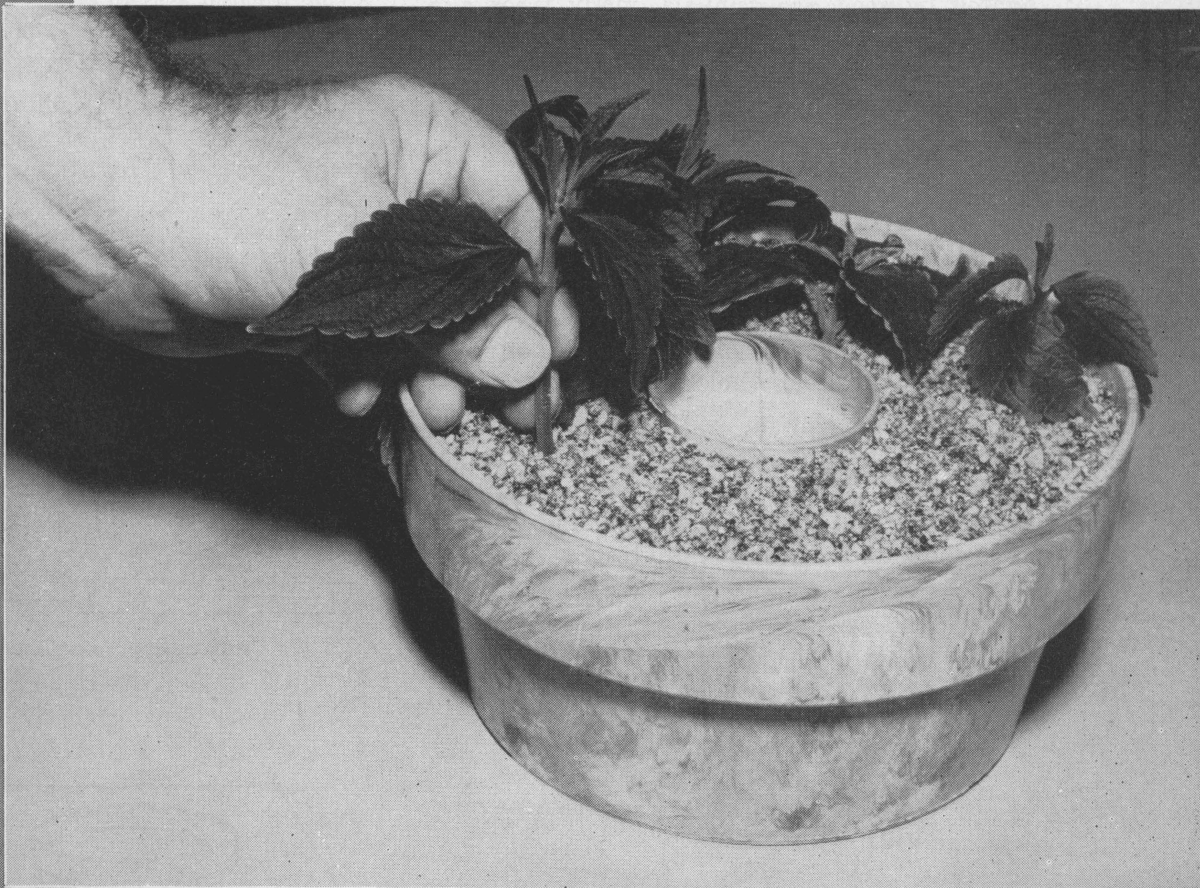


LIBRARY
A. & M. COLLEGE OF TEXAS

P R O P A G A T I O N O F

Ornamental Plants



TEXAS AGRICULTURAL EXTENSION SERVICE
G. G. GIBSON, DIRECTOR, COLLEGE STATION, TEXAS

Propagation of Ornamental Plants

A. F. DEWERTH, *Head*
Department of Floriculture
and Landscape Architecture
Texas A. & M. College System

THE MULTIPLICATION of ornamental plants is receiving more and more attention from home gardeners. Research in recent years has developed techniques that enable the average gardener to produce high-quality plants in a comparatively short time.

