

Soils

Glossary of Terms

For complete glossary contents see Washington State University Extension publication EM063E *A Home Gardener's Guide to Soils and Fertilizers*.

aeration—A process by which air is circulated through, mixed with, or dissolved in a substance (soil).

aggregation—The process of sand, silt, clay, and organic matter forming clumps, also called peds.

biosolids—Products of municipal wastewater treatment that contain nutrients, organic matter, and inorganic constituents. Class A biosolids have been treated to remove pathogens and are suitable for use in gardens and landscapes. Biosolids composts and blends are soil amendments, while dried biosolids products are used as fertilizers.

capillary force—The action by which water molecules bind to the surfaces of soil particles and to each other, thus holding water in micropores against the force of gravity.

carbon sequestration—occurs when plants remove CO₂ from the atmosphere, and the carbon is stored in plants and soils. It is one tool to reduce atmospheric CO₂ levels and mitigate climate change

clay—The smallest type of primary soil particle (less than 0.002 mm in diameter).

composting (cold & hot)— A. Cold composting is a slow process that involves building a compost pile and leaving it to decompose for a year or longer. Cold composting does not kill weed seeds or pathogens. B. Hot composting produces finished compost in two to four months. Heat is maintained for decomposing by mixing balanced volumes of energy materials (green) and bulking agents (brown), keeping the compost pile moist, and turning it frequently.

compaction—Pressure that squeezes soil into layers that resist root penetration and water movement. Often the result of foot or machine traffic, but also caused by rain on bare soil.

compost—Stabilized organic matter produced by the controlled biological decomposition of organic materials. Compost may be used as a soil amendment to add organic matter and slowly release nutrients or as a mulch that is later turned into the soil.

cover crop—Plants grown to protect soil from water runoff and soil erosion and to add organic matter to soil.

decomposition—The breakdown of organic materials by microorganisms.

dolomitic limestone—A type of limestone that contains magnesium as well as calcium.

fertilizer—A natural or synthetic product added to the soil to supply plant nutrients.

fertilizer analysis—The amount of primary nutrients (nitrogen (N), phosphorus (P), and potassium (K)) required by plants in large amounts and expressed as percent of fertilizer weight.

green manure—Cover crops that are grown to be incorporated into the soil for nutrient and organic matter benefits, or left on the soil surface as mulch.

infiltration—The movement of water through the soil.

leaching—Movement of water and soluble nutrients down through the soil profile.

lime—Ground limestone rock (calcium carbonate, CaCO_3) applied to soil to raise pH.

loam—A soil with roughly equal amounts of sand, silt, and clay particles.

macropore—A large soil pore. Macropores include earthworm and root channels, and they control a soil's permeability and aeration.

micronutrient/trace element—A nutrient used by plants in small amounts (iron, zinc, molybdenum, manganese, boron, copper, and chlorine).

micropore—A small soil pore, typically a fraction of a millimeter in diameter. Micropores are responsible for a soil's ability to hold water.

organic amendment—A material of biological origin that is added to soil to build soil organic matter and improve soil health. Examples include compost, manure, and cover crop residues.

organic fertilizer—A natural fertilizer material that has undergone little or no processing. It can include plant, animal, and/or mineral materials. Organic fertilizers are generally richer in nutrients than organic amendments.

organic mulch—An organic material (often woody) that is placed on the surface of the soil to reduce evaporation loss, protect the soil surface from erosion, smother weeds, and buffer soil temperature changes. Examples include ground bark, arborist chips, and straw.

pathogen—A disease-causing soil organisms, including bacteria, viruses, fungi, and nematodes.

permeability—The rate at which water moves through a soil.

phosphate—The form of phosphorus listed in most fertilizer analyses (P2O5).

pH—A measure of soil acidity or alkalinity. Values less than 7 indicate acidity, a value of 7 is neutral, and values greater than 7 indicate alkalinity. Most soils have a pH between 4.5 and 9.

potash—The form of potassium listed in most fertilizer analyses (K2O), as on packaged fertilizers.

processed fertilizer—A fertilizer that is manufactured or is refined from natural ingredients into a more concentrated form that is more available to plants.

quick-release fertilizer—A fertilizer that contains nutrients in plant-available forms sold as ammonium and nitrate.

sand—The coarsest type of primary soil particle (0.05 to 2 mm in diameter).

secondary nutrient—A nutrient needed by plants in a moderate amount (sulfur, calcium, and magnesium).

silt—A primary soil particle of intermediate size (between the size of sand and clay) at 0.002 to 0.05 mm in diameter.

slow-release fertilizer—A fertilizer material that is converted into a plant-available form by soil microorganisms.

soil—A natural, biologically active mixture of weathered rock fragments and organic matter at the earth's surface.

soil health—The continued capacity of a soil to function as a vital living ecosystem that sustains plants, animals, and humans.

soil structure—The arrangement in the soil of aggregates (peds) formed by the process of individual particles of sand, silt, and clay, and organic matter that cluster and bind together to form clumps.

soil texture—How coarse or fine a soil is. Texture is determined by the proportions of sand, silt, and clay in the soil.

water-holding capacity—The ability of a soil's pores to hold water for plant use.