
Lecture 6

Soil management Technology

Management Practices to Improve Soil Health

➤ Nutrient management:

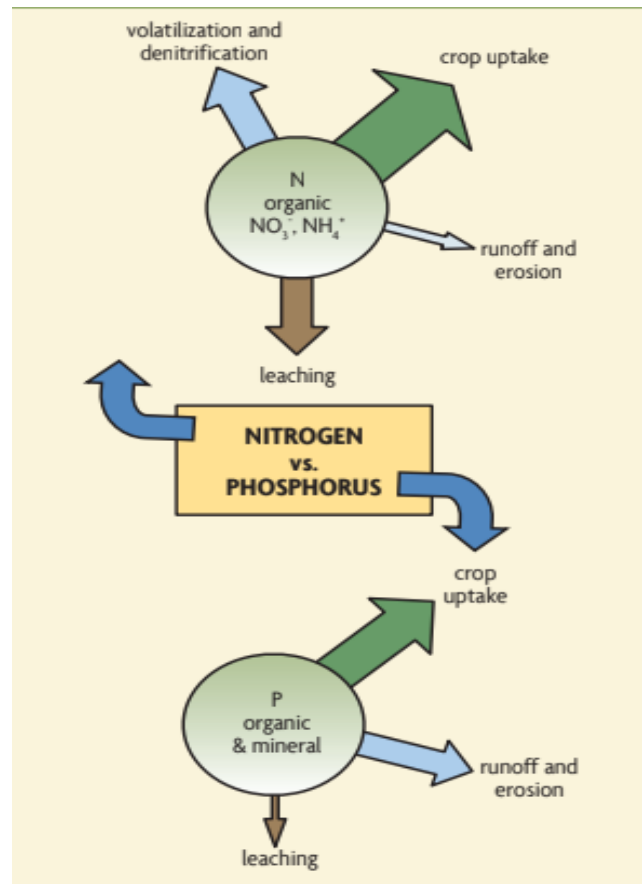
Carefully planning the timing, application method, and quantity of manure, compost, and other fertilizers will allow you to meet crop nutrient demands and minimize nutrient excesses. Healthy, vigorous plants that grow quickly are better able to withstand pest damage. However, over fertilizing crops can increase pest problems. Increasing soluble nitrogen levels in plants can decrease their resistance to pests, resulting in higher pest density and crop damage.

Maintaining a soil pH appropriate for the crop to be grown will improve nutrient availability and reduce toxicity.

Maintaining adequate calcium levels will help earthworms thrive and improve soil aggregation.

Nutrient Management Goals

- Satisfy crop nutrient requirements for yield and quality.
- Minimize pest pressure caused by excess N fertilizer or deficiency of nutrients.
- Minimize the environmental and economic costs of supplying nutrients.
- Use local sources of nutrients whenever possible.
- Get full nutrient value from fertility sources.

