

Soil Formation & Evaluation

Photosynthesis

process of converting light energy to chemical energy and storing it in the bonds of sugar

Respiration

process by which organisms oxidize sugars and derive energy in the form of ATP from the molecular bonds which are broken

Soil Aeration

exchange of soil and atmospheric air to maintain oxygen for plant roots

Organic Matter

substance comprised of decomposed plant and animal residues, microorganisms and partially decayed plant material and microbes which provides structure, greater water holding capacity, diversity and greater nutrient availability to soil

Permeability

rate at which water and air move into and through the soil is affected by the amount, size and arrangement of soil pores

Porosity

void spaces in soil, known as pores, which can be filled with air or water

Water-Holding Capacity

amount of water a soil can hold for plant use

Aggregate

groups of soil particles which bind to each other more strongly than adjacent particles

Bulk Density

dry weight of soil per unit volume of soil; indicates the degree of structure or compaction present in the soil

Soil pH

measure of the acidity or alkalinity of a soil

Soil Salinity

quantity and availability of soluble salts in soil

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Electrical Conductivity (EC)

measure of how well a solution accommodates the transport of an electric charge

Cation Exchange Capacity (CEC)

measure of the quantity of cations which can be absorbed and held by a soil

Buffer Capacity

ability of a solution to resist changes in pH

Gravitational Water

water which moves through soil due to the force of gravity and is found in macropores

Capillary Water

water which is held in soil against the pull of gravity, yet can be removed by plant uptake or air drying

Hygroscopic Water

thin film of water which surrounds soil particles and is bound so tightly by forces of adhesion it cannot easily be removed by plant roots

Field Capacity

maximum amount of water a soil can hold against the pull of gravity

Permanent Wilting Point (PWP)

soil moisture content at which plants can no longer obtain enough moisture to meet transpiration requirements, causing the plant to wilt and die

Hydraulic Conductivity

quantitative measure of how easily water flows through soil

Infiltration

process by which water is absorbed into the soil from the ground surface

Percolation

movement of water through soil

Water Table

level below which the ground is saturated with water

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Weathering

mechanical or chemical breaking down of rocks

Aspect

particular direction a slope faces

Soil Fertility

quality of soil and its ability to sustain plant life and provide adequate nutrients

Soil Productivity

performance in total of a soil based on its physical, chemical and biological attributes