



SOILS GLOSSARY

Most of the definitions listed below are from modern soil survey publications for South Dakota counties. For a more complete glossary refer to these publications available in county Natural Resources Conservation Offices and the county Cooperative Extension Service Offices.

- Acre-inch** - the volume of water it would take to cover an acre of land to the depth of one inch.
- Alluvium** - material, such as sand, silt, or clay, deposited on land by streams.
- Basin** - a low area with no surface water outlet.
- Bedrock** - the solid rock that underlies the soil and other unconsolidated material or that is exposed at the Earth's surface.
- Butte** - an isolated, usually flat-topped hill characterized by steep slopes often capped with a resistant layer of rock. When the summit area increases in size the buttes are called mesas.
- Clay** - as a soil separate, rock or mineral soil particles $<.002$ mm in diameter. As a soil textural class, soil material that is 40 % or more in clay, <45 % sand, and <40 % silt.
- Coarse textured soil** - sand, loamy sand, and coarse sandy loam.
- Colluvium** - soil material, rock fragments, or both moved by creep, slide, or local wash, and deposited at the base of steep slopes.
- Conservation tillage** - a tillage system that does not invert the soil and that leaves a protective cover of plant residue on the soil surface throughout the year.
- Contour farming** - growing crops in strips that follow the contour of the land.
- Contour strip cropping** - growing crops in strips that follow the contour. Strips of grass or clover - growing crops are alternated with strips of clean tilled crops or summer fallow.
- Cretaceous** - the period in the geologic history following the Jurassic Period and ranging from about 135 million years ago until 65 million years ago.
- Dune** - a mound, ridge, or hill of loose, windblown granular material (usually sand), either bare or covered with vegetation.
- Electrical Conductivity (EC)** - a test used to measure the ease with which a current can flow through a soil saturation extract. If the EC value is less than 4 mmhos/cm, then the soil is considered normal and if the soil has an EC of 4 or higher it is considered saline.
- Eolian soil material** - material accumulated through wind action; commonly refers to sandy material in dunes or to loess (silts). Often deposited like blankets on the surface.
- Erosion** - the wearing away of the land surface by wind, water, ice, or other geologic agents.

Fallow - summer cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grains are grown. The soil is tilled for at least one growing season for weed control and decomposition of organic matter.

Fertility - the quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, and other growth factors are favorable.

Fine-textured soil - sandy clay, silty clay and clay.

Flood plain - a nearly flat alluvial lowland that borders a stream and is subject to flooding unless protected artificially.

Forb - any herbaceous plant, not a grass or sedge.

Genesis, soil - the mode of origin of the soil. Refers to the processes of soil-forming factors (parent material, time, living matter, relief and climate) responsible for the formation and development of the soil.

Glacial drift - rock material transported by glacial ice and then deposited by or from the ice, or by running water emanating from a glacier.

Glacial outwash - gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

Glacial till - unsorted, unstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited directly by ice.

Glacier - a large mass of ice formed, at least in part, on land by the compaction and recrystallization of snow, moving by creeping downslope or outward in all directions due to the stress of its own weight, and surviving from year to year.

Gleyed soil - soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile. Gray, green, or yellow soil colors and mottles may or may not be present.

Horizon, soil - a layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lower case letters that follow represent subdivisions of the major horizons. The major horizons are as follows:

O horizon. An organic layer of fresh and decaying plant residue.

A horizon. The mineral horizon at or near the surface in which an accumulation of organic matter is mixed with mineral material.

B horizon. The mineral horizon below an O, A, or E horizon. The B horizon is in part a layer of transition from the overlying horizon to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, iron/aluminum oxides, humus, salts, or a combination of these; (2) granular, blocky, prismatic, or columnar structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon. The mineral horizon or layer, excluding hard bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying horizon. The material of a C horizon may be either like or unlike that in which the solum is formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon. Soft, consolidated bedrock beneath the soil (e.g. shale, weathered sandstone). It can be easily dug with a spade.

E horizon. A mineral layer where there has been significant loss of clay, humus, and/or iron oxides resulting in a layer that is lighter in color and coarser in texture than the layers above and below.

R horizon. Hard, consolidated bedrock beneath the soil (e.g. granite, quartzite, limestone). The bedrock commonly underlies a C horizon but can be directly below an A or a B horizon.