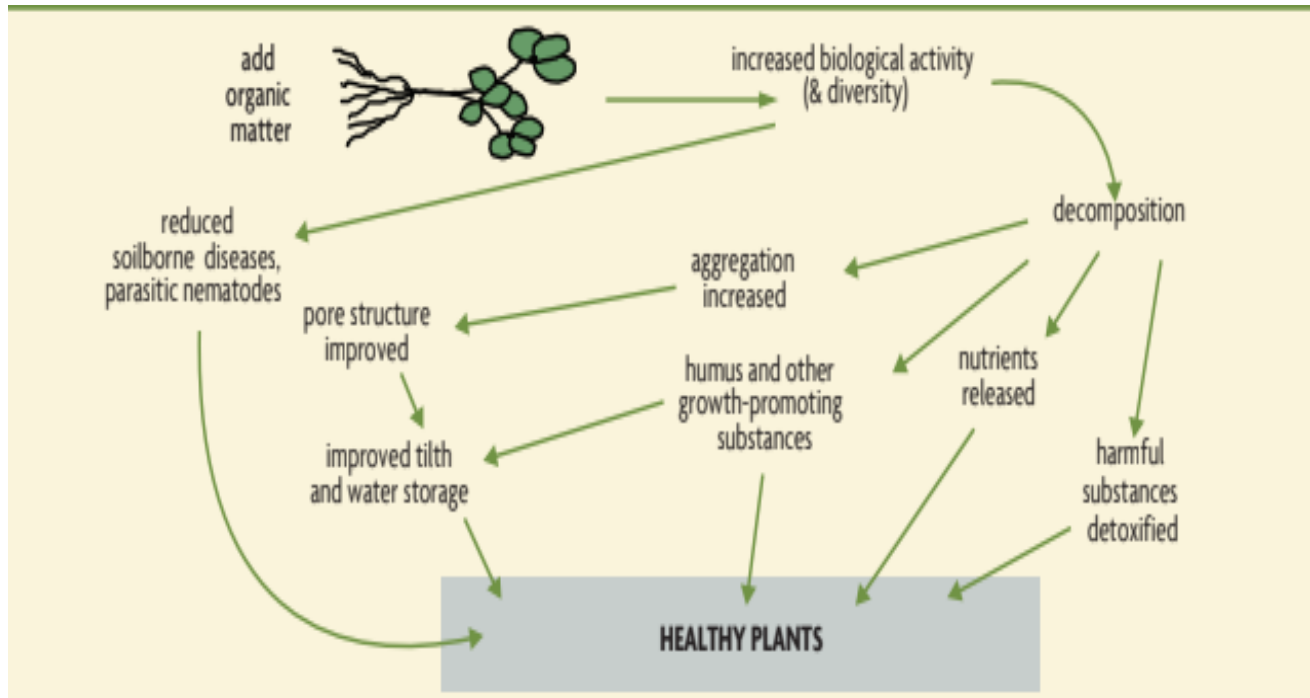


➤ Increase Organic Matter :

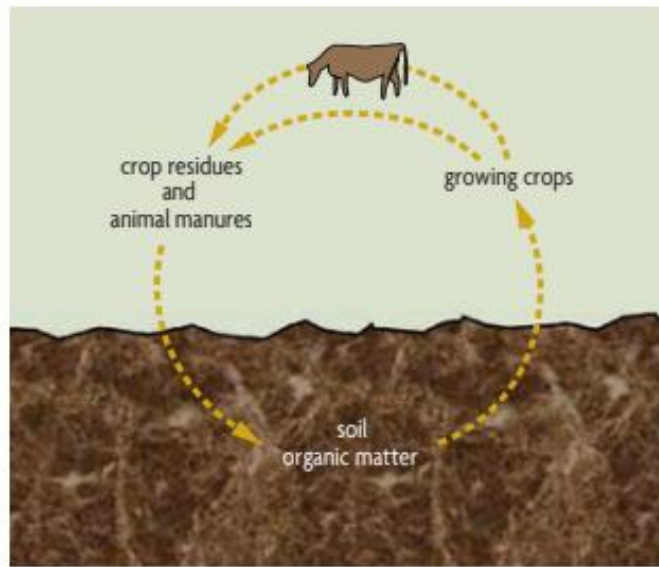
Organic matter—the key to healthy soils, to maintain or increase soil organic matter levels, inputs of organic matter must meet or exceed the losses of organic matter due to decomposition. Healthy crops can be a valuable source of organic matter, and crop residues should be returned to the soil to the extent possible. Incorporation of cover crops or perennial crops and judicious additions of animal and green manure and compost can also be used to increase or maintain soil organic matter.

Soil organic matter content can be monitored over time if you request an organic matter analysis when submitting soil fertility samples to your soil testing laboratory. Be sure that your organic matter comparisons over time are based on data from the same lab or from labs that use the same procedure for organic matter analysis, as results can differ significantly between analysis methods.

WHY SOIL ORGANIC MATTER IS SO IMPORTANT A fertile and healthy soil is the basis for healthy plants, animals, and humans. And soil organic matter is the very foundation for healthy and productive soils.



Nutrients from decomposing organic matter. Most of the nutrients in soil organic matter can't be used by plants as long as those nutrients exist as part of large organic molecules. As soil organisms decompose organic matter, nutrients are converted into simpler, inorganic, or mineral forms that plants can easily use. This process, called mineralization, provides much of the nitrogen that plants need by converting it from organic forms.



The amount of organic matter in any particular soil is the result of a wide variety of environmental, soil, and agronomic influences. Some of these, such as climate and soil texture, are naturally occurring. Agricultural practices also influence soil organic matter levels. Tillage, crop rotation, and manuring practices all can have profound effects on the amount of soil organic matter.