Propagation by Seed

The classes of ornamental plants usually propagated by seed are annuals, many trees and most palms.

Whenever possible, sow the seed of most Texas ornamentals in flats or pots rather than directly in the open ground.

Be sure there are cracks or holes in the bottom of the flat or that the hole in the bottom of the flower pot is kept open to allow excess water to pass quickly out of the soil. Place coarse gravel or charcoal in the bottom of the container so that the soil will not sift or wash through the drainage holes.

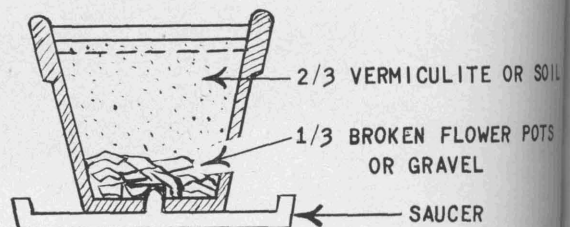
The best control for soil-borne diseases and insects is sterilized soil. To prepare small quantities of soil for sowing seed, place the container of moist soil in the oven and bake it at or above 180° F. for 30 minutes.

After sterilizing, firm the soil to within 1/4 inch of the top of the container. Then soak the container by placing it in a shallow pan of water until the surface soil is moist. Sow larger seed and add soil screened through fly screen until the seed are barely hidden. Covering seed too deeply is a common error.

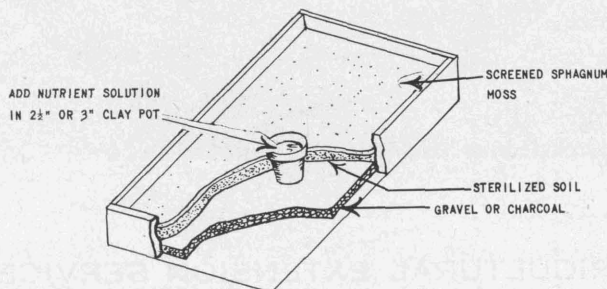
For very fine seed, screen a 1/8-inch layer of sphagnum moss on top of the soil; sow seed on this layer of moss and do not cover. Water flats or pots when needed from below, by the method outlined above to avoid washing seed.

After the seed have germinated, place the container where the seedlings will get an abundance of light. If kept in a shady location, leggy, weak plants will result.

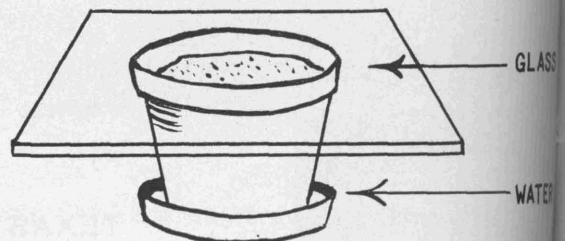
Water from below whenever the soil becomes dry.



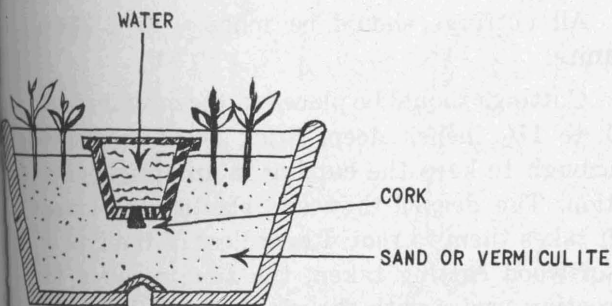
Cross section of shallow flower pot



Preparation of flat and flower pot for seed sowing.



Shallow flower pot



An easily made home propagator.

Seed of most Texas woody ornamentals should be sown as soon as ripe. Those which remain in the flats for a long period can be fed with liquid fertilizer as shown in the diagram.

Transplant the seedlings as soon as they are large enough to handle.

Propagation by Cuttings

Most of the ornamental plants can be propagated by cuttings.

