Succulent Propagation Techniques

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Almost all succulents and cactus can be grown from seed, but it can be slow to produce plants of garden size, and seed-grown plants may not have the desirable features for a mother plant. The alternative to seed rearing for the home gardener is **vegetative propagation, in which the new plants come from growing parts of the original plant**. This works well for most succulents and cacti because the plant parts can survive for long periods without roots, and will reliably root from stems, leaves, pads or cuttings in the right setting. The keys to successful vegetative propagation are to:

- use the proper technique for that particular plant;
- do it in the right season;
- provide proper care during rooting.

First, plan how you will take care of plants while rooting. The process is a race between rooting and rotting. Place rootless plants out of direct sun and wind to prevent dehydration. Keep soil just damp. Use a free draining soil, like pumice or coarse sand with sparse potting soil (25% or less and preferably without peat). Most folks start in pots and transplant when good roots are present. Fertilizer is not needed until new top growth is apparent.

Spring and early summer are best for propagating most plants, so new roots can form before the heat of summer. In winter, when many succulents are dormant, there is a higher risk of rotting before roots are formed. Even in an unheated sunny greenhouse in our climate, many cuttings will do nothing until warm weather returns. Indoors with grow lights may work, especially if you use a propagation heat pad.

The four most common methods of vegetative propagation are:

- division;
- separating offsets;
- leaf and stem cuttings;
- rooting cactus pads or apical cuttings.

Division

Division is used for “clumping” plants that produce new shoots in a crowded mass, each with their own roots. Plants with fibrous roots and those with rhizomes (thick fleshy tubers) are also grown by division. Succulent plants suitable for dividing include shrubby aloes, gasterias, some yuccas, haworthias, crassulas and bulbine.

Dig up the plant with as much root mass as possible. Knock or wash off excess soil. Some clumps will start to separate as you work with it, but others may need to be pulled or cut apart into segments with a knife or even a hand saw. As long as segments have roots, they are likely to grow when replanted. If large areas of root are cut, allow these to dry (callus) in the shade before replanting. Plants with roots can usually be planted right back in the garden. Take care not to plant the divisions deeper than the original soil line. Water sparingly but regularly so the soil is moist but not soaking until new top growth is evident.

Offsets

Offsets are baby plants that grow around the mother plant. Sempervivum ('hens and chicks') is probably the best known example of offsetting. Many other succulents and cacti (particularly the columnar forms) make offsets, including some of the large agave. Whenever a plant has offsets growing, you can use this technique.

It is best to wait until offsets have reached a decent size, say one inch for a chick, much bigger for a large agave, before separating it by pulling it off, or by cutting the stalk or root connecting it to the main plant. Some offsets will already have some roots of their own. These can be planted and 'babied' along until new top growth is apparent. If a large stalk or root has been cut, leave it to callus in a shady spot before replanting. This helps reduce the chance of infection invading the raw cut. The offset should be gently nestled on or in appropriate soil, and kept in moderate shade and barely moist until new growth is seen.

Leaf and Stem Cuttings

Many of the fancy colored succulents such as echeverias, graptopetalum, and sedums are propagated easily from individual leaves. The leaves must be detached from the stalk with the entire leaf base; pulling to the side usually does this more effectively than cutting. Usually lower leaves are used. Leaves are left to dry until they form roots, although they can be planted directly into dry soil as well. Tiny roots or baby plants will form at the base of the leaf. Plants that have gotten 'leggy' with a long ugly stem holding up the rosette or side branches can be treated the same way. Cut the stem an inch or so from the rosette, allow it to dry, then plant. Some winter growing succulents like aeoniums are best propagated in fall, as their growth is inhibited by heat. Most of these do not need to callus before planting.

Rooting Pads or Apical Cuttings

Columnar cacti and cacti with pads or cylindrical segments are propagated very much like stem cuttings. They differ only in how to make the separating cuts, and they require longer for the larger cut end to callus. The apex (top) of a columnar cactus can be cut off, allowed to callus, and then planted an inch or so deep. The cutting should be cut straight across, but the tip of the original cactus should have a revised cut at an angle to shed rain. Often multiple new 'branches' will grow from the cut apex. For opuntias with pads or cylinders (cholla), separating segments along the joints. Care should be taken to plant cholla segments right way up!

Bonus: For the Ruthless

Some plants that do not naturally offset or branch can be encouraged to do so by a method called apical coring. Plants with strong apical dominance have a growing tip (the apical meristem) that produces hormones that travel down the plant and inhibit branching. The apical meristem is at the center of rosetting plants, and at the central tip of columnar plants, and may extend for several inches down. If you destroy the apical meristem by cutting or drilling it out, other growth nodes along the plant will try to take over and grow, producing offsets or branches.