

Home Propagation of Houseplants

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Plant pieces cut from a parent plant and rooted to form new plants are called "cuttings." They are a simple and inexpensive way to multiply houseplants as well as garden plants. These new plants have the same characteristics and genetic makeup as the parent plant.

Many plants may be propagated by cuttings, and some of those easily done at home are listed in Table 1. The type of cutting or other suitable propagation technique is also included.

Types of cuttings

Cuttings may be taken from stems, leaves or roots. Herbaceous stem cuttings, sometimes called slips, are commonly used. Popular plants, such as African violet and begonia, are propagated from leaf cuttings. A few plants may be propagated by cutting their long stems into segments. Others can be propagated by simple division.

Herbaceous stem cuttings. The type of stem cutting most suitable for propagating houseplants is the herbaceous cutting. It is made from tender growth of terminal shoots. Herbaceous cuttings are commonly used to propagate geranium, chrysanthemum or coleus (Figure 1). Cuttings taken from a rubber plant, dracaena or croton usually contain more woody tissue and are frequently called softwood cuttings. Techniques for taking and rooting are the same.

Leaf cuttings. Leaf cuttings include only a leaf blade or the blade and a portion of the petiole (Figures 2 and 3). Leaf cuttings of plants such as African violet should

not be rooted with long petioles. Trim the petiole to no more than $\frac{1}{2}$ inch in length.

If a small portion of the main plant stem containing a bud is included with the petiole, the cutting is known as a leaf-bud cutting. Their use is limited. Hydrangea and rubber plants are sometimes started by this method.

Plants from stem sections. A few houseplants may be propagated by cutting 1- to 2-inch sections from the stem (Figure 4). These segments, without leaves, are placed in the rooting medium in a horizontal position and covered slightly. Table 1 lists a few plants that may be propagated this way.

How to take cuttings

Take cuttings from vigorous, healthy shoots. Most cuttings should be 4 to 6 inches long. Cut just below a node (where a leaf is attached) with a sharp, clean knife.

Remove leaves from the lower half of the cutting. Use a rooting hormone on all except easy-to-root plants such as coleus. Rooting compounds are available in many garden supply stores, mail-order seed and nursery companies, and mass merchandisers. Carefully use the hormone as directed. Keep cuttings clean. Don't place them in dirty containers or on dirty tables.

Containers

A 6- to 8-inch plastic pot can be used to root several cuttings. Place the pot in a large plastic bag and close it to maintain high levels of humidity (Figure 5).



Figure 1. Five-inch coleus stem tip cutting that contains a terminal growing point.



Figure 2. Violet leaf cutting without the petiole.



Figure 3. Violet leaf cutting with a $\frac{1}{2}$ -inch petiole.

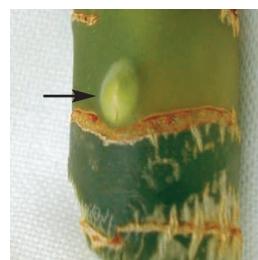


Figure 4. Stem section cutting with a prominent axillary bud.



Figure 5. Large zip-type plastic bag secured at base of pot with a rubber band.

Table 1. Propagation techniques for selected houseplants.