Recent research findings have taken much of the guesswork out of this type of propagation and it now can be done for many plants with comparative ease by the home gardener. Some plants remain difficult to propagate by any method, but most of these are not commonly grown.

The important considerations in rooting plants from cuttings are the rooting medium, temperature, light and time of year the cuttings are made.

Rooting Medium

Trials conducted with various media during the past 5 years at the Texas A. & M. College show that a combination of coarse perlite and vermiculite—equal parts by volume—appears good for practically all ornamental plants.

It holds sufficient moisture with infrequent watering and drains well, providing sufficient air at the base of the cuttings. It is important that the medium—regardless of the type used—be no deeper than 5 or 6 inches. A shallow medium allows excellent drainage and provides sufficient oxygen to the rooting area of the cuttings.

Recent research has developed a system of rooting cuttings by keeping them constantly moistened with a fine mist spray of water, since

an important factor in rooting cuttings is to keep the cuttings moist.

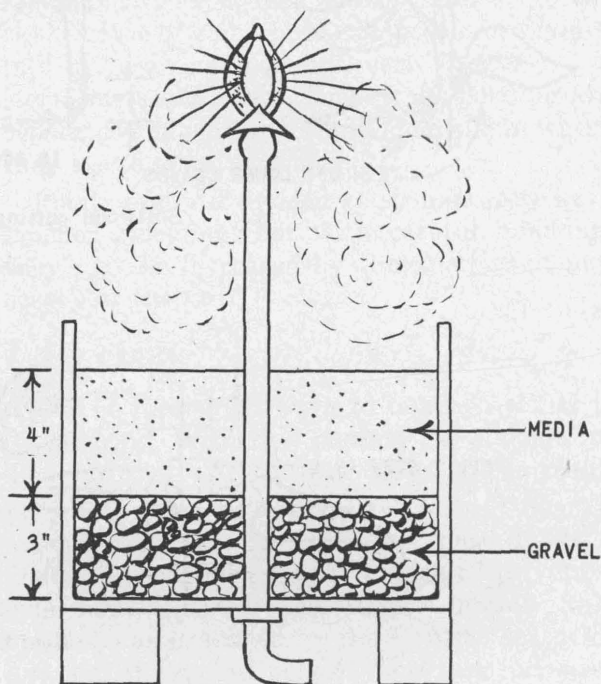
There are many advantages in the use of mist by the home gardener. A cutting continues to lose water by transpiration after it is removed from the parent plant. It is impossible for the cuttings to take up sufficient water to replace that lost by rapid transpiration until new roots are formed. The mist system prevents excessive loss of water by the cutting. Maintaining this higher water content in the cutting helps the plant to root and reduces the time required for rooting to take place.

The mist system also eliminates most insect and disease problems in the cutting beds. It does not solve all the problems of propagation by cuttings, however.

Originally, this system was called constant mist, since it was believed necessary to keep cuttings under the mist during the entire rooting period.

The average home gardener, who wishes to propagate only a few cuttings, should turn the mist on about 8 a.m. and leave it on until 5 p.m.

Since each mist nozzle is designed to cover an area of about 4 square feet, one nozzle usually is sufficient for the needs of the average gardener. Media for cuttings under constant mist should be no deeper than 4 inches.



Home garden mist propagator

Types of Cuttings

SOFTWOOD

Most plants that can be propagated by softwood cuttings will root without difficulty under mist.

Softwood cuttings 4 inches or more in length can be taken during the summer or about 3 or 4 weeks after a growth cycle has been completed.

Each cutting should have at least 3 or 4 sets of leaves. The lower leaf or pair of leaves is removed and the cutting is placed in the rooting medium. The more leaves left on a cutting the better. The larger the leaf surface present, the more chance the cutting has to manufacture food, which makes it root more rapidly.

