

Caring for soils: Measure, Monitor, Manage

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Soil is not an inert growing medium – it is a living and life-giving natural resource. It is teeming with billions of bacteria, fungi, and other microbes that are the foundation of an elegant symbiotic ecosystem. Year 2024 has marked a significant turning point in our understanding and appreciation of soil health. As we delve deeper into the impacts of soil degradation, it's becoming increasingly clear that safeguarding our soil is not just beneficial, but imperative for a sustainable future.

Understanding Soil Degradation

Soil degradation is a critical environmental issue that often goes unnoticed. It refers to the decline in soil quality caused by various factors, including industrial farming practices, deforestation, and climate change. This degradation adversely affects soil fertility, water retention, and the overall ecosystem.

The Importance of Healthy Soil

Healthy soil is the backbone of our ecosystem. It supports plant growth, regulates water cycles, and acts as a carbon sink. Moreover, it is vital for agriculture, upon which our global food security depends. The United Nations' Food and Agriculture Organization (FAO) emphasises that healthy soil is crucial for meeting global food needs while combating climate change.



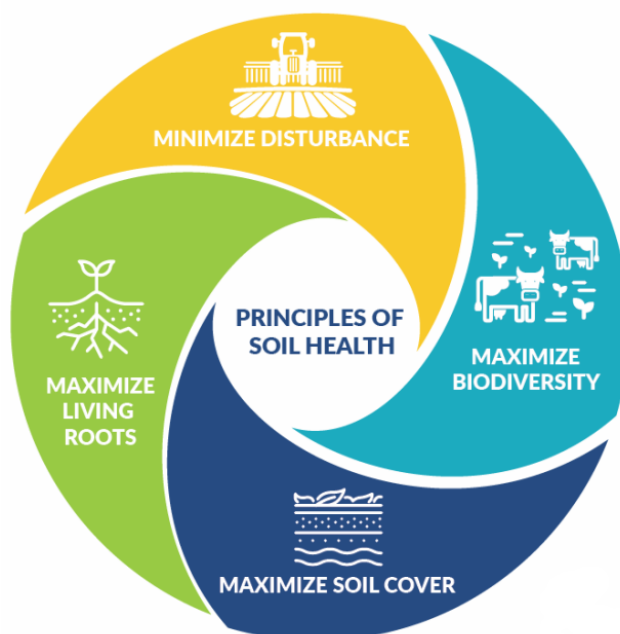
Soil health is defined as the continued capacity of soil to function as a vital living ecosystem that sustains plants, animals, and humans. Healthy soil gives us clean air and water, bountiful crops and forests, productive grazing lands, diverse wildlife, and beautiful landscapes. Soil does all this by performing five essential functions:

1. **Regulating water:** Soil helps control where rain, snowmelt, and irrigation water goes. Water flows over the land or into and through the soil.
2. **Sustaining plant and animal life:** The diversity and productivity of living things depends on soil.
3. **Filtering and buffering potential pollutants:** The minerals and microbes in soil are responsible for filtering, buffering, degrading, immobilizing, and detoxifying organic and inorganic materials, including industrial and municipal by-products and atmospheric deposits.
4. **Cycling nutrients:** Carbon, nitrogen, phosphorus, and many other nutrients are stored, transformed, and cycled in the soil.
5. **Providing physical stability and support:** Soil structure provides a medium for plant roots. Soils also provide support for human structures and protection for archeological treasures.

Principles to Manage Soil for Health

As world population and food production demands rise, keeping our soil healthy and productive is of paramount importance. By farming using soil health principles and systems that include no-till, cover cropping, and diverse rotations, more and more farmers are increasing their soil's organic matter and improving microbial activity. As a result, farmers are sequestering more carbon, increasing water infiltration, improving wildlife and pollinator habitat—all while harvesting better profits and often better yields. Soil health research has determined how to manage soil in a way that improves soil function. Below are listed basic principles based on which we can improve soil health:

1. Maximize Presence of Living Roots
2. Minimize Disturbance
3. Maximize Soil Cover
4. Maximize Biodiversity



Actions to be taken in 2025

As we forge ahead into 2025, it is crucial for individuals, communities, and governments to prioritize soil health. Here are some key steps to consider:

1. **Support Sustainable Farming Practices:** Choosing organic and locally grown produce supports farming methods that are kinder to the soil.
2. **Educate and Spread Awareness:** Understanding the importance of soil health is the



first step towards making informed decisions and advocating for better policies.

3. Invest in Soil Health Research: Continued research is vital to develop innovative solutions to combat soil degradation.

The health of our planet's soil is not just an agricultural issue; it is an environmental, social, and economic concern that demands our immediate attention. In 2025, let's commit to prioritizing soil health, for it is the foundation upon which our future depends. Soil is home to over a quarter of all living species on the earth. It ensures food, fodder, fiber and renewable energy supplies to sustain human, animal, and plant life. Our planet's survival depends on its precious link with soil. Over 95 percent of our food comes from soils. Besides, they supply 15 of the 18 naturally occurring chemical elements essential to plants.

However, in the face of climate change and human activity, our soils are being degraded. Erosion disrupts the natural balance, reducing water infiltration and availability for all forms of life, and decreasing the level of vitamins and nutrients in food.

