

# HOME GROUNDS FACT SHEET

CORNELL

Cooperative Extension  
Nassau County



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## Techniques for Propagation of Plants for Interior Decoration

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One of the best ways to add color, texture, form and a feeling of life and freshness to your home is to use indoor plants in abundance. Today's decorating calls for foliage and flowering plants in every room. With so many cities swallowing up green spaces outside, there is a real psychological need to bring nature indoors. Though it is possible to buy plants in florist shops, plant shops, garden centers, supermarkets and many other retail outlets, you can also produce them yourself. This will provide you with an interesting, absorbing hobby and a real sense of accomplishment.

### Seeds

There are several ways to propagate plants for decorative use and enjoyment in your home. Many houseplants can be started easily from seed. Geraniums, coleus, fuchsia, African violets, cacti, asparagus fern, avocado, bird of paradise, ornamental pepper, Jerusalem cherry, sensitive plant and pomegranate are a few examples of plants readily grown from seed. Some plants can be propagated by more than one method; others respond best to only one. Geraniums are commonly propagated from terminal-stem cuttings and African violets are usually propagated by leaf-petiole cuttings. They can be grown from seed, also. When a large number of plants is desired, propagation by seed may be the

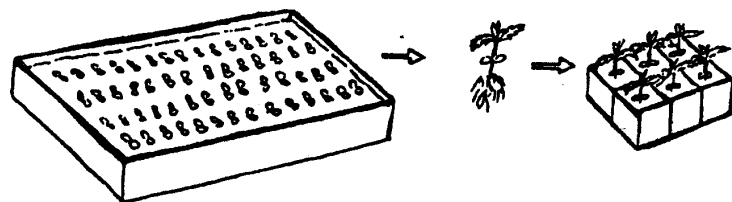
best method. Seed culture is of particular interest in hybridizing, which may give rise to variations in plant form and flower color. This offers exciting possibilities for the amateur as well as the professional indoor gardener.

Seeds are commonly grown in shallow pots or, for larger quantities, in shallow seed trays or flats. Nowadays, flats are usually plastic instead of wood, and some seed trays are made of a number of small compartments in which a single seed is sown. Small, sterile, fiber flats are also available. Since plastic flats are usually watertight, it is necessary to put a half-inch layer of sand or pebbles in the bottom for drainage. The tray is then filled with a rooting mixture of 1/2 coarse sand or perlite and 1/2 peat moss or milled sphagnum.

The rooting medium should be sterile. Do not use garden soil in the rooting mixture. Soak used pots or flats in a solution of 1 part chlorine bleach to 10 parts water.

Rinse thoroughly in clean water and let dry before use. The seeds should be dusted with a fungicide before sowing. Damping-off disease is the biggest danger in propagating plants from seed. The rooting mixture should be moist without being soggy and should be moistened before the seeds are sown. Scatter seed thinly over the surface or sow in rows. The seeds should be covered over with a light screening of sphagnum or peat moss. A mist spray of water dampens the surface material sufficiently without washing the seeds away.

To prevent drying, a pane of glass or piece of plastic can be placed over the top of the tray, or the tray or pot can be enclosed in a clear plastic bag. Avoid placing flats in sunlight when there is a glass or plastic covering because temperature buildup may cook the seeds or emerging seedlings. In either case, this covering should be removed as soon as the seeds



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A-1-30 DWM/in reviewed RT 1/03

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have germinated.

When the seedlings emerge they should be fertilized with a weak liquid fertilizer solution—use 1 tablespoon of soluble houseplant fertilizer per 1 gallon of water. Apply the solution carefully to avoid washing away the small seedlings. A small bulb syringe works well. Watering pots or porous flats from the bottom is another method of preventing seedlings from washing away.