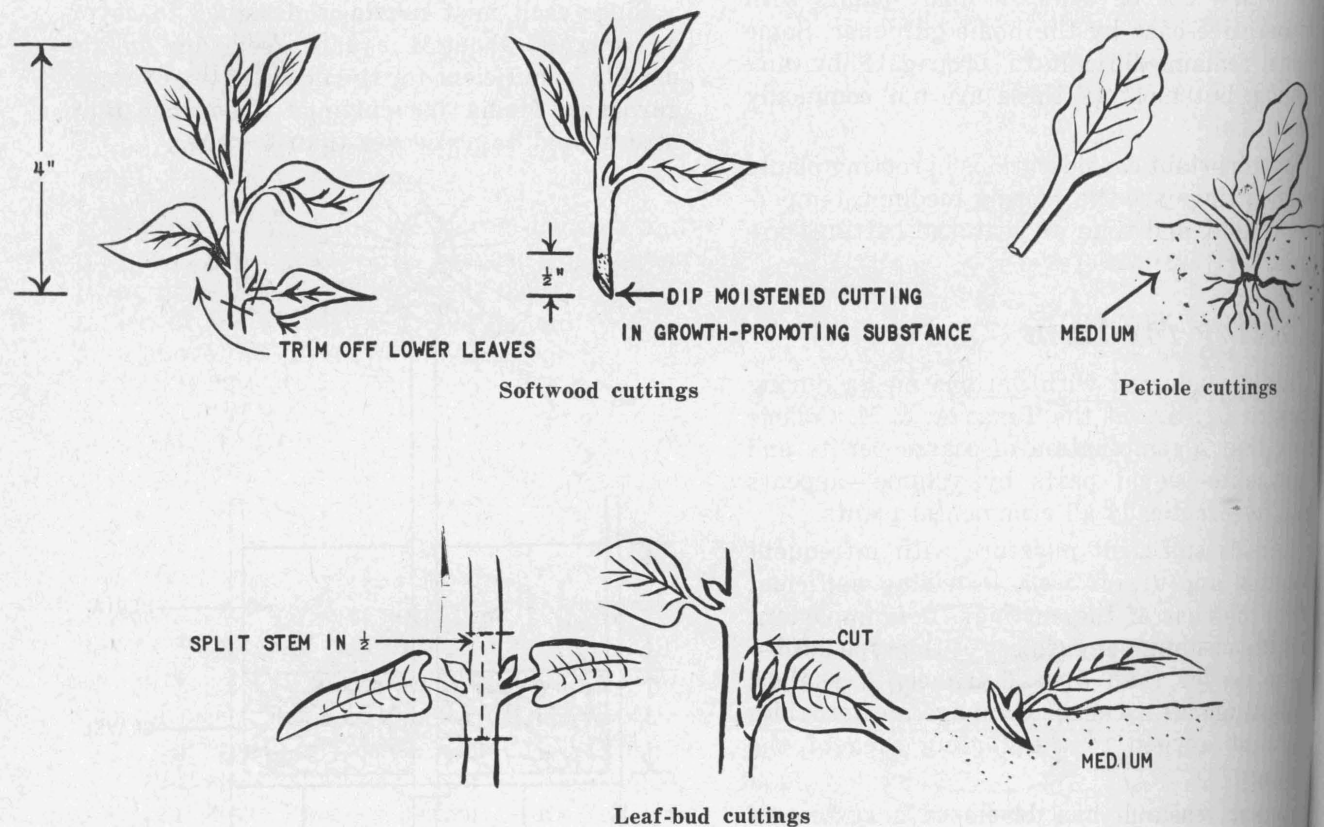
Leaf-bud cuttings may be used to propagate hydrangeas and ornamental foliage plants such as philodendrons and crotons.

