

Woody Plant Vocabulary

abscission zone - cells at petiole base where breakdown leads to leaf or fruit drop.

absorbing root - fine, fibrous roots that take up water and minerals. Most absorbing roots are within the top 12 inches of soil.

adventitious bud - bud arising from a place other than a leaf axil or shoot tip usually as a result of hormonal triggers.

angiosperm - plant with seeds borne in an ovary. Divided into monocotyledons and dicotyledons. Contrast with *gymnosperm*.

antigibberellin - plant growth regulator that inhibits the action of the plant hormone gibberellin, which among other things, regulates cell elongation.

apical bud - bud at tip of a twig or shoot, also terminal bud.

apical dominance - condition in which the terminal bud inhibits the growth and development of the lateral buds.

apical control - inhibition of lateral buds, decreasing from the top down by apical buds over many seasons, resulting in trees with an excurrent growth pattern.

auxin - plant hormone or substance that promotes or regulates the growth and development of plants. Produced at sites where cells are dividing, mostly in shoot tips.

balled and burlapped (B&B) - tree or other plant dug and removed from the ground for replanting, with the roots and soil wrapped in burlap or burlap-like fabric. Contrast with *bare root*, *container grown* and *containerized*.

bare root - tree or other plant removed from the ground for replanting without soil around the roots. Contrast with *container grown*, *containerized*, or *balled and burlapped*.

branch bark ridge - raised strip of bark at the top of a branch union, where the growth and expansion of the trunk or parent stem and adjoining branch push the bark into a ridge.

branch collar - area where a branch joins another branch or trunk that is created by the overlapping vascular tissues from both the branch and the trunk, typically enlargement at the base of the branch.

branch protection zone - chemically and physically modified tissue within the trunk or parent branch at the base of a smaller, subordinate branch that retards the spread of discoloration and decay from the subordinate stem into the trunk or parent branch.

buttress root - roots at the trunk base that help support the tree and equalize mechanical stress.

bud - (1) small lateral or terminal protuberance on the stem of a plant that may develop into a flower or shoot. (2) undeveloped flower or shoot containing meristematic growing point.

cambium - thin layer(s) of meristematic cells that can become phloem (outward) and xylem (inward) increasing stem and root diameter.

carbohydrate - a sugar or starch compound, combining carbon, hydrogen, and oxygen that is produced by plants as a result of photosynthesis.

cellulose - complex carbohydrate found in the cellular wall of the majority of plants, algae, and some fungi.

chlorophyll - green pigment of plants found in chloroplasts. Captures the energy of the sun and is essential in photosynthesis.

chloroplast - specialized structure found in some cells. Site of photosynthesis.

CODIT - acronym for Compartmentalization of Decay In Trees. See compartmentalization.

Compartmentalization - natural defense process in trees by which chemical and physical boundaries are created that act to limit the spread of disease and decay organism. See CODIT.

container grown - tree or other plant that has been grown in a container. Contrast with *balled and burlapped, bare root, and containerized*.

containerized - field-grown plant placed into a container for a time and then sold as a potted plant. Term does not include a plant initially grown in a container. Contrast with *balled and burlapped, bare root, and containerized*.

cork cambium - meristematic tissue from which the corky, protective outer layer of bark is formed

cuticle - waxy layer outside the epidermis of a leaf that reduces water loss and resists insect damage.

cytokinin - plant hormone involved in cell division, leaf expansion, and other physiological processes. Compounds with cytokinin-like activity may be synthetically produced.

deciduous - tree or other plant that sheds all of its leaves according to a genetically scheduled cycle as impacted by climate factors (usually during the cold season in temperate zones). Contrast with evergreen.

decurrent - rounded or spreading growth habit of tree crown. Contrast with *excurrent*.

dioecious - male and female parts are on different plant.

drum-lace - method of tying the root ball of a balled and burlapped tree for transport.

epicormics - arising from a latent adventitious bud (growth point). Usually refers to a shoot.

evergreen - tree or other plant that does not shed all of its foliage annually. Contrast with *deciduous*.

excurrent - tree growth habit characterized by a central leader and pyramidal crown. Contrast with decurrent.

girdling root - a root that encircles all or part of the tree or other roots and constricts the vascular tissue and inhibits secondary growth and the movement of water and photosynthates.

growth ring - rings of xylem that are visible in a cross section of stem, branches, and roots of some trees. In temperate zones the rings typically represent one year of growth and are sometimes referred to as annual rings.

guard cells - pair of specialized cells that regulate the opening and closing of a stomate (see stomata) due to a change in water pressure within cells.

gymnosperm - plants with exposed seeds, usually within cones. Contrast with *angiosperm*.

heartwood - wood that is altered (inward) from sapwood and provides chemical defense against decay-causing organisms and continues to provide structural strength to the trunk. Trees may or may not have heartwood. Contrast with *sapwood*.

internode - region of the stem between two successive nodes. Contrast with *node*.