When seedlings have developed two true leaves they should be transplanted to individual small peat or pottery pots. A good sterile potting mixture should be used. For most plants, equal parts of sand, soil and peat make a good growing mix. Baking garden soil for 1/2 hour at 250° F kills most soil organisms. However, a soilless mix of 1/3 peat, 1/3 vermiculite and 1/3 sand or perlite is a good sterile substitute. Cacti should be grown in a soil mix with 2 parts of sand or perlite to 1 part peat and 1 part soil. The seedlings should be watered regularly with a weak solution of liquid houseplant fertilizer to encourage growth. The growing seedlings should be placed in good light. They can be placed directly in a window in all but the hot summer months.

During the summer, the seedlings should be in indirect light rather than in full sun. When the seedlings have attained a fair, compact size, they should be transplanted to small regular containers

and grown on to an appropriate size. Since a large number of plants can be grown by the seed method, extra plants can be traded with friends for other varieties, or they can be grown on for gifts, for sale, or for church bazaars and community fairs.

Propagation by seed is not always feasible, either because seed is not available or viable or because plants from seed do not always come true. If a duplicate of the parent plant is desired, sexual propagation by means of cuttings, division, layering, runners or offshoots is the technique required. Other means, such as rhizomes, tubers, bulblets and plantlets, are also possible in specific cases.

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## Cuttings

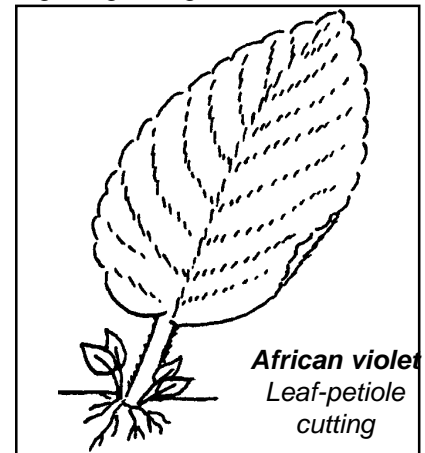
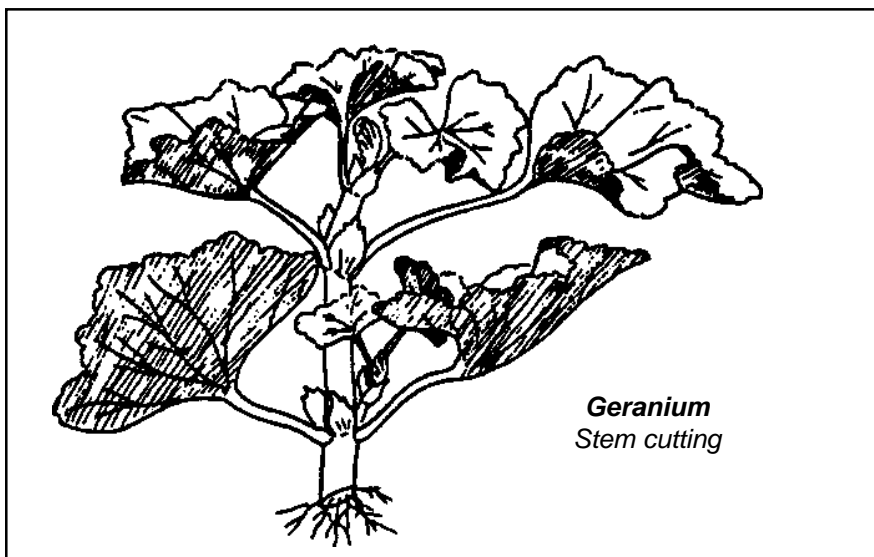
For many plant lovers, the most common method of acquiring a new plant is by means of a slip or cutting. This is not a complete description, however, because there are several types of cuttings.

### Stem cutting

Stem, slip or terminal cutting is simply a growing tip (or tips) of a plant that is snipped or pinched off

from the parent plant. It contains a stem and several leaves and is essentially a plant minus its roots; geraniums, ivies, philodendron, fuchsia, Wax plant, peperomia, begonia and coleus are cases in point. Long stems can be cut into sections called *sectional* cuttings. They contain two or more nodes with leaves but don't have the terminal growing point. However, they are treated the same as a terminal cutting because the dormant bud in the axil of the leaf grows to establish a new growing point or terminal.