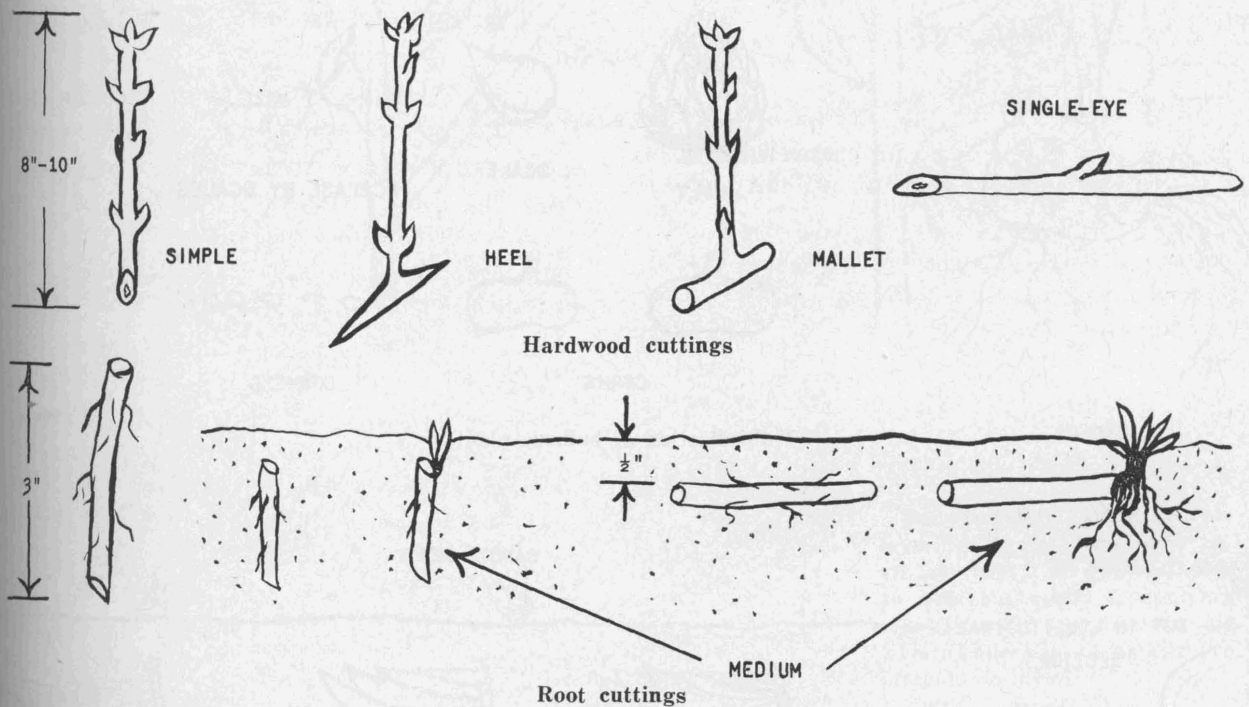
All cuttings should be made with a sharp knife.

Cuttings should be placed in the medium from 1 to 1½ inches deep. Stick them only deep enough to keep the cutting in an upright position. The deeper they are planted the longer it takes them to root. Regardless of the type of softwood cutting taken, the time required for rooting varies with the plant material used.

When the mist system is not used, excessive wilting of cuttings can be prevented by covering the cuttings with cheesecloth. Place the cheesecloth directly on the cuttings from 8 a.m. to 5 p.m. for 4 or 5 days. Use a mist fine enough to keep the cloth and tops of the cuttings moist without adding moisture to the medium, and moisten the cloth frequently.

Mist propagation can be carried on in full sunlight; when this system is not used, the cuttings should be kept in a shady location until rooted.





HARDWOOD

Hardwood cuttings are made of mature branchlets of deciduous plants after the leaves have dropped in the fall or winter. Rose understocks and deciduous ornamental shrubs often are propagated by this method.

These dormant cuttings are made 8 to 10 inches long and then are placed in sandy soil in the garden or nursery row.

ROOT

When the root systems of certain plants are injured, suckers very often arise from the cut ends of the roots. Examples of ornamental plants often propagated in this manner are crepe myrtle and plumbago. The small plants that arise from these root cuttings can then be placed in the garden.

Rapid Propagation of Bulbs

Several types of bulbous plants are widely grown in Texas. For the most part, they are propagated "true to type" by separating the slabs or offsets at digging time. These small bulblets are reset and treated as individual plants and usually will bloom in 2 to 3 years. Other methods are shown in the diagrams (page 6).

