distinction between the two is that soil quality was focused on particular qualities within a functional category, such as "quality of soil for maize cultivation" or "quality of soil for roadbed preparation," and so on. When the term "health" was added, the perspective altered to integrated, holistic, and systemic. The two phrases still have a lot of overlap. However, the term "soil health" originated in Europe's organic or "biological farming" movements, long before soil quality became a discipline in the 1990's. Dr. Otto Buess, a Swiss soil scientist, authored an essay titled "The Health of Soil and Plants" in 1978 that basically defines the field.

The basic idea in the usage of the phrase "soil health" is that soil is a living, dynamic, and ever-so-subtly changing complete ecosystem, not just an inert, lifeless growth medium, as current intensive farming tends to depict. It turns out that soils that are very rich in terms of agricultural yield are also quite vibrant biologically. The bacterial and fungal biomass in temperate grassland soil has been shown to be 1-2 t (2.0 long tons; 2.2 short tons) / hectare and 2-5 t (4.9 long tons; 5.5 short tons)/ha, respectively. Microbes are now thought to govern 80 percent of soil nutrient activities, according to some microbiologists.

A healthy soil can be classified as one of the following, using the human health analogy:

- In terms of biological, chemical, and physical qualities, in a state of composite well-being;
- Not afflicted with sickness or infirmity (*i.e.* not degraded, not degrading), and not generating negative off-site consequences;

With each of its attributes working together to ensure that the soil realizes its maximum potential and resists degradation; providing a broad range of functions (particularly nutrient, carbon, and water cycling) and ensuring that this capacity is maintained in the future.

Soil health refers to the state of the soil in a specific location and on a certain scale in comparison to a set of benchmarks that determine healthy functioning. As with the analogy of soil quality in a functional class, referring to soil health for soil-roadbed preparation would be inappropriate. The phrase "soil health" might be defined differently by different people, depending on how important the many functions of a soil are to them. As a result, the word "soil health" can only be

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understood in the context of the term's user and their objectives for a soil, as well as the soil's border definition. Finally, there are several possibly contradictory viewpoints in the soil health debate. Each claims to have soil health standards, notably ecological landscape evaluation vs. agricultural purposes.

Interpretation

- Depending on the "inherited" properties of the soil as well as its geographic location, various soils will have varying health criteria. The following are some of the general characteristics of a healthy soil:
- The term "productive" encompasses a wide range of possibilities.
- The variety of life is vast;
- In comparison to climate-imposed constraints, absorbency, storage, recycling, and processing are all high.
- The quality of the discharge water is excellent;
- Low entropy, as well as
- There was no harm to or loss of the essential components.