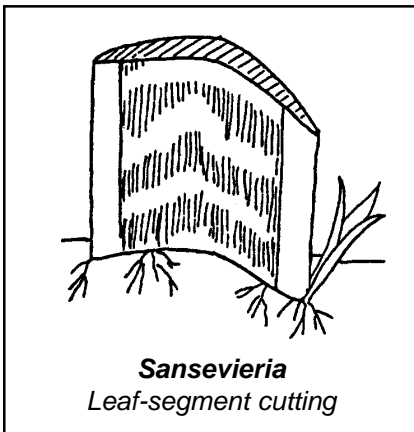
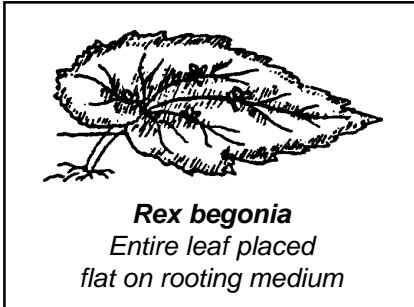
Often, stem cuttings are placed in a glass of water until roots form. However, roots form slowly in winter months and these stem cuttings may rot before they root. Even if roots do form, they are water roots that may not transplant successfully. A better procedure is to dip the cut end of a stem cutting into a rooting hormone powder and plant the stem in a pot of rooting mix until roots form. Succulent or fleshy stems should be dried out a few days to seal off the cut end of the stem before planting. A good rooting mix is 1/2 sand or perlite and 1/2 peat or ground sphagnum moss. When roots are well formed, as evidenced by the fact that the slip does not pull out of the rooting mix easily, the rooted cutting, now a complete plant, can be potted up in a good growing mix.



### Leaf-petiole cuttings

The leaf, plus its stem or petiole, is used for starting African violets, gloxinias, rex begonias and peperomias. Two different techniques are used. African violets, gloxinias and peperomias are

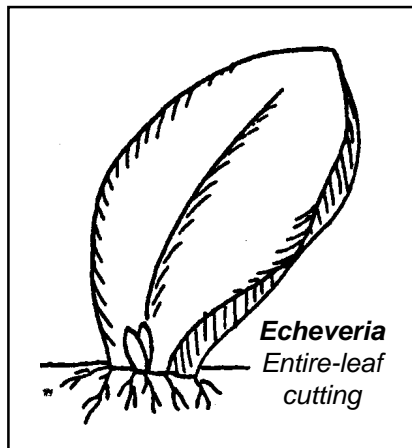
propagated by inserting the petiole in the rooting mix with the leaf standing upright above the surface of the mix. Many leaves can be planted close together in a somewhat shingled effect. The rex begonia petiole is inserted in the rooting medium with the leaf itself pinned flat on the surface. Small cuts are made across the main veins of the leaf. New plants form at these cuts.



### Leaf sections

Sansevieria and star-leaf begonias can be reproduced from leaf sections. Sansevieria leaves are simply cut crosswise into pieces 3-4 inches long and set upright in the rooting medium. Care should be taken to ensure that the pieces are right end up because they will not root upside down. Make a small identifying notch at the top so proper polarity can be ensured.

With fibrous-rooted begonias such as the star-leaf begonia, leaves are cut in radial sections on either the petiole or leaf stem. Each section is set upright in the rooting medium with the stem end inserted in the medium. A wooden plant label or matchstick behind the leaf will support it. A glass jar placed over the leaf section helps maintain a moist atmosphere.

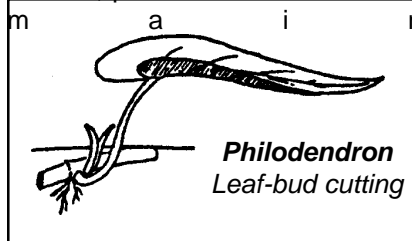


### Entire-leaf cutting

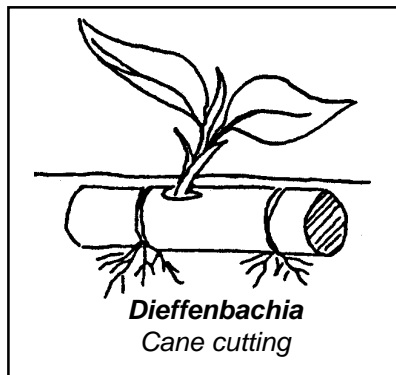
Sedums, echeveria and other fleshy-leaved plants are propagated by inserting the base of the leaf into the rooting medium. New plants develop at the base of the leaf.

