



Growing Media: Types

About Growing Media

'Compost', 'plant growing media', 'plant substrate', 'mix' or 'media' are all terms used to describe the soil or organic media used to grow plants in containers. These media often consist of mineral soils mixed with materials such as leaf mould, decayed animal manure, spent hops, peat, mortar rubble, wood ashes, sand and grit. An "ideal" soil mix is economic, provides the physical and nutritional needs of the crop and is free from toxic substances.



Choose your growing media based on economics and crop needs

Types of organic media

Peat Peat is the most widely used material, with Sphagnum peat moss most commonly used. Peat can be used by itself or with other materials. Sphagnum peat has a spongy fibrous texture, high porosity, high water retaining capacity, low ash content and usually a low pH (3.5-4.5). Peats are usually deficient in the principal plant nutrients.

Sawdust and Shredded Bark Sawdust and bark waste often have problems of (a) nitrogen deficiency and (b) substances toxic to plants. While contents are low (e.g., 1%N), bark usually contains slightly more nitrogen than sawdust. Softwoods decompose more slowly than hardwoods.

Types of mineral media

Sand and Gravel Sand and gravel are usually used with peat as dilutants to change physical properties such as bulk density and water retention. Sand and gravel retain and provide almost no plant nutrients. The difference between sand and gravel is purely one of particle size. Fine particle sand blends with moist peat better than coarse sand or gravel which tends to fall away from roots during repotting.

Vermiculite Vermiculite is an aluminum-iron-magnesium silicate that upon treatment produces a layered media with high porosity and a good air-to-water relationship. When vermiculite is used by itself as a growing medium for long-term cropping, it can become "soggy" as the lattices collapse, resulting in reduced aeration and drainage.

Perlite Perlite is an alumino-silicate that when treated expands to form white, lightweight aggregates. Perlite is relatively stable and does not break down in the compost. Because Perlite retains very little water, Peat is often mixed with it to increase water retention of the media. Perlite has virtually no cation exchange capacity or plant nutrients. Plants grown in composts containing large amounts of Perlite require constant nutrient addition.

Pumice Pumice is an alumina silicate that contains some potassium and sodium. Pumice is very porous and so it is often used in potting composts as a physical conditioner or as an alternative to sand or gravel in hydroponic cultures. Pumice particles are not very stable and break down easily. Pumice can retain some calcium, potassium, magnesium and phosphorus from the soil solution, and release them to the plant later.

Stone or Rock Wool This material is an aluminum silicate formed under high temperatures (1500 °C). In its prepared state it has a pore volume of about 97% and its function is provides root anchorage for the plant and to regulate the water and air supply. It does not contain any plant nutrients and the plant must rely entirely on the inclusion of nutrients in the water supply. This system of growing is in fact a modification of the sand or gravel culture system.

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