Lateral - secondary or subordinate branch or root.

Leader - primary terminal shoot or trunk of a tree. Large, usually upright stem, a stem that dominates a portion of the crown by suppressing lateral branches.

lateral bud - vegetative bud on the side of a stem. Contrast with *terminal bud*.

leaf axil - point of attachment of a leaf petiole to a stem.

lignin - organic substance that impregnates certain cell walls to thicken and strengthen the cell to reduce susceptibility to decay and pest damage.

heading - (back) cutting a shoot back to a bud or cutting branches back to buds, stubs, or lateral branches not large enough to assume apical dominance. Cutting an older branch or stem back to a stub in order to meet a structural objective.

meristem - undifferentiated tissue in which active cell division takes place. Found in the root tips, buds, cambium, cork cambium and latent buds.

monoecious - having male and female flowers on the same plant.

monocotyledon - plant with an embryo that has one seed leaf (cotyledon). Examples are grasses and palms. Contrast *dicotyledon*.

mycorrhizae - symbiotic association between certain fungi and roots of a plant.

node - slightly enlarged portion of a stem where leaves and buds arise. Contrast with *internode*.

osmosis - diffusion of water through a semi permeable membrane from a region of higher water potential (low salt concentration) to a region of lower water potential (higher salt concentration).

petiole - stalk or support axis of a leaf.

photosynthesis - process in green plants (and in algae and some bacteria) by which light energy is used to form glucose (chemical energy) from water and carbon dioxide.

planting specifications - detailed plans and statements of particular procedures, requirements, and standards for planting.

radial transport - lateral movement of substances, perpendicular to the longitudinal axis of the tree or stem.

ray - parenchyma tissues that extend radially across the xylem and phloem of a tree and function in transport, storage, structural strength, and defense.

respiration - in plants, process by which carbohydrates are converted into energy by using oxygen.

root ball - soil containing all (e.g. containerized) or part (e.g., B & B) of the roots that are moved with a plant when it is planted or transported.

root pruning - (1) in transplanting, the process of pre-digging a root ball to increase the density of root development within the final root ball. (in tree conservation and preservation, the process of pre-cutting root behind the line of a planned excavation to prevent tearing and splintering of remaining roots. (3) in disease transmission through root grafts.

sapwood - outer wood (xylem) that is active in longitudinal transport of water and minerals. Contrast with *heartwood*.

sinker root - downward-growing roots that provide anchorage and take up water and minerals. Especially important during droughts

staking - supporting a tree with stakes and ties. Usually used in reference to newly planted trees.

stomata - (stomates) small pores, between two guard cells on the underside of leaves and other green plant parts, through which gases are exchanged and water loss is regulated.

substrate - layer of material below the soil surface: materials used to provide plant support, regulate, moisture, and (in many cases) provide mineral nutrients to container plants.

taxonomy - science that studies the description, denomination, and classification of living

temporary branches - in structural pruning of young trees, branches (generally the lower branches) that are left in place of subordinated but will be removed later in forming the permanent scaffold framework of a tree. Contrast with permanent branches.

organisms based on their similarities and differences. Contrast with *morphology*.

terminal bud - bud at tip of a twig or shoot. Also apical bud. Contrast with lateral bud.

topping - inappropriate pruning technique to reduce tree size. Cutting a tree back to a predetermined crown limit, often at internodes.

transplant shock - plant stress following transplant: characterized by reduced growth, wilting, dropping foliage, or death.

transpiration - water vapor loss through the stomata of leaves.

tree spade - mechanical equipment to dig, transport, and replant trees with a sufficiently large volume of roots and soil.

tree wrap - material used to wrap the trunks of newly planted or transplanted trees or to protect thin-barked mature when they are newly exposed to the sun. Also used to protect young trees in fall from deer rubs.

watersprout - upright, epicormic shoot from the trunk or branches of a plant above the root graft or soil line. Incorrectly called a sucker.

wire basket - type of metal basket used to support the root ball of a balled-and-burlapped tree or a tree dug with a tree spade.

xylem - main water and mineral conducting (unidirectional, up only) tissue in trees and other plants. Provides structural support. Arises (inward) from the cambium and becomes wood after lignifying. Contrast with *phloem*.