

Growing on sandy soil

Sandy soil tends to dry out easily and lacks nutrients, but it warms up quickly in spring and is easily worked. Adding organic matter helps to improve it.

What is a sandy soil?

Sandy soils contain a high proportion of sand particles, with little silt or clay to modify the grainy nature of the soil. Sandy soils occur in patches in many districts, and can be very coarse, like builders' sand, or very fine and powdery. One of the commonest types of sandy soil occurs in heathland such as the Surrey heaths and Norfolk breckland. This very poor soil is largely used for forestry rather than farming.

How do I know if my soil is sandy?

If you can see the individual grains, and the soil feels gritty between your fingers, your soil is sandy. When rolled in the hand to make a sausage shape, it crumbles and falls apart and won't hold its shape. Water drains away quickly, though sandy soils can develop a hard pan that impedes drainage.

What is a pan?

One of the characteristics of sandy soil is that iron, humus and clay are washed down through the soil by rain, and settle at about a foot below the surface. Over centuries, this deposit forms a hard waterproof layer called a pan. This can impede drainage, leading to serious boggy areas all winter. Digging down to around 40cm (15in) will reveal whether a pan is present. If you find one, deep digging is needed to break it up before drainage can occur and roots grow.

What benefits do sandy soils have?

Sandy soils generally drain well and hold little water. They are dry and warm in spring, so early sowing and planting can take place and they produce wonderful early vegetable crops. Sandy soils are often acid, so acid-loving plants thrive. Lime-loving plants will put up with a mildly acid soil. If you need to adjust the pH to a less acid level, lime is cheap and effective, whereas making limey soils more acid is very slow and expensive.

Some sandy soils are composed of fine sand. Fine sand actually holds nearly as much water, that plants can get at, as good quality loam. If you are lucky enough to have one of these soils, you can expect very good plants.

Sand is light and easy to dig and can be cultivated all year round – and it does not stick to your boots and get carried around the house and garden.

What are the problems with sandy soils?

Sand particles are very much larger than silt and clay particles. This means the gaps between them are bigger too, so water flows away very quickly. The ideal soil has enough sand to allow good drainage, but sufficient clay to retain plenty of moisture. In sandy soils summer drought is almost inevitable. Only an exceptionally wet summer will provide sufficient water to prevent it.

In clay soils, nutrients are retained because they bind to the surface of the clay particles. In sandy soils, most nutrients are washed out quickly. Even in sandy soils, phosphates are usually retained, but potash and nitrogen go very easily, and calcium is often in short supply. This is why sandy soils are usually infertile and acid.

Another drawback is that when the sand is fine, and there is a little clay or silt present, sandy soils can pack down under the influence of watering or rain. This forms a surface cap that inhibits the emergence of seedlings.

How do I manage a sandy soil?

Water supply is the first concern. Watering is essential, but you can reduce the need for water by planting further apart, so plants have more soil. Mulching to limit loss of soil moisture by evaporation is also helpful.

It is a waste of time to dig sandy soils in autumn in an attempt to improve texture, as sandy soil packs down again relatively quickly. It's better to dig, if necessary, in spring, though you will need to tread down the surface for seedbeds to aid moisture-retention. At other times a light forking or tilling with a three-pronged cultivator is sufficient.

The good news is that sandy soils are very easy and light to work. Unlike clay soils you can use a powered cultivator if you need to work a large area. Powered

cultivators are very liable to smear and damage clay soils, but are unlikely to harm sandy ones as long as the soil is reasonably dry.

Organic matter is vital: you should aim to add at least two bucketfuls per sq m around ornamental plants, and twice this for vegetables. If you are short of material, concentrate on one area at a time, rather than spreading the organic matter too thinly. You can either dig the organic matter into the soil or spread it on the surface for worms to incorporate.

What about green manure?

It is a good plan to cover all uncropped areas with green manure crops over winter, when grazing rye, field beans or vetches will all grow well. Green manures help prevent nutrients from being lost, improve soil structure and protect the surface from rain damage. Leguminous crops, such as vetches or clover, also add nitrogen through the action of nitrogen-fixing bacteria in their roots. Most green manures should be sown in August, but grazing rye can be sown as late as October. In spring they can be dug in, or composted and added later.

What are the options for drought-proofing my soil?

In theory, you could add clay to make your soil into a stickier, wetter medium. However, clay is

heavy stuff and you would need a great deal of it to make a difference. The other drawback is because clay is so sticky, mixing it deeply into the soil is very difficult. Adding it to a sandy soil is not feasible except on the smallest scale.

Organic matter - compost, manure and especially spent mushroom compost - is the usual remedy. Mushroom compost is ideal as it also adds calcium. As well as retaining moisture, organic matter will break down to release a steady stream of plant nutrients. In fact the nature of organic matter means that nutrients are bound to the organic matter and are not easily washed away.

The downside is that the warm, aerated conditions in a sandy soil leads to organic matter breaking down very rapidly. Studies suggest that a heavy dose of well-rotted organic matter is needed every year to improve the moisture holding capacity of a sandy soil significantly.

To some extent you can droughtproof your soil by deep digging, mixing organic matter up to 50cm (20in) or even 70cm (30in) into the soil. This increases the amount of soil the plants can explore for water and nutrients. However, this remedy is only for the energetic and fit.

The only sure remedy is irrigation. The development of

low-volume drippers and leaky pipes means that accurate watering with little effort or waste of water is now fairly cheaply attainable.

Suppliers of green manure seed

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