

Glossary of Commonly Used Terms

AMMONIUM NITRATE (NH₄NO₃) A water-soluble fertilizer containing 35% nitrogen, equally divided between ammonium and nitrate forms. A useful material for adding to bark-based media when supplementary nitrogen is required.

AVAILABLE NUTRIENT Plant nutrients which are in a form suitable for uptake by plant roots.

BUFFER CAPACITY This refers to the ability of a medium to resist changes to the pH and is closely linked to its cation exchange capacity. In soils it is the clay and organic matter fractions which are most influential in enabling a soil to resist such changes in pH. Soils usually have much higher buffer capacities than the organic materials which are typically added as soil ameliorants, and it is therefore normally quite difficult to alter significantly the pH of a soil in the long term.

BULK DENSITY The mass of material per unit volume.

CATION EXCHANGE CAPACITY (CEC) The CEC value gives an indication of the ability of certain nutrients within a growing medium to resist the effects of leaching. It is defined as the total amount of exchangeable cations, e.g. potassium, calcium and magnesium ions, that a medium can absorb per unit weight or volume, expressed as milliequivalents per 100 grams (meq/100g) or milliequivalents per 100 cubic centimetres (meq/100cm³). The latter units are conventionally used in reference to loamless growing media.

Materials such as peat and bark have moderate CEC's, whereas relatively inert products such as perlite, have virtually none. Lignite-based products such as Melcourt Adheart have high CEC's, and can be added to growing media for the specific purpose of decreasing the likelihood of nutrient leaching.

C.E.N. The European Committee for Standardisation, based in Brussels.

CLAY Soil texture classified as more than 40% clay, less than 45% sand and less than 40% silt.

COMPOST A term commonly used to describe both growing media and the decomposed organic material resulting from the process of composting.

COMPOSTED A term used to describe organic materials after they have been through the process of composting. Often used in conjunction with the processing of bark. See MATURING.

COMPOSTING A term used to describe the decomposition of organic matter by the heat-generating action of a mixed population of micro-organisms.

COMPOSTED PLANT RESIDUE The decomposed organic material resulting from the composting of a variety green matter. Composted green waste is typically high in mineral content, levels of more than 50% not being uncommon, and hence it usually has a high bulk density, compared to other organic media. It is normally alkaline in reaction, having pH levels which are usually in excess of 7, and has a variable nutrient content.

CONIFER Cone-bearing tree species, including pines, spruces, larches, firs, hemlock etc..

CONTROLLED RELEASE FERTILIZER (CRF) Fertilizers manufactured with a coating which controls the availability of nutrients over a specified period of time. The rate of release is usually dependent on the temperature of the growing medium. These are more normally used in container plant production than in soils. Controlled release fertilizers are available in different longevities, ranging from a few weeks to two years.

ELECTRICAL CONDUCTIVITY A measure of the soluble salt or ion content of a material, expressed in various units, most commonly microSiemens per centimetre ($\mu\text{S}/\text{cm}$). Soluble salts or ions, carry an electrical charge. The higher the quantity of charges, the greater will be the electrical conductance of the medium. High electrical conductivity can be an indication of high levels of available nutrients.

ERICACEOUS A term describing plants belonging to the family Ericaceae, many of which are lime-haters, i.e. intolerant of alkaline conditions. They are often also intolerant of high soluble salt levels in either the soil or growing media. The term is also used to describe growing media which are suitable for growing plants, such as the Ericaceae, having a low pH and low nutrient levels.

FIELD CAPACITY The amount of water remaining in a soil after having been saturated and after drainage has ceased.

FINES A term referring to the fine particle fraction of a growing medium or mulch.

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Glossary of Commonly Used Terms (Continued)

GRANULAR BARK A term used to describe the quality of bark from pine trees.

HUMIC ACID A variable mixture of organic substances which can be precipitated from organic matter under certain conditions. Their presence can add to the chemical activity of growing media.

HUMUS A complex and resistant mixture of dark brown amorphous and colloidal substances of organic origin, which have been modified from the original organic matter or synthesised by various soil organisms.

ION An electrically charged particle into which the atoms or molecules of some chemicals dissociate when dissolved in water. The water into which they dissolve becomes a conductor of electricity.

INCORPORATION DEPTH The vertical depth to which soil ameliorants are incorporated into the soil.

LEACHING The loss of nutrients from growing medium or soil, caused by the downward movement of water. Nutrients are more easily leached from sands than clay soils. Also some nutrients are more susceptible to leaching than others, e.g. nitrates.

LOAM Soil of medium texture having roughly equal parts of clay, sand and silt and a reasonable organic matter content. If the proportion of one of the ingredients is high, the term can be modified to, for example, clay loam or sandy loam.

MAGNESIUM (Mg) A major plant nutrient.

