

INTRODUCTION

Growing media are an integral part of most horticultural production systems. There is a wide range of media available, this leaflet considers the purpose of growing media and the qualities that growers should look for when selecting media for different purposes.

Growing media are the substrates in which a plant will grow. They provide anchorage for the plant's roots; air spaces to allow respiration; and retain sufficient available water to enable plant growth. When selecting media, the grower needs to find the optimum balance between their requirements and those of the plants to be grown (see box 1). Even in "soil-less" systems, growing media are usually used; the most common being rockwool which is inert and has excellent aeration properties.

Box 1: Required attributes of growing media

Grower requirements	Plant requirements
<i>Value for money</i>	<i>Good drainage and air movement</i>
<i>Low bulk density</i>	<i>Support & stability</i>
<i>Good performance – plant success</i>	<i>Moisture retention</i>
<i>Flowability</i>	<i>Pest and disease free</i>
<i>Safe to handle (e.g. low dust)</i>	<i>Adequate / appropriate nutrient supply</i>
<i>Attractive appearance</i>	<i>Appropriate pH</i>

GROWING MEDIA CONSTITUENTS

Peat – has long been a favoured growing medium or constituent in mixed composts. It has excellent air and water holding qualities, is relatively uniform, attractive, safe to handle and is generally free of weeds and pathogens. Because it has been used for many years, the properties and performance of peat are well known and growers feel comfortable and confident when using it. However, peat does have some disadvantages, particularly that it can shrink significantly if left to dry out too much, and will then be difficult to re-wet. Perhaps of more concern than potential production problems are the growing concerns about the environmental impacts of the use of peat. Peat takes many years to form and its use is far outstripping its regeneration. Most of the peat used in Wales is imported from Ireland, but increasing amounts are being sourced from Finland and the Baltic States.

Peat based composts usually contain lime, nutrients, a wetting agent, sand, perlite, vermiculite and grit. The ratios of each component vary by purpose and brand. Loam composts on the other hand contain, sterilized loam, peat, sand and added nutrients. Loam based compost are less prone to drying than are peat based ones, however they do need careful watering as they can waterlog.

Coir - is the protective fibrous coating of the seed of the coconut palm. The coir fibre used in horticulture is the residue remaining after washing the long coir fibres which are used in rope and mat making.

Coir fibre has very good aeration capacity and is used in composts as a bulking agent to increase moisture retention and porosity.

Coir fibre is imported from tropical countries where it is considered a waste product.

Bark - in many European countries without ready access to large reserves of peat, bark has long been a major component of growing media. Pine bark is the most commonly used. This has the advantage of being biologically active and suppressing some diseases. A disadvantage of bark is that it takes nitrogen from the growing medium as it decomposes.

Wood fibre – is also widely used in Europe. High pressure steam is used to separate the fibres in wood chips. The resulting material is very homogeneous and has a low bulk density. It is particularly useful in a mixture with peat.

Green compost - high quality green waste is produced by composting source segregated botanic residues generated by landscapers, gardeners and other horticulturalists. The plant materials are collected separately from kitchen waste and other societal waste. Green compost has been around for over 10 years but has been viewed as an amateur product. There have been concerns in relation to quality, supply and cost. However the introduction of a quality assurance standard (BSI PAS 100) for compost production, quality is now more reliable and so is the supply. At the time of writing, cost has stabilised to around £15 per cu m.

DIFFERENT MEDIA FOR DIFFERENT PURPOSES

Multipurpose composts can be used for sowing, root cutting, re-potting, potting on, hanging baskets and containers. Multipurpose compost contains a balance of nutrients that can feed a plant for up to 6 weeks.

Sowing composts have a low level of nutrients and are especially suitable for seed sowing and rooting of cuttings

Potting composts will support actively growing plants for around six weeks, without any extra fertilizer. Thereafter, supplementary feeding will be required. Potting composts are used either to re-pot plants that have outgrown their containers or for potting-on cuttings which have developed a reasonable root system.

Ericaceous composts are intended for use with ericaceous or acid-loving plants. They are especially useful when gardeners wish to grow ericaceous plants on alkaline soil and their options are either to grow plants in containers or raised beds. Plants which need an acid growing medium in order to thrive include: azaleas, camellias, ferns, pieris, hydrangea, rhododendron and most summer flowering heathers.

Hanging basket composts contain higher levels of nutrients than multipurpose or potting composts. They also contain a wetting agent. Some hanging basket composts also have water absorbing granules. As hanging baskets are densely planted and have a high demand for nutrients and water, these are useful features.

Planting composts are intended for mixing with the backfill soil when planting trees, shrubs or roses, including ericaceous plants. They help plants establish and thrive and are very rich in nutrients.

Houseplant composts are preferable to potting or multi-purpose composts for houseplants as they tend to have better aeration through the inclusion of additives such as perlite, vermiculite or sand, depending upon manufacturer. They may also have added water holding material. Houseplants are often grown in unfavourable conditions, compared with their natural habitat, therefore, it is a good idea to give them the best possible growing conditions to help them thrive.

Specialist composts are available for alpines, cacti, orchids and bonsai plants. These composts will either be particularly free-draining and/or have specific additives (e.g. bark, expanded clay, loam) as well as the correct balance of nutrients for the plant types in question.

Growing bags are also free from soil borne pests and diseases and provide a good structure and balance of nutrients for healthy plant growth. Most gardeners use growing bags for tomatoes, cucumbers and peppers, but they can equally well be used to grow other vegetables, such as lettuces, courgettes, French and runner beans etc, as well as flowers for cutting, and herbs.

See also CALU Technical Notes:

[021002 – On-farm composting](#)