### Leaf-bud cuttings

A plant stem is cut into sections containing a single leaf and a piece of the main stem, including the node from which that leaf grows. On larger stems, a piece of the stem containing the leaf can be gouged out. This piece contains the leaf, petiole and a "heel" of the

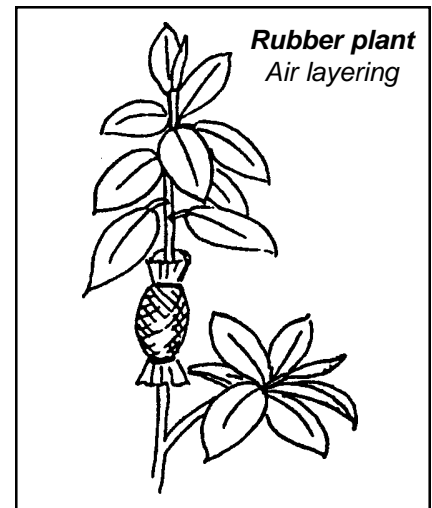


stem that includes a dormant bud from which the new plant develops. The heel, or the main stem section containing the dormant bud, is set in the rooting medium with the leaf and petiole protruding. Roots develop at the heel and the dormant bud develops into a new plant.



### Cane cuttings

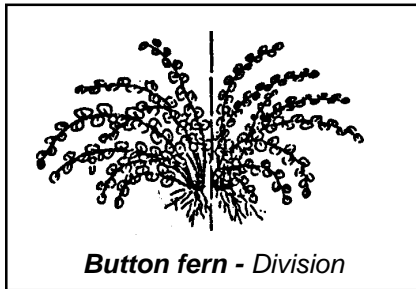
Some plants such as dracaenas, dieffenbachias, aglaeonemas and yuccas develop long stalks or canes as their bottom leaves are shed naturally. These bare canes show a series of rings where each leaf had previously been attached. Between every two rings or leaf scars is a dormant bud. The cane should be cut into sections with at least two leaf scars and a dormant bud. The section should be laid horizontally just under the surface of the rooting medium with the dormant eye facing upward at surface level. Roots develop at the ends of the canes; the nodes, or leaf scars, and the eye break dormancy, sprout, and form a new plant. A tall cane can produce many new plants. The growing top of the plant can also be rerooted, either as a terminal cutting or by air layering before the cane is cut off. Usually, the bottom of the plant with the roots intact also resprouts.



### Air layering

Woody-stemmed plants such as croton, rubber plants, schefflera, fiddle-leaf fig and laurel fig, which root more slowly, can be air layered. This is a good way to reduce the height of a too-tall plant and to obtain new plants at the same time. A notch is cut into the woody stem below the part to be removed. This cut is propped open with a match stick or small twig. The stem just above the cut can be scraped or bruised for 1 or 2 inches. This area should then be surrounded with a ball of moist sphagnum moss, which, in turn, is covered with a

piece of clear plastic tied around the stem at the top and bottom of the moss ball. The moist sphagnum provides an ideal medium in which the roots can develop. When roots emerge from the ball and are discernible through the plastic, the top can be severed below the root ball and planted. The lower stem can remain or be trimmed shorter. Eventually, dormant or adventitious buds sprout and a new terminal develops.

