



# Propagation

Propagation is the production of new plants. The three main means of propagating used by enthusiasts are by seed-raising, cuttings and grafting. Seed-raising techniques are covered in a separate fact sheet.

## Cuttings

Plants grown from cuttings, offsets, plantlets and leaves are genetically identical to their parents. This form of propagation is therefore a good way of adding plants to your collection or providing plants to swap with others. It is also valuable for conserving endangered species and increasing the availability of habitat-collected plant material.

Everyone experiences rot, damage or root-loss on a plant at some time or another. Usually it is a favourite plant, which you treasure and want to keep. The best chance of saving it is if you treat it as a cutting. With a clean, sharp knife cut away the damaged or rotten tissue to an area of clean healthy tissue (Fig. 1). Leave the cutting in a dry place for the exposed surfaces to callus over for about two weeks (or longer in dull or cold weather). The cutting should then be placed on gritty compost, preferably over a soil-warming cable. Some growers spray the cutting lightly and occasionally in hot weather until

rooting occurs. Rooting compounds are not generally needed, but the moist cut surface can be dusted with a fungicidal powder to prevent fungi from entering. Tall, columnar cacti and large-leaved forest cacti will grow from stem sections and not just top-cuttings. Offsets may be cut carefully from the mother plant. As outlined above, allow them to callus over and then root in a gritty medium.

The leaves of some succulents, such as *Echeveria*, *Haworthia*, *Sedum*, *Adromischus* and *Gasteria* may be used to generate new plants. Take off a young, healthy leaf and allow it to callus for a week or so. Push the end of the leaf into a pot filled with a gritty compost and leave it in a bright place out of strong, direct sunlight, keeping the soil slightly damp. The leaf will produce roots and in time small plantlets will form (Figs. 2 and 3). Do not re-pot these until a good root system has developed.

Some species of *Kalanchoe* grow tiny, complete plantlets on their leaf edges (Fig. 4). The flower stems of *Haworthia* also produce plantlets occasionally. You can detach them carefully and root as above.

Some plants fall to pieces when repotting. Often, the pieces will already have roots and can be treated as repotted plants. If a piece has no root, treat as a cutting.



Photo: David Quail

Fig. 1 The base of a *Mammillaria moelleriana* cactus cut back to clean tissue with all traces of root rot removed ready to dry off before re-rooting



Photo: David Quail

Fig. 3 A new plant growing from a leaf of *Adromischus marianiae*



Photo: Jim Mercer

Fig. 2 A leaf cutting of *Pachyphytum compactum* already forming roots and a new plantlet



Photo: David Quail

Fig. 4 Plantlets growing on the leaf-edges of *Kalanchoe daigremontiana* leaf

## Grafting

This process involves bonding one species (called the scion) onto another (called the stock) which has a more vigorous root system. It is done to increase the speed of growth of a plant wanted for propagation but can also be used as a permanent method of growth and is particularly useful for plants that are difficult on their own roots. Any strong-growing plant can be used as the stock but *Trichocereus*, *Echinopsis*, *Opuntia* and *Pereskia* are favourites (Figs. 5–7).

### The grafting procedure

For a successful union between stock and scion:

- The stock plant should be in full growth. Ideally so should the scion, but this is not always possible.
- Grafting is best performed in warm weather.
- Use a clean and very sharp blade to make the cuts. It is advisable to use surgical spirit to ensure that the blade is completely clean.
- Never cut with a sawing action and try to keep the cut completely flat.

The procedure to use is as follows:

- Cut across the rootstock at about 50–75mm (2–3”) above the compost level. The cut-off portion may be treated as a cutting to provide another stock.
- Bevel (chamfer) the cut surface at the edges (Fig. 8).
- Cut a thin slice across the top of the stock, leaving the slice in place to stop the surface drying out.
- Cut the piece of the plant to be grafted, quickly remove the thin slice and push the two moist surfaces together. A twist ensures a good surface contact and eliminates air bubbles.
- Carefully adjust the position of the scion so that its vascular bundles (the visible ring of tissues near the centre of the plant) align with at least some of the vascular bundles in the stock.
- Secure the scion in place with elastic bands pulled over pot and plant. These remain in place until the union is sealed, possibly five to fifteen days depending on the humidity. Keep the plant in subdued light during this period in warm but not too hot conditions.
- The plant can then be returned to its previous position and conditions (Figs. 8–10).



Photo: John Miller

Fig. 5 *Trichocereus spachianus* rootstock



Photo: David Quail

Fig. 6 *Opuntia* rootstock – a severed pad, already forming roots and ready for potting up



Photo: John Miller

Fig. 7 *Pereskia* rootstock

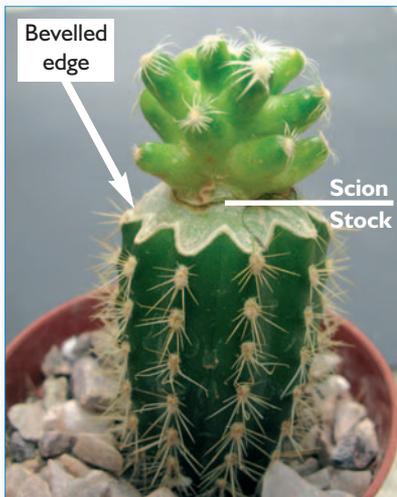


Photo: David Quail

Fig. 8 A recently grafted cutting of *Mammillaria rozekii* on a *Trichocereus* stock



Photo: John Miller

Fig. 9 A grafted cactus plant, *Islaya grandis*, on a *Trichocereus* stock



Photo: John Miller

Fig. 10 A grafted succulent plant, *Euphorbia piscidermis*, on a *Euphorbia* stock