Propagation by Division

This easy and rapid way of increasing plants is the method used with several well-known ornamental shrubs, the bamboos and most of the herbaceous perennials.

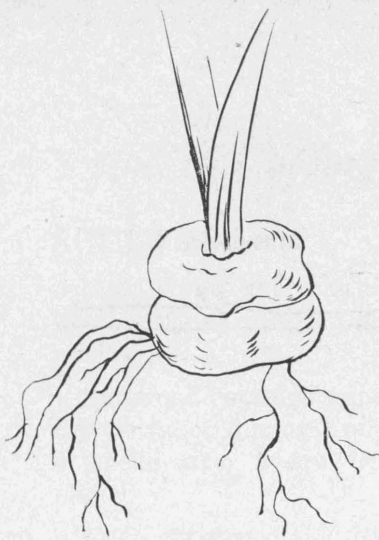
The plants to be propagated, except in the case of large-specimen shrubs, are dug and shaken free of soil. These clumps can be divided into units or small plants, each having roots, stems, buds and leaves. These small portions are separated and planted as individual plants where they are to grow permanently.

Plants are best divided as soon as they have finished blooming, but with careful handling, they may be increased by this method at any season of the year.

Layering

One of the surest ways to increase plants is by layering. With this method the stem is induced to root while still attached to the plant.

"Air layering" has received a great deal of attention in garden periodicals recently as a "new" process because of the use of polyethylene film to cover the layer. Actually this method was practiced by the Chinese centuries ago, but the use of polyethylene film increases its chances for success.



GLADIOLUS



LILY



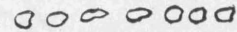
SCALE



INCREASE BY SCALES

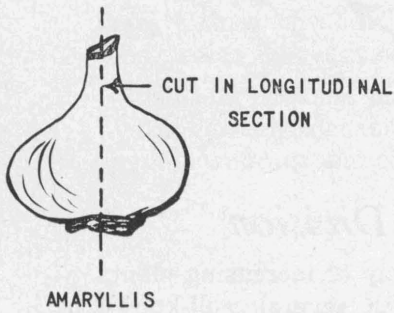


CORMS



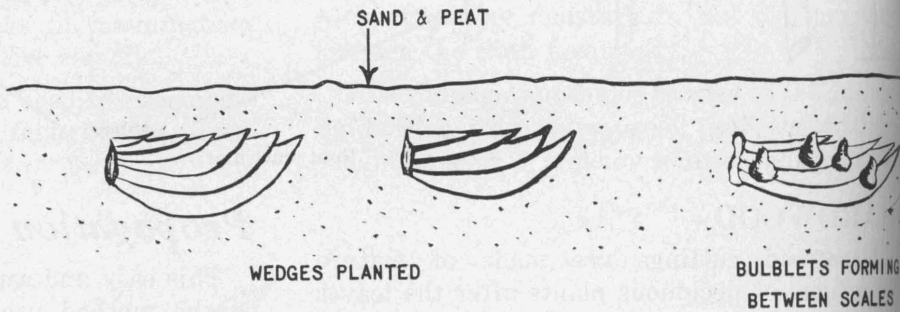
CORMELS

Multiplication of bulbous plants



CUT IN LONGITUDINAL SECTION

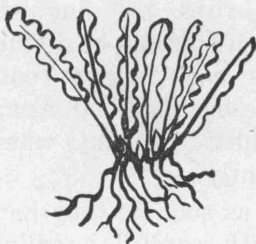
AMARYLLIS



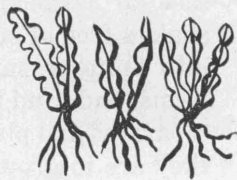
WEDGES PLANTED

BULBLETS FORMING BETWEEN SCALES

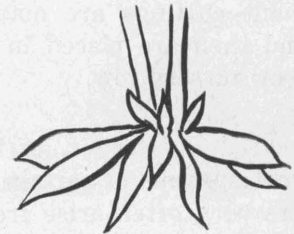
Propagation of bulbous plants



CLUMP



DIVISIONS



DAHLIA CLUMP