Plant	Propagation technique						Comments
	Herbaceous cutting	Leaf cutting	Stem section	Air layer	Compound layer	Division	
African violet		◆				◆	Cut petioles 1/2 inch long. Place potted leaf cuttings in plastic bag.
Arrowhead (<i>Nephthytis</i>)	◆				◆	◆	Cuttings may be rooted in water.
Asparagus fern						◆	Keep young divisions constantly moist.
Begonia	◆	◆					May be started from leaf sections placed on surface of rooting medium. Cleanliness important.
Bromeliads						◆	Use well-drained medium high in organic matter. Orchid growing mix useful.
Cast iron plant						◆	Provide good light after division.
Chinese evergreen	◆		◆				May be rooted or grown in water.
Christmas cactus	◆						Keep moist, but avoid overwatering during rooting.
Chrysanthemum	◆					◆	Cuttings from new shoots in early spring often make better garden plants than divisions.
Coleus	◆						Root in water. Easiest of all.
Croton	◆			◆			Slow to root. Cover with plastic. Give good light.
Diffenbachia	◆		◆	◆			Subject to rot during rooting. Do not overwater. Keep clean.
Dracaena	◆		◆	◆			Stem sections relatively slow.
English ivy	◆				◆		Easy to root. Sometimes slow starting.
Episcia	◆	◆					Related to African violet. Tip cuttings grow faster than leaf cuttings.
Ferns						◆	Keep constantly moist after division.
Fuchsia	◆						Root easily. Prefers a cool temperature after rooting.
Gardenia	◆						Vigorous new shoots root most easily in midsummer.
Geranium	◆						Keep foliage dry during rooting.
Gloxinia		◆					May be grown from leaf cuttings.
Hibiscus	◆						Rooting hormones speed root production. Give bright light.
Hydrangea	◆						Tend to root best in spring or early summer.
Impatiens	◆						Very easy. May be rooted in water.
Jade plant	◆	◆					Keep fairly dry during rooting. Must have well-drained medium, e.g., coarse sand.
Kalanchoe	◆	◆					Use vegetative shoots, not flowering shoots for best rooting.
Lantana	◆						Old, woody stems do not root as easily as more tender terminal shoots.
Maidenhair fern						◆	Keep divisions constantly moist.
Norfolk Island pine	◆			◆			Very slow. Use only terminal cutting.
Orchid						◆	Many types. Provide high humidity and well-drained organic medium.
Peperomia	◆	◆					Root easily. Avoid excess moisture during rooting.
Philodendron	◆				◆		May be rooted in water. Spring and early summer give quickest rooting.
Poinsettia	◆						Propagate in late August for home. Cleanliness important.
Pothos	◆				◆		Will root in water. Spring and early summer propagation usually most successful.
Rubber plant	◆			◆			Keep humidity high during rooting, or use air layer.
Schefflera	◆			◆			Needs high humidity and bright light. Slow rooting.
Shrimp plant	◆						Easy to root. Give good light.
Snake plant		◆				◆	Place leaf sections in same position they grew. Will not root upside down.
Spider plant		◆				◆	Very easy to root runners. Pot directly in soil mixture.
Wandering jew	◆						Very easy. May be rooted in water.
Wax plant (<i>Hoya</i>)	◆				◆		Use leafy shoots, not long thin vines.
Zebra plant	◆						Use nonflowering shoots. Give high humidity and good light.

Rooting materials

Clean, coarse, construction-grade sand is suitable for rooting many cuttings. It is also excellent mixed with an equal volume of peat moss.

Vermiculite is a lightweight material used for rooting. It holds water well and promotes fine root growth.

Perlite is another excellent propagation material. It is lightweight and provides good aeration for rooting. Perlite makes one of the best rooting materials when mixed with an equal volume of peat moss.

Don't use field soil as a rooting medium. It packs too tightly under wet conditions and is prone to develop diseases.

Compressed peat pellets are available for seeding and can also be used for rooting cuttings. They expand rapidly when soaked in water. Place them in plastic bags after soaking and draining; insert a single cutting in each pellet and close the bag at the top. No additional watering is necessary until the cutting is rooted and the bag opened.

Cleanliness

Pots, medium and equipment used for rooting cuttings must be clean and sterile. Pots should be washed thoroughly using a household cleaner and disinfectant. Tools also should be washed in the same solution or dipped in alcohol. Any rooting medium which is not known to be sterile can be moistened and heated thoroughly in an oven at 150 to 200 degrees for 20–30 minutes. Normally, peat moss, vermiculite and perlite don't need sterilization when new.

Inserting the cutting

Promptly place the prepared cutting in the rooting material; stick the base of the cutting 1 or 2 inches deep, depending on the length of the cutting. Firm the material around the base and settle the medium by watering.

Care of cuttings

Never allow the propagation medium to dry out during the rooting process.

Since the cuttings have no root system, a high humidity must be maintained around them at all times. Clear plastic is inexpensive and easy to use for covering the cuttings. A plastic bag slipped over a pot is simple and airtight. Support the plastic with wire loops or stakes if need be to keep it from resting on the leaves.

Never place a plastic-covered container in direct sunlight. Too much heat will build up under the plastic and burn the foliage.

Care of rooted cuttings

The length of time needed for cuttings to form roots differs greatly among plants. Check the cuttings occasionally by carefully removing a few from the medium. When a cutting has roots at least an inch long, transplant it into a separate container.

The move from high humidity and moist rooting conditions to lower humidity and drier soil is the most critical step in successfully growing new plants from cuttings. Give these young plants close attention the first few weeks after the move.

A good potting medium designed for houseplants can be found at local garden centers or mass merchandisers and will be suitable for potting newly rooted cuttings.