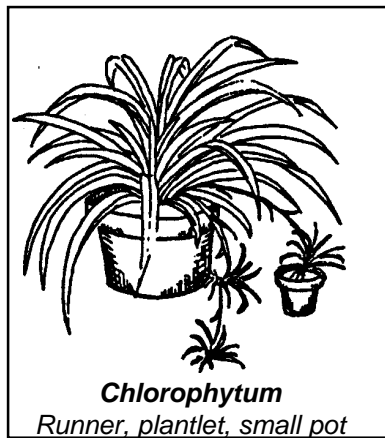


## Division

Plants such as African violets may form multiple crowns. This cluster can be broken apart to form individual plants. Sometimes these separated plants have few or no roots. They should be planted in a rooting mixture until good roots develop. Other plants, such as ferns, asparagus fern, cast-iron plant, prayer plant and everblooming begonias, form dense clumps. These clumps can be cut or pulled apart to form several smaller plants. The root ball must be broken apart, but the roots should be kept intact as much as possible. These divisions can be repotted in regular potting soil as individual plants.

## Runners

A few plants send out runners that produce new plantlets. Saxifraga, commonly called strawberry geranium or strawberry begonia; chlorophytum, or spider plant; Boston fern; and episia, or flame violet, are good examples. These new plantlets can be removed and rooted as a cutting; or better yet, they can remain attached to the mother plant and small pots can be set alongside to accommodate the plantlets. When these plantlets have rooted firmly, the runners can be severed from the mother plant.

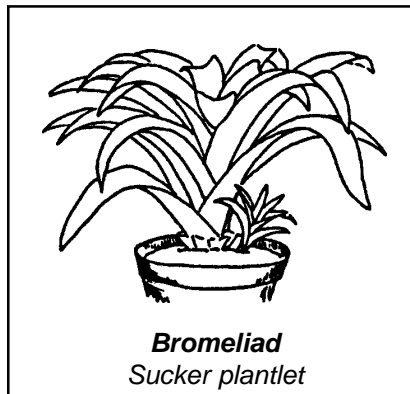


## Offsets

Plants such as aloes, century plant and sempervivums-or hens and chickens-produce small plants on short shoots at the base of the parent plant. These juvenile plants can be removed and potted as new plants.

## Suckers

A secondary growth that originates from adventitious roots or rhizomes is called a sucker. Bromeliads produce these small growths, commonly called "pups," around the parent plant. Staghorn ferns also produce suckers. These suckers can be removed from the parent plant when they have developed into small-sized plantlets and potted as individual new plants.

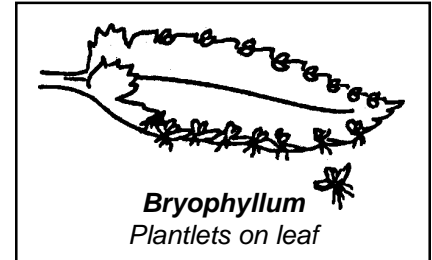


## Plantlets and Bulbets

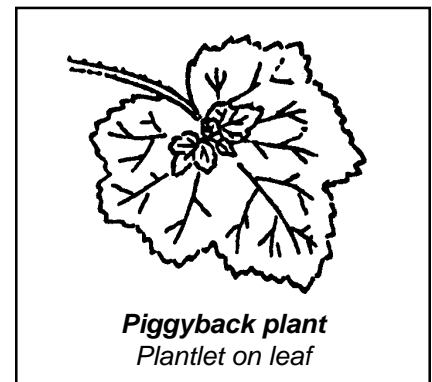
Some plants produce plantlets on their leaves. Kalanchoe varieties produce tiny plantlets along the margin of the leaf. One such plant, bryophyllum, is commonly called mother-of-millions because of the many plantlets produced. The tolmiea, or piggy-back plant, produces plantlets on top of mature leaves. Cyperus, or umbrella plant,

produces plantlets in the axils of the whorl of leaves. Some ferns are viviparous; they produce tiny bulbets that develop into tiny plantlets. Asplenium bulbiferum and polystichum setiferum are two examples of these "mother ferns."

All these above-ground plantlets produce new plants if they are carefully grown in a rooting medium. The leaf of the bryophyllum is fastened flat on the medium and the roots of the plantlets grow into it.



The piggy-back plant leaf is treated like a leaf-petiole cutting and the fern fronds are usually left attached to the parent plant and pegged down flat on the propagating medium until the plantlets have rooted.



