



# Containers, composts and repotting

## Containers

Any container may be used for growing plants but ensure it has holes in the base to facilitate drainage. Recently, glazed pots have become very popular particularly for plants grown in the home but again these pots must have a hole drilled into their base for drainage. The most commonly used containers are plastic and clay pots.

### Plastic pots and glazed clay pots

The plastic pot is the modern preference. Many different types of plastic have been used for plant pots. The present popular plastic is polypropylene. This is produced in a light-stabilised blend quite suitable for growing plants. Many different qualities of plastic pot are available. Some are thin and flexible, and quite good for seedlings and small plants. Others are thicker and more rigid, suitable for bigger plants.

**Advantages:** they are easy to obtain, come in many sizes and shapes, they are lightweight, easy to clean, have many drainage holes and retain moisture for longer than clay.

**Disadvantages:** the thinner/flimsier types may break or crack, some plastics break down before long, pots may retain moisture too long if the compost is not open, and lighter pots may be unstable with taller plants.

### Unglazed clay pots

**Advantages:** they are porous, allowing moisture both to be absorbed and to evaporate from the pots very quickly and they may keep the root-ball cooler.



Fig. 1 (a) John Innes compost mix with added grit, (b) cornish grit (c) 3–4mm grit suitable for mixing in the compost or using as top dressing for smaller plants, (d) 6–8mm grit suitable for top dressing for larger plants

**Disadvantages:** they are heavy, they break easily, can be difficult to clean and are not always easy to obtain.

## Composts

Many types of compost are available and it often comes down to personal preference which one you will choose. The key factor for growing cacti and other succulents is that the compost must be free-draining. Composts may be loam or peat based but must have additional grit or other material added to the mix for drainage. Peat-based composts are best avoided unless you are sure that they come from sustainable sources, and some growers have switched to alternatives such as composts based on coir (coconut-fibre), wood chips, recycled waste and others. However, if you try any of these, use it on a few plants at first until you are sure that the plants are growing well in it. Probably the most popular soil mix used today is one based on the John Innes formula. Unfortunately this can be somewhat variable in quality depending on the supplier. If necessary sieve out any larger bits of peat, wood and stones.

For the vast majority of cacti and other succulents a suitable mix is John Innes No. 2 or 3 mixed with grit, such as cornish grit or 3–4mm grit (Figs. 1b and c), coarse sand (NOT builders' sand) or perlite in about equal quantities. For more difficult species and those known to originate from drier areas, the proportion of gritty materials is increased, even to as much as 75% of the total mix. It is advantageous to add a top dressing of grit, coarse sand or small pebbles to enhance the appearance, to inhibit the growth of mosses and algae and to reduce the tendency for rot at the base of the plant.

A popular substrate in use today, particularly for plants that are prone to lose their roots, is an inert clay granular substance. Two popular makes are Seramis and Akadama which can be used alone or as an additive to regular compost mix. These materials hold some water but are very free-draining, with air spaces at the roots which all cacti and succulents need.



Fig. 2 (a) *Ariocarpus retusus*, (b) *Haworthia bayeri* both successfully growing in pure Akadama



Fig. 3 The 'right' types of cat litter!

A cheaper substitute for these two brands is cat litter but it must be a dust-free, non-clumping type.

### Repotting

Repotting should be carried out every couple of years for young rapidly growing species such as mammillarias and gymnocalyciums. However many cacti and succulents grow slowly and do not have a large root system, so do not have a need for frequent repotting. If the plant body is filling the top of the pot with little or no compost visible, it may need repotting (Fig. 4). Also look for signs like roots appearing from the drainage holes below, pots starting to bulge (Fig. 5) or split, plants no longer growing or the growth slowing or the plant starting to look less attractive, or the compost surface looking hard and impervious. Otherwise, particularly if the plant sits comfortably in its pot and is growing well and with a regular shape, it probably does not yet need repotting. It is however wise to repot if the plant is a new acquisition and growing in a medium different from the one you use; watch particularly for plants grown in peat-based composts with little or no added grit, as used by many garden centres and supermarkets, where the compost may be very slow to dry out below even if it looks dry on top. The best time to repot is in early spring but other times are suitable with some growers preferring the winter months when the plants are dormant. Make sure your compost mix is dry when you repot.

To remove a plant from its pot, you can often just tip it upside down, holding the compost at each side with fingers and thumbs (with gloves if prickly) and tap the pot gently so that the whole plant with rootball and compost, comes out all together. Where the compost and roots are compacted, you may need to cut the pot off to remove it. For taller, prickly plants you can grip the stem with a rolled up newspaper wrapped round or fasten lightweight polystyrene packaging blocks to the spines on each side and then you may find it easier to lay the plant on its side to remove the pot. Choose a suitable new pot, normally moving up by only one pot size, or still in the same size if the roots are not yet clearly visible all round. Put some flat pebbles, gauze or newspaper over the drainage holes to allow water to drain through but avoid compost dropping out, then put a small amount of new compost in the bottom.

There are two types of repotting. The first is 'potting on' where you are simply moving a plant already in a good open compost of the type you use regularly, and where the compost still looks fresh and the plant is growing well. Here, if the plant comes out of the pot cleanly, just inspect the roots for any pests or rot,

remove any compost where there are no roots and any compacted compost, shake gently to remove any excess which comes away easily, tease apart any roots growing together round the base of the pot, place gently in the new pot and pour new compost down the sides, tapping the pot gently with your hand as you go to settle the compost. When the pot is nearly full, tap it again a few times on a flat surface, and when almost full, firm the surface very lightly and add a suitable gritty top-dressing. Any compost on the plant body or spines can be brushed off gently with an old toothbrush.

The second type is full repotting, needed when the compost in the pot is very different from yours, or old, compacted, where the roots fill the pot and are tangled together or where the plant is no longer growing well. Here you may have more difficulty removing the pot and may have to cut it off. You then need to remove carefully as much of the old compost as possible, right back to the main root, and particularly remove any lumps of peat attached, and tease apart all tangled roots. You can then see how much space the roots will need and choose a pot a little bigger than the present extent of the root system at the sides and below. Only about 12mm (½ inch) extra space is needed all round for smaller plants, and 25mm (1 inch) for bigger plants. Pans rather than pots are very useful where the root system is wider and shallower. You then proceed to pot the plant up as for potting on.

After potting on/repotting, make sure that you do NOT water the plant for at least 1–2 weeks, or even longer where the roots have been damaged or there has been any rot which you have had to cut off, or if the repotting has been done in winter.



Fig. 4 The root ball of an *Oreocereus* showing a healthy root system but with little compost visible and now in need of potting-on to a larger sized pot



Fig. 5 *Sulcorebutia rauschii* underpotted and distorting the plastic pot