

SOILS & GROWING MEDIA

Topics covered in this section

- Soil types and soil improvement • Types of compost (general)
- Composts for different plants/purposes, peat, bark

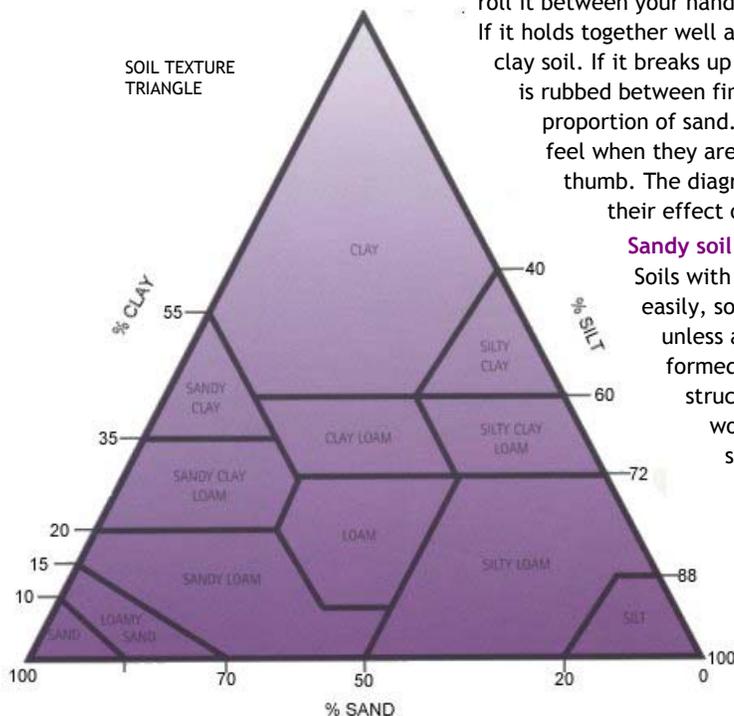
Additional useful references: Manufacturers' literature (product brochures etc), 'The Garden Expert' and other garden reference books.

Soils and soil improvement

Soils are made up of: mineral particles, ranging in size from coarse sands to fine clay, organic matter, water and air. Soils vary considerably, depending upon the proportion of sand, silt, clay and organic matter present. Space in soil pores, for water and air (roots breathe too) is affected by the structure of the soil i.e. whether it is compacted or fluffy. Few gardeners have a perfect soil and the ideal soil will depend on the type of plants that are grown. The characteristics of the more 'problematic' soil types and advice with regard to their improvement are given below.

Testing the soil texture

To determine the soil texture, moisten a small amount and roll it between your hands to try and make a sausage shape. If it holds together well and feels sticky, it is likely to be a clay soil. If it breaks up easily and has a 'gritty' feel when it is rubbed between fingers and thumb, it has a high proportion of sand. Silty soils have a 'soapy' or 'silky' feel when they are rubbed between the fingers and thumb. The diagram shows the main soil types and their effect on soil texture.



Sandy soil

Soils with a high proportion of sand drain easily, so water logging is not a problem unless a 'pan' or impervious layer has formed below the surface. Their open structure means that they are easy to work and quick to warm up in the spring, allowing earlier sowing and planting. However sandy soils do dry out very quickly and nutrients are easily washed through the soil. To improve a sandy soil, dig in organic matter which will increase its water and nutrient retention.

Feeding and watering need to be carried out regularly.

Clay soils

These are heavy and difficult to work. They are slow to warm in the spring, sticky when wet and very hard when dry. Clay soils hold moisture and nutrients well and remain warm, in the autumn because they are slow to cool down. Much of the water they contain will not be available to plants and in winter they are prone to water logging.

To improve a clay soil, dig in plenty of organic matter, such as peat, garden compost or composted bark. This will aid drainage and 'crumb' formation. Fine grit or a mixture of grit and sand will also aid drainage.

Roughly digging over clay soils in the autumn will allow frost to break it down over the winter. To prevent compaction and damage to the soil structure, avoid walking on clay soils when they are wet.

Silty soils

Silt particles are relatively light and rise to the soil surface. When dry they can form a 'crust' or cap on the topsoil. This can stop seedling emergence and restrict downward water movement. The incorporation of organic matter will also improve the structure of a silty soil. When cultivating silts, avoid breaking the soil down too finely.

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Soil structure

Good soil structure is important for healthy root growth. Without good structure a weak root network will develop resulting in poor drought tolerance, nutrient deficiencies and an unthrifty plant. Soils are naturally cracked; the fissures allow the growth of roots and the passage of water and air. Freezing and drying together with timely cultivation and the incorporation of organic matter all help to improve soil structure.

Soil pH

Soil pH affects the availability of certain key nutrients. While a lime test is advisable, it is possible to generalise as follows: sands and peats tend to be acid; whilst heavier soils such as clays and loams tend to be neutral or slightly alkaline; chalky soils and soils that have experienced marine flooding or have been reclaimed from the sea also tend to be alkaline.

