

Tips for Plant Propagation Using Stem-Tip Cuttings

Herbaceous or green-stemmed cuttings (the most common type gardeners handle) root as readily in compost-amended potting soil as they do in sterile soilless mediums as long as six key factors receive close attention.

Choose a donor plant that has not yet begun flowering, but is approaching mature size. If the cuttings do have buds or flowers, snip them off. Rooted cuttings retain the general maturity level of their parents, but until they have enough roots to support reproduction, you should remove flowers that try to form.

Make sure the donor plant is in good condition. Water it the day before collecting cuttings, which are at their best during the morning hours.

Keep cuttings small — no more than 6 inches long — and remove all but the topmost three to four leaves. A few leaves help the cutting survive on light-derived energy, but too many will suck the cutting dry.

Temperatures must be kept warm, around 75 degrees Fahrenheit, so bottom heat from a warming mat (or heating pad) is especially beneficial. Outdoors, wait until after your last frost passes to try rooting anything (other than root-bearing divisions) directly in the garden.

Light levels should be low at first (around 50 percent) to suppress growth of new stems and leaves. The combination of warm soil temperatures and low light levels pushes the cuttings to send energy to developing roots.

Moisture around the buried stems must stay constant at all times. To reduce evaporation and increase humidity, use containers you can enclose in glass or plastic to keep humidity high. Until the cuttings can take up water through their yet-to-grow roots, high humidity is the best way to prevent moisture loss from the leaves and rooting medium.

For years I fashioned tents from plastic produce bags to make little greenhouses for rooting cuttings, but these days I use shoebox-size plastic storage boxes with clear or translucent lids. Filled with 3 inches or so of moist soil (or plastic cellpacks reused from bedding plant purchases), the boxes become mini-greenhouses that can be propped open during the day and closed at night. A glass or translucent plastic cake cover makes a great impromptu propagation greenhouse, too.

It is not unusual to have 100 percent success with willing rooters such as mint, tomato or chrysanthemum, but with other plants you should expect significant failures. I often hope for a 50 percent success rate when propagating a plant for the first time, so I start twice as many cuttings as I think I need. Successful cuttings keep their color while failed ones slowly fade or flat-out collapse. Promptly remove corpses to prevent the buildup of root-devouring fungi. When you see signs of new growth, check for resistance from new roots by gently pulling on the cuttings. When it's clear that cuttings have anchored themselves with new roots, get ready to move them to your garden.

Barbara Pleasant, Mother Earth News

Propagation techniques for common garden plants

Plant	Cutting			Layering		
	Softwood	Semi-hardwood	Hardwood	Simple	Air	Compound
Abelia	X	X		X		
Althea (Rose of Sharon)	X		X			
Bittersweet	X		X	X		
Boxwood		X				
Butterfly bush	X		X	X		
Clematis	X			X		X
Cotoneaster	X		X	X		
Crape myrtle	X					
Dogwood	X					
Euonymus	X	X	X	X		X
Forsythia	X		X	X		
Hawthorn	X		X			
Holly		X		X	X	
Honeysuckle (bush)	X		X	X		
Honeysuckle (vining)	X		X	X		X
Hydrangea	X					
Juniper			X	X		
Lilac	X			X		
Mahonia (grape holly)		X				
Privet	X		X	X		
Pyracantha		X		X		
Rhododendron		X	X		X	
Rose	X		X	X		
Spirea	X		X			
Sweetshrub	X		X	X		X
Viburnum	X		X	X		
Weigela	X			X		
Willows			X			
Wisteria			X	X		X

Tips for Plant Propagation using Division

One of the most important methods for propagating plants at home is crown division. Herbaceous plants such as chrysanthemum, daylily, peony and iris can be divided by this method. Other plants for division are listed in Table 2. Some woody shrubs that branch or sucker from the base can also be reproduced by this method. It is simple and reliable.

As a general rule, plants that flower in spring and early summer should be divided in late summer or fall. Those flowering in summer and fall should be divided in early spring before new growth begins.

For crown division, plant clumps should be carefully lifted and some soil removed from the roots. The crown may then be cut into sections with a knife. Individual shoots that contain roots may be used to form new plants, or if a larger plant is desired, several shoots may be left together. In large, old crowns, it is often best to discard the older, center portions and replant the young, more vigorous shoots that have developed on the edges of the clump.

Shrubs may be divided in the same manner, but when the plants are dormant. Because they are often woody, they may need to be separated with a shovel or hatchet. Trim back the shoots before planting and cut off damaged roots. Some shrubs that may be divided include dogwood, euonymus, hydrangea, lilac, spirea and snowberry.

Common garden perennials suitable for division and the best time for division

- Aster (hardy) Spring
- Baptisia (false indigo) Spring or fall
- Bleeding heart Late summer, early spring
- Chrysanthemum Spring
- Columbine March
- Coneflower (echinacea) Spring or fall
- Coreopsis Spring
- Daylily Late summer, spring
- Delphinium Early spring
- Ferns Early spring
- Hosta (plantain lily) Spring or fall
- Iris, bulbous (Dutch) Late summer, fall
- Iris, rhizomatous (German) July, August
- Lily Fall
- Lily of the valley Fall
- Oriental poppy July, August
- Peony Early fall
- Phlox Spring
- Primula Summer
- Red-hot poker (kniphofia) Spring
- Rudbeckia Spring or fall
- Sedum (stonecrop) Spring, July, August
- Shasta daisy Spring
- Vinca (myrtle) Early spring
- Yarrow (achillea) Late summer, spring

Tips for Plant Propagation from Seed

Use good quality seeds. If you've saved your own seed, make sure it's been stored properly – in a cool (around 40°F), dry place. You can put paper packets or seeds in a closed jar in the refrigerator.

Use sterile pots and planting medium to avoid damping off diseases (when the seedlings wilt and die after germination). If you recycle pots, sterilize them by washing, then soaking in solution with 1 part bleach to 9 parts water. Use a sterile planting medium, not garden soil. Don't use potting soil with added fertilizer.

Read the seed packet to see if it specifies germination temperature and whether the plant germinates in dark or light. Generally, most seeds will germinate around 65° - 75°, so you may need a heating mat.

Very Important. Keep the soil evenly moist (not soaked). This encourages germination and is important for tender new plants with developing roots and vascular systems. Spray mist from the surface initially. Cover the pots with plastic to keep in moisture and raise the humidity. Once the plants sprout, you can remove the plastic and also water from the bottom (through capillary action) by sitting pots in a shallow tray. But too much water will cause the seeds or plants to rot and may rob the soil of needed oxygen.

Once the plants sprout, they'll need plenty of light to avoid becoming "leggy". Put them in a south facing window and consider using artificial light (about 6" above the plants, move up as they grow).

Tips for Plant Propagation from Softwood Cuttings

Use soft, succulent new spring growth of deciduous or evergreen species. Detach a 2-6 inch piece of stem, including the terminal bud. Make the cut just below a node. Remove the lower leaves that would touch the rooting medium. Dip the stem in rooting hormone and insert the cutting far enough into the rooting medium so that it stands up. At least one node must be below the surface.

It's best to collect cuttings early in the day. Use lateral shoots that have some flexibility. Avoid weak, thin interior stems or thick, woody ones.

Softwood cuttings tend to wilt – keep moist and cool. Keep the rooting medium and cuttings in a plastic bag to increase humidity. Store in bright but indirect light until roots form, then gradually open plastic and increase the light levels.