How to Participate in World Soil Day 2025?

Participating in World Soil Day provides an opportunity to learn about the importance of soil conservation and sustainable practices. Here are ways to get involved:

- **Education and Awareness:** Learn about soil conservation and its impact on food security, biodiversity, and climate change. Share this knowledge with others.
- **Organize Events:** Host workshops, seminars, or conferences focusing on soil health and sustainable agriculture practices.
- **Soil Restoration:** Participate in local soil restoration projects or tree planting activities to help improve soil quality and prevent erosion.



- **Advocate for Sustainable Agriculture:** Support policies and practices that promote sustainable farming, reduce soil degradation, and protect natural ecosystems.
- **Engage in Gardening:** If you have a garden, use organic gardening methods that benefit soil health, such as composting and mulching.
- **Spread Awareness:** Use social media and other platforms to share information about World Soil Day and its importance. Encourage others to take action.

History of World Soil Day

World Soil Day was officially designated by the United Nations General Assembly in 2013 to raise awareness about the significance of soil as a vital resource. It has since become an annual event to promote soil conservation and sustainable land management. The day aims to emphasize the essential role of soil in providing food, supporting ecosystems, and mitigating climate change, as well as the need for responsible soil stewardship.

World Soil Day (WSD) is held annually on 5 December as a means to focus attention on the importance of healthy soil and to advocate for the sustainable management of soil resources. This date was chosen to coincide with the birthday of the late King Bhumibol Adulyadej of Thailand, a champion of soil resources conservation.

An international day to celebrate soil was recommended by the International Union of Soil Sciences (IUSS) in 2002. Under the leadership of the Kingdom of Thailand and within the framework of the Global Soil Partnership, FAO has supported the formal establishment of World Soil Day as a global awareness raising platform. The FAO Conference unanimously endorsed World Soil Day in June 2013 and requested its official adoption at the 68th UN General Assembly. In December 2013, the UN General Assembly responded by designating 5th December 2014 as the first official World Soil Day.



Sustainable soil management practices, such as minimum tillage, crop rotation, organic matter addition, and cover cropping, improve soil health, reduce erosion and pollution, and enhance water infiltration and storage. These practices also preserve soil biodiversity, improve fertility, and contribute to carbon sequestration, playing a crucial role in the fight against climate change.

According to the United Nations, by 2030 the population will be around 8.5 billion people, which is an ever increasing number of mouths to feed. According to the United Nations, around 95% of the food we eat comes from soil, meaning that this substance that we all take for granted is essential to our health and the health of the planet.

Soil Health Management Strategies:

However, if our soil is not managed, maintained or used sustainably, we will not be able to produce enough food or get the nutrients that we need. World Soil Day, held annually on 5 December, helps to focus attention on the importance of healthy soil and to advocate for the sustainable management of soil resources. World soil health is under pressure from several threats including erosion, loss of soil organic carbon and biodiversity, pollution, and salinisation. Soil nutrient loss is a major soil degradation process threatening nutrition and is recognized as being among the most important problems at a global level for food security and sustainability. With unprecedented and growing demands for food, water and energy, there is an urgent need to address the challenges of climate change and land degradation, whilst protecting soil as a natural resource.

Soil holds the key to our planet's past and future and is the answer to our food, water and energy security, mitigating and adapting to climate change, the safeguarding of biodiversity, and the protection of human health. On the path towards enough food resources for the world's growing population and a more sustainable future, we cannot afford to lose any more fertile land. We must focus on maintaining and restoring our soils, finding solutions to meeting environmental targets, achieve climate neutrality, zero pollution, sustainable food provision and a resilient and biodiverse environment.



Soils that are in good and healthy condition, are biodiverse, not sealed, crusted or compacted, can store more carbon, absorb water like a sponge, improve water quality and reduce runoff from cropland. In these soils water is held for longer, before seeping downwards having been purified, contributing to groundwater formation. Our soil serves as media for growth of all kinds of plants, modifies the atmosphere by emitting and absorbing gases (carbon dioxide, methane, water vapor, and the like) and dust. It provides habitat for animals that live in the soil and to organisms, such as bacteria and fungi, that account for most of the living things on Earth. Not only that, our soil absorbs, holds, releases, alters, and purifies most of the water in terrestrial systems. When managed well, soil can store significant amounts of rainfall, preventing flooding, and can stop soil washing away, which can affect the health and safety of communities. Sustaining life in soil is essential to ensure soil health, which supports our ability to grow food and farm effectively. Put simply, healthy soil equals a healthy planet and population.

Changing farming practices and properly understanding and managing life in soil is a long-term investment and the essence for maintaining soil health. Like us, soils need a balanced and varied supply of nutrients in appropriate amounts to be healthy. Agricultural systems lose nutrients with each harvest, and if soils are not managed sustainably, fertility is progressively lost, and soils will produce nutrient-deficient plants. Simply increasing soil organic matter alone improves moisture holding capacity and soil structure, so when it rains, more of it soaks into the ground, reducing flooding.

**“The nation that destroys its soil, destroys itself.” - Franklin Delano Roosevelt,
32nd President of The United States of America**

History of World soil day with themes and logo ever since 2015