Types of compost (general)

Peat-based composts

Peat-based composts are widely used. In addition to peat, they contain lime, nutrients (at varying levels, depending upon the purpose or plants for which they are required) and a wetting agent which aids moisture absorption and retention. Other additives such as sand, perlite, vermiculite, grit may also be incorporated, depending upon brand or purpose of use.

Advantages and disadvantages: Peat-based growing media hold a lot of water initially, but dry out more quickly than loam-based composts. Water in the peat is easily available to plants. They tend to be well aerated and less prone to water-logging. They are light and pleasant to handle. They also provide a 'warm' growing medium, which gives quicker root growth.

Peat-based composts are more prone to drying out and sometimes a heavier planting medium (such as a loam based compost) will be better, for example when planting tubs for exposed situations in a garden.

Loam-based composts

John Innes (loam-based) composts contain sterilized loam, peat, sand and added nutrients.

Advantages and disadvantages: Loam-based composts are less prone to drying out, but the water they contain may not be as readily available as in peat-based growing media. Water-logging is more likely to be a problem with loam-based composts, as they are less free draining.

They are also 'colder' and less pleasant to handle, as well as being heavier (Bags of loam-based composts can be difficult to carry). Where growing medium stability is required in an exposed site, loam-based composts are preferable. They are also preferable for 'permanent' container plantings, although plenty of crocking/drainage material is advised.

Non-peat growing media

If gardeners prefer not to use peat, there are a range of non-peat composts they can choose from. Peat free composts are now generally very good quality and plants grown in them usually need no special management.

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Composts for different situations

Multi-purpose composts

Multi-purpose composts may be used for sowing, rooting of cuttings, re-potting, potting on and hanging baskets and containers. They are not recommended for use with ericaceous plants.

They contain a balance of nutrients which is sufficient to support growth of mature plants but not enough to impede germination or rooting of cuttings. Actively growing plants will require supplementary feeding with an appropriate fertiliser after about four weeks.

Multi-purpose composts are very good value for money and are particularly popular with less 'experienced' gardeners who are just looking for a good all-round growing medium. Multi-purpose is also a good option if storage space is limited. However to get optimum results, it is still preferable to use a specialist compost.

Sowing composts

These have a low level of nutrients and are especially suitable for seed sowing and rooting of cuttings.

Sowing composts tend to be used by more experienced gardeners to raise their own plants.

Potting composts

These contain higher levels of nutrients and will support actively growing plants for around six weeks, without any extra fertiliser. Thereafter, supplementary feeding will be required.

Potting composts are used either to re-pot houseplants that have outgrown their containers or for potting on cuttings which have developed a reasonable root system. They are also suitable for use in hanging baskets and containers.

Ericaceous composts

These 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

Although either multi-purpose or potting compost could be used in hanging baskets and containers, customers may prefer to use a compost especially formulated for use in hanging baskets.

Hanging basket composts contain higher levels of nutrients and 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.

Bulb fibre

Bulbs require a compost or growing medium that is free draining and has the correct balance of nutrients for best growing results.

Planting composts

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

Using specialist houseplant compost is preferable to using potting or multi-purpose as houseplant composts generally 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.

Other specialist composts

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

Growing bags

Whatever the size of garden, it is possible to grow vegetables in a growing bag, even if there is no room for a vegetable area. Growing bags are also free from soil borne pests and diseases and provide a good structure and balance of nutrients for healthy plant growth. The majority of 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.



HANGING BASKET AND CONTAINER COMPOSTS CONTAIN A HIGH LEVEL OF NUTRIENTS

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Peat

Moss peat

Also known as sphagnum peat, this type of peat is harvested from areas where much of the natural vegetation is comprised of sphagnum moss. Moss peat is light and fluffy in texture and may be used to improve soil structure, as a mulch or in top dressing mixtures for lawns. It can also be used as a compost base and, as it is more acid than sedge peat, it will help to 'acidify' the soil where it is incorporated.

Sedge peat

Mainly used as a soil improver, sedge peat is coarser and darker in nature than moss peat and less acidic. It also contains a very small amount of plant nutrients, whereas moss peat is virtually nutrient free.



Bark and wood products

Chipped bark

Bark chips are most often used as a mulch for beds and borders. It gives them an attractive finish as well as suppressing weed growth and keeping moisture in.

Various sizes of bark chips are available; The larger the pieces of bark, the more long lasting and hard wearing they are. Large chips are more appropriate as a mulch where large shrubs and trees are grown. Smaller bark chips look better when used as a mulch in small scale planted areas, including tubs etc.

Bark chips may also be used in play areas and, sometimes, depending upon the product, for paths.

Composted bark

Composted bark may also be used for mulching, but is less long-lived than bark chips. It may also be used to improve soil or as a planting aid.

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