- Igneous rock** - rock formed by solidification from a molten or partially molten state (e.g. granite, basalt).
- Infiltration** - the downward entry of water into the immediate surface of the soil, as contrasted with leaching (percolation), which is the movement of water from the soil.
- Irrigation** - application of water to soils to assist in plant growth.
- Leaching** - the removal of soluble material from soil or other material by percolating water.
- Legume** - the family of plants, including peas and beans, that have bacteria-containing nodules on their roots that can change atmospheric (gaseous) nitrogen into forms usable by plants and animals.
- Limestone** - a sedimentary rock consisting chiefly of calcium carbonate, primarily in the form of calcite.
- Loam** - a soil texture that is about equally influenced by sand, silt, and clay and containing good amounts of organic matter.
- Loess** - a fine-grained deposit composed, dominantly, of silt-sized particles, deposited by the wind.
- Medium-textured soil** - very fine sandy loam, loam, silt loam, silt, clay loam, silty clay loam, and sandy clay loam.
- Metamorphic rock** - any rock that has been altered by mineralogical and/or structural changes by heat, pressure, chemical environment, and movement.
- No-till** - a conservation tillage system in which the surface is disturbed only in the immediate area of the planted seed row. The disturbed area is approximately 1 to 3 inches (3 to 8 cm) wide. Weeds are controlled primarily by herbicides.
- Outwash** - stratified coarse-textured materials (chiefly sand and gravel) removed or "washed out" from a glacier by melt-water streams and deposited in front of or beyond the end moraine or the margin of an active glacier.
- Parent material** - the unconsolidated organic and mineral material from which soil develops.
- Permeability** - the property or capacity for transmitting a fluid. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are: *Very slow* = <0.06 in/hr; *Slow* = 0.06 to 0.2 in/hr; *Moderately slow* = 0.2 to 0.6 in/hr; *Moderate* = 0.6 to 2.0 in/hr; *Moderately rapid* = 2 to 6 in/hr; *Rapid* = 6 to 20 in/hr; and *Very Rapid* = >20 in/hr.
- Plant available water capacity** - the capacity of soils to hold water available for use by most plants.
- Pleistocene** - an epoch of the Quaternary Period of geologic time (approximately 2 to 3 million to 10 thousand years ago).
- Profile, soil** - a vertical section of the soil extending through all its horizons and into the parent material.
- Saline soil** - a soil containing soluble salts in an amount that impairs growth of plants (EC > 4 mmhos/cm). A saline soil does not contain excess exchangeable sodium.
- Sandstone** - sedimentary rock containing dominantly sand sized particles.
- Sedimentary rock** - a rock resulting from the consolidation of loose sediment that has accumulated in layers, or formed by the precipitation from solution (e.g. shale, sandstone, limestone).
- Separate, soil** - mineral particles less than 2.00 mm in diameter and ranging between specified size limits. The names and sizes (in mm) of separates recognized in the United States are: very coarse sand (2.0-1.0); coarse sand (1.0-0.5); medium sand (0.5-0.25); fine sand (0.25-0.1); very fine sand (0.1-0.05); silt (0.05-0.002) and clay (less than 0.002).
- Series, soil** - a group of soils that have profiles that are almost alike, except for minor differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale - sedimentary rock formed by the consolidation of a clay or mud and having the tendency to split into thin layers.

Silt - as a soil separate, individual mineral particles that range in diameter from the upper clay limit (0.002 mm) to the lower limit of very fine sand (0.05 mm). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone - sedimentary rock like shale but lacking in the tendency to split into thin layers.

Sodic soil - a salt-affected soil containing exchangeable sodium in an amount that impairs plant growth and significantly alters the soil's physical and chemical properties (SAR \geq 13).

Sodium adsorption ratio (SAR) - a way to measure sodium in the soil. A value of 13 or higher indicates the soil is sodic.

Stratified - formed, arranged, or laid down in layers. The term refers to geologic deposits. Layers in soils that result from soil forming processes are called horizons; those inherited from the parent material are called strata.

Strip cropping - growing crops in a systematic arrangement of strips or bands which provide vegetative barriers to wind and water erosion.

Strip-till - a conservation tillage system in which tillage is limited to a strip not wider than one-third of the row width. Rototillers, in-row chisels, or row cleaners are used during tillage. Weeds are controlled by a combination of herbicides and cultivation.

Structure, soil - the arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are: *platy* (laminated), *prismatic* (vertical axis longer than horizontal), *columnar* (prism with rounded top), *blocky* (angular or sub-angular, roughly equal dimensional), and *granular*. *Structureless* soils are either *single grain* (each grain by itself is a structural unit) or *massive* (the particles adhering without any regular cleavage, as in plowpans).

Stubble mulch - Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil - technically, the B horizon; roughly, the part of the solum below plow depth.

Terrace - an embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet.

Tertiary - a period of the Cenozoic Era of geologic time (65 to 2 to 3 million years ago).

Till - dominantly unsorted and unstratified drift, deposited by a glacier, and consisting of a heterogeneous mixture of clay, silt, sand, gravel, stones, and boulders.

Topsoil - the upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to rebuild road banks, lawns, and land affected by mining.

Transpiration - the movement of water out of a plant through the pores in leaves or other plant parts.

Weathering - all physical and chemical changes produced in rocks or other deposits by atmospheric agents. These changes result in disintegration and decomposition of the material.

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