



Soil Types

Overview

Healthy, productive soil is the foundation of growing healthy crops. You may not be able to change the type of soil on your farm, but you can engage in practices that help keep your soil healthy.

What you should know

- Soil textures are classified as clay, silt or sand. Clay has the smallest particles, and sand has the largest. A loam soil has a combination of all three textures.
- Each type of soil has advantages and drawbacks. For example, clays are hard to work, but also hold nutrients and moisture very well. Sandy soil has lots of space between particles, which provides good aeration, but also means it doesn't hold onto water, making it vulnerable to drought.
- Soil structure refers to the arrangement of soil particles. Texture cannot be changed, but structure can be—through various management practices. The ideal soil structure is fluffy and loose and has a crumb-like feel.

Action steps

1. **Manage aggregates:** Bacteria, fungi, roots and other activity create “glues” that stick soil particles together, forming aggregates. Water-stable aggregates help soil maintain structure and good moisture control. Reduce tillage to maintain aggregates and use cover crops and other organic matter to help feed the soil's aggregate-making processes.
2. **Avoid compaction:** Running equipment over wet ground pushes soil particles together, leaving less room for air and water, and making it harder for roots to penetrate. Reducing traffic, adding organic matter to the soil and rotating to crops with strong taproots can help reduce compaction.
3. **Improve water-holding capacity:** Soil textures play a role in water-holding capacity—sandy soil has less water-holding capacity than clay, for example. But you can improve water-holding capacity by adding organic matter like compost and manure, using cover crops, reducing tillage and rotating crops.

“Introduction to soils: Soil quality.” 2012. Penn State Extension. <https://extension.psu.edu/introduction-to-soils-soil-quality>.

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No matter the texture of your soil, management practices can help improve soil structure for better productivity.



30-Second Summary

- Soil texture is defined by particle size and shape. An ideal soil contains a mixture of sand, silt and clay.
- Soil structure describes how soil particles are arranged. It can be changed through management practices.
- Aggregates, compaction and water-holding capacity are a few of the factors that can be managed in your soil.

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