MATURING A term used to describe the ageing of organic materials such as bark. Does not necessarily refer to the more extensive breakdown of fibrous structure, caused by the process of composting.

MICROSIEMENS/CM A unit of electrical conductance.

MULCH A material used to cover the soil for the purposes of any or all of the following :- suppressing weeds, conserving moisture and evening out temperature fluctuations.

NITROGEN (N) A major plant nutrient.

NITROGEN LOCK-UP The immobilization of nitrogen compounds either by microbial uptake or chemical absorption by usually wood or bark-based materials.

NOMINAL PARTICLE SIZE The term used to describe the physical particle size range, in millimetres, of mulches, soil ameliorants and composts. By the nature of these products, exact sizes are not possible.

ORGANIC MATTER Material which is derived from the decomposition of plants and animals. The organic matter level in the soil is very important as it greatly influences the physical and chemical properties of the soil.

pH A measure of acidity within a material, defined as the negative logarithm of the hydrogen ion concentration. The pH scale measures from 1 to 14, 7 being neutral, below 7 being acid and above 7 being alkaline. Because it is a logarithmic scale, an increase in 1 unit of pH represents a ten fold decrease in the level of acidity.

pH is an important feature of soils and growing media as it has a strong influence on the availability of nutrients. In soils a pH of 6.5 is considered to be the level at which the maximum availability of nutrients exists.

PARTICLE SIZE DISTRIBUTION The quantity of particles within specified size fractions, which can be used to physically characterize a growing medium or its ingredients.

PATHOGEN An organism capable of causing disease. For example, *Botrytis cinerea*, *Pythium ultimum* and *Phytophthora cinnamomi*.

PEAT-FREE Materials which are made, or plants which are grown completely without the use of peat.

PINE-BARK Bark taken from the trunks of pine trees. Pine bark is one of the hardest of the barks growing on trees in the U.K. Its hardness makes it an extremely useful raw material for mulches and play surfaces. Products manufactured from pine bark are long-lasting, durable, red-brown in colour and chippy in nature, as well as being aesthetically very attractive.

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POROSITY The volume of a medium not occupied by solid particles.

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PHOSPHORUS (P) A major plant nutrient.

POTASSIUM (K) A major plant nutrient.

PULVERISED BARK Bark which has been removed from the tree log by a revolving drum debarker.

SAND A description of soil texture, where the percentage of sand particles exceed 85 % of the soil.

SETTLEMENT The gradual sinking and reduction in volume exhibited by loose fill materials, such as bark mulches or play surfaces, mostly occurring soon after installation. When calculating the quantity of product needed for an area, to achieve the required finishing depth, it is important to consider the amount of settlement which will occur with the chosen product. In general, products manufactured from the softer, thinner barks such as spruce will settle more than the harder ones such as pine.

SHREDDED BARK This is a complete mis-description as no such product exists.

SILT A description of soil texture.

SOIL CONDITIONER Material added to soil primarily to maintain or improve its physical properties, and which may improve its chemical and/or biological properties or activity [CEN definition].

SOLUBLE SALT A term used to describe the soluble fraction of fertilizers and soil nutrients. The total soluble salt level in a growing medium is measured by electrical conductivity.

Soluble salt levels are an important indication of available nutrient levels. If the level is too low the growth of the plant will be reduced. However, plant growth can also be inhibited if the levels of soluble salt are too high, due to toxicity caused by a specific ion, or as a result of the interference to water uptake that high soluble salt levels can cause.

SPREADING DEPTH The finished depth at which a mulch is laid.

SPRUCE BARK The bark of spruce trees is flexible, dark brown to black in colour, stringy rather than chippy, and much softer than pine bark. It is less durable than pine, breaking down more quickly, and it can therefore form a very useful basis for soil improvement products.

STABLE COMPOST A composted material which is no longer undergoing microbial activity, and which will therefore remain in the same condition for a considerable period of time.

SLOW-RELEASE FERTILIZER A fertilizer which becomes available in the soil or growing medium over a period of time. These are particularly useful in amenity plantings, where it is not always possible to supply nutrients to trees and shrubs in the months following planting. Depending on the product, the rate of release will be dependent on factors such as soil moisture content, microbial activity, acidity and temperature.

TOP UP If products manufactured from bark are to remain effective in any given situation, it is important that their depth is maintained. Being organic in origin, bark will gradually breakdown, the rate depending very much on the species mix, the particle size and the level of wear. Once the recommended depth is significantly reduced, it is important that the level or bark is topped up in order to maintain effectiveness.

TOXIN Poisonous substance of natural origin. In the case of bark, the waxes, tannins and resins naturally present can remain toxic to plants on badly processed material. It is also possible to generate toxins by incorrect maturing procedures. Obtaining supplies from reputable suppliers is essential if such problems are to be avoided.

TRACE ELEMENT The term used to describe nutrients essential for successful plant growth but which are only required in very small quantities.



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