What is Soil?

Soil is a collection of the earth's natural bodies which contains living matter that is able to support the growth of plants. Briefly, soil is composed of four basic components:

Mineral solids (45%)	Water (25%)	Air (25%)	Organic matter (5%)
are stone fragments, sand, silt, and clay (proportion of the three determines the soil's texture).	is the medium that facilitates nutrient and microbes movement through the soil.	provides the oxygen required for cell functioning in aerobic organisms including plant roots.	is any material that originated from, or is part of a living organism.

What is Soil Health?

Soil health is the soil's ability to achieve its full potential and be productive under its intended land use. Soil organic matter (decayed plant or animal material) content is considered one of the most important indicators of soil health. Its content can be increased by growing crops that produce large amounts of high residue, fine roots, (species such as corn, small grains, grasses) and cover crops by adding compost and manure (especially bedded manure). Maintaining soil health is highly important for increased agricultural productivity and maintaining a healthy ecosystem. Therefore, soil health is maintained through assessment of its physical, chemical and biological features and correlating problems. These three indicators are sufficient to enhance the soil health.

Physical Soil Health

This refers to the crumbling (friable) and hardness of the soil. Physically healthy soil does not have hard pans or hard setting surfaces. It has proper soil compaction, holds water well, drains well and does not restrict root growth.

Chemical Soil Health

The ideal soil provides the crop with an adequate supply of macro-and-micro-nutrients, with an absence of toxicity or deficiencies, which means that nutrients are in balance and available for the crop. A limitation of nutrients reduces plant growth and vigor. An oversupply of nutrients can be toxic to plant growth and it can also pollute water ways through leaching.

Biological Soil Health

This is referred to as soil life. The levels of organic matter, population of soil organisms, and abundance of roots are classified as soil biological factors. Healthy soil has more soil organisms than an unhealthy soil of the same type. High organic matter, or carbon content for the soil type, usually means a healthy soil.

Strategies for Maintaining or Improving the Soil Health:

- **Building up of organic matter- This is the addition of plant or animal material that decays in the soil to form humus which:**
  - Provides food for beneficial organisms
  - Increases nutrient retention capacity
  - Improves water retention capacity
  - Improves soil structure
- **Crop rotation- A repeated and planned sequence of different crops grown on the same plot of land to:**
  - Control disease, weeds and insect pests
  - Supply nitrogen if legumes are used in rotation
  - Improve soil organic matter and tilth
  - Reduce erosion