After a cutting has become established in the medium, apply a soluble houseplant fertilizer according to directions. Then fertilize at monthly intervals. When the cutting is growing vigorously, normally in spring and summer, fertilizer may be applied every two weeks.

Division

Division is the easiest method of multiplying plants that naturally produce offsets or basal shoots. These new shoots usually have a few roots and can be separated and planted individually (Figure 6). Some plants suitable for division are listed in Table 1.



Figure 6. Spider plant offset from the parent plant.

Layering

Layering is a method of rooting a new plant while the stem is still attached to the parent plant. It is simple to perform and can be done in the home without special equipment or structures. Methods of layering include simple, tip, air and compound. These are discussed in detail in MU publication G6970 *Home Propagation of Garden and Landscape Plants*.

Air layering is the most suitable method for use on houseplants. It is convenient to do in the home and can be used with plants that would be difficult to root by any other method.

Mature wood, about one year old, is generally best for air layering. Old branches or immature wood often root poorly or not at all.

The air layer may be made at any point on a stem of proper maturity. On many plants a convenient location is 12 inches from the tip.

Air layering

- Remove all leaves several inches on either side of the point where the layer is to be made.
- From the center of the layering area, make a slanting cut upward an inch or more in length and about halfway through the branch. A preferred method of wounding is removing a strip of bark $\frac{1}{2}$ to 1 inch wide around the branch (see Figure 7).
- Apply a rooting hormone to the wounded surface or cut.

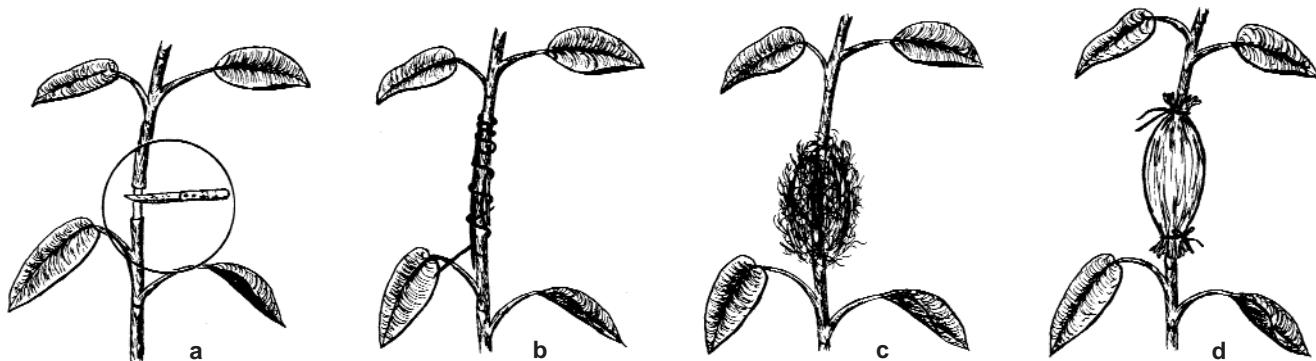


Figure 7. Air layering. (a) Remove strip of bark around the branch. (b) If stem is weakened by the cut, use a stick splint for support. (c) Cover with a ball of moist sphagnum. (d) Wrap a piece of clear plastic around the branch and tie at each end.

- If a cut has been made, don't let it heal back together. Insert a small piece of wood such as a toothpick in the cut to keep the wound open.
- Take a handful of unmilled sphagnum moss that has been soaked in water and squeeze out excess water. Pack the moist sphagnum around the branch to cover the wound.
- Cover the ball of moist moss with plastic wrap. An 8- by 10-inch sheet is generally large enough. Wrap it around the moss so that it overlaps and will not allow the moss to dry out. Clear plastic permits you to see when roots have developed.
- Secure the plastic at each end with electrical tape, string, plant ties or other convenient fasteners. It will usually take a month or more before roots appear.

Compound layering

Compound layering is suitable for long vines that may be alternately covered and exposed. Wounds should be made on the lower portion of each curve. For additional information, see MU publication G6970, *Home Propagation of Garden and Landscape Plants*.

After rooting, the branch can be cut into segments, each containing its own roots.

Care after rooting

Root systems of newly rooted layers are small in relation to the canopy. After they are severed from the parent plant and potted, the humidity must be kept high. Enclose them in a loose, clear plastic bag for the first week or until they are well established and do not wilt excessively.



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