

# Soil is the foundation of all life on Earth.

Everything (the food we eat, the shelter we live in, the clothes we wear, and the oxygen we breathe) comes, directly or indirectly, from the soil.

## The quality (health) of a soil influences:

the amount of nutrients available for plant growth. Plants require 16 essential nutrients, and all but three are found in the soil.

the quality of the home and food for soil microorganisms.

the amount of water runoff and infiltration.

its ability to act as a filter for quality water for drinking, wildlife habitat or recreation.

Without soil that is healthy and productive, the ecosystems in which we live would cease to exist.

Soil scientists, working cooperatively with and through the United States Department of Agriculture's Natural Resources Conservation Service, have identified over 650 different soils in South Dakota.

Most of these soils are medium-textured and have high natural fertility. Each type of soil has its own unique combination of colors, organic matter levels, textures, horizons, parent materials and chemical properties.

Free information about specific uses of soil can be found in detailed soil surveys. All counties in South Dakota have detailed soil survey information that is available from local Natural Resources Conservation Service, conservation district, or Cooperative Extension Service offices.

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South Dakota Chapter of the Soil and Water Conservation Society  
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Professional Soil Scientists Association of South Dakota  
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# Soil the basis of life



**Houdek**  
South Dakota's  
State Soil

It takes 500 years for Mother Nature to build one inch of topsoil.

## Economic Importance of Soil for South Dakota

Agriculture is the state's leading industry. It has a \$17 billion impact on the state's economy. The productivity of our soils for cropland, hayland, pastureland and rangeland is directly controlled by the health of our soils.

Tourism is our state's second most important industry and it also has a tremendous impact on our economy. Hiking, biking, fishing, boating, hunting, etc., are all dependent on the health of our natural resources.

Soil provides a foundation for our buildings and roads. Some soils are better (more capable) than others for providing a steady foundation.

## HOUDEK South Dakota's State Soil

The South Dakota legislature made Houdek (pronounced hoo-deck) the official state soil in 1990. Houdek soil does not occur in any other state and it is representative of soils formed under the influence of prairie grasses.

Houdek soil was chosen as the state soil because Houdek and closely-related soils occur on more than two million acres across the state.

Scientists classify the Houdek soil as fine-loamy, mixed, superactive mesic Typic Argiustolls.

## Soil has life!

Soil is a dynamic natural resource that is biologically active because it contains millions of living organisms.

A biologically active soil is a healthy soil and has a balance of millions of living organisms from earthworms to tiny bacteria. One teaspoon of healthy topsoil can contain 100 million individual bacteria and thousands of algae and protozoa cells!

These organisms are responsible for many changes in the soil. They decompose dead plant and other organic materials into a substance called humus. Microbes improve soil structure by gluing soil particles together. Soil with good structure is less likely to erode and provides a good medium for plants to grow.

The biological activity of a soil is an indication of the quality of life in that soil. For example, in healthy soil there can be 600 pounds of microbes in an acre. This means that a cow grazing on several acres of rangeland could be outweighed by the microbes grazing within the rangeland!



Healthy soil enhances everyone's quality of life!

## Keeping Soil Healthy

Soils, like people, are most productive when they are healthy and fit. The health of a soil affects its ability to support plant and animal life, maintain or enhance water and air quality, and support human health and survival.

Organic matter is essential for healthy soil and helps maintain:

- microbial life,
- better soil structure,
- better soil tilth,
- water infiltration, and
- a food source for plants.

Across the countryside, farmers and ranchers use conservation to help care for the soil. Some common practices are growing different crop types in a rotation, limiting tillage and the use of rotational grazing.

When farmers and ranchers use these conservation practices, they increase the biological activity in the soil, which optimizes production and keeps the soil healthy.

Everyone can take part in keeping soil healthy and fit. This can be done by increasing organic matter through mulching, composting, and applying nutrients and pesticides properly.

Generalized Houdek Distribution