## Bulbs, Tubers and Rhizomes

Indoor plants such as amaryllis produce side bulbs that should be separated from the parent bulb when they reach a fair size. Tubers are swollen underground roots or stems. Caladium, gloxinia and tuberous begonia tubers are cut into sections after the new eyes have sprouted. Each section must contain a growing eye. Gloriosa lilies have elongated tubers that can be separated so a growing tip is included. All cut surfaces should dry a day or two and be dusted fungicide before repotting.

A rhizome is a thickened stem, usually underground but sometimes above ground. Rex begonia is a good example. Rhizomes can be cut into sections and set level with the surface of the propagating medium like a cane cutting. When small plants develop, they can be lifted and potted in a good potting or growing medium.

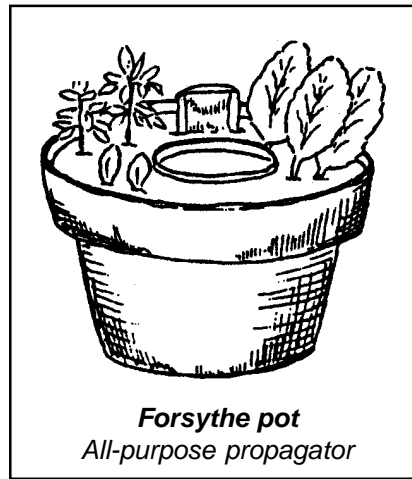
## Layering

One other method used for woody plants with large drooping branches or vines is layering. This is a common method of propagating outdoor shrubs, but it can also be used for indoor plants such as gardenias, rubber plants, ivy, grape ivy, brassaia or schefflera, philodendron, hibiscus and many others. Any vining or drooping branch can be bent over and pegged down. This might be in the parent plant's pot or in another nearby container. The stem area touching the soil should be bruised or scraped to induce rooting. A mound of soil is heaped over the pegged-down stem. When roots have developed, the stem can be severed from the parent plant, and the new plant can be properly potted in a new container. This method obviously does not produce many new plants, but it is a sure method of obtaining one or two.

## Containers for Propagation

Plants can be propagated in a variety of flats, pots and boxes. If several small cuttings are desired, a Forsythe pot can be used with good results.

A Forsythe pot consists of a small porous clay pot, about 2-3 inches in diameter, set inside a larger clay pot, usually 6-8 inches in diameter. The rooting medium is put in the larger pot. The small pot, with a cork in the drainage hold, is set in the center of the larger pot, level with the rooting medium.



Cuttings and plantlets are inserted in the circular area of the rooting medium and the small pot is filled with water, which seeps out into the rooting medium and keeps it moist.

Another method for rooting cuttings is to use a wick-watered pot. The constant moisture prevents the cuttings from drying out. Cuttings can also be rooted in a plastic bag or terrarium. Place 3-4 inches of moist rooting medium in the bag or bottom of the terrarium, insert the cuttings and fasten the bag or cover the terrarium. Because this is a closed system, no additional moisture is needed. The plastic or glass container should be

placed in indirect light because strong direct sunlight causes excess heat buildup and cooks the plants.

Difficult-to-root cuttings can be rooted more easily in a homemade propagating case made by cutting and bending a wire coat hanger and arching it over a pot full of rooting mix. After the mix is well watered, the cutting is inserted, a clear plastic bag is placed over the pot, and a rubber band is used to fasten the plastic bag securely. The humidity inside the bag is maintained at a high level and the leaves of the cutting remain turgid and un wilted. This method works especially for more woody-stemmed cuttings such as gardenia, ardisia, cissus, bougainvillea and ixora. However, it is unsatisfactory for cacti and other plants that may rot in a more humid atmosphere.

When rooting woody-stemmed plants or plants that are difficult to root, a rooting hormone increases success. The end of the stem can be dipped in the hormone powder before inserting it in the rooting medium.

With a little patience and care, you can increase your collection of indoor plants and perhaps provide welcome gifts to friends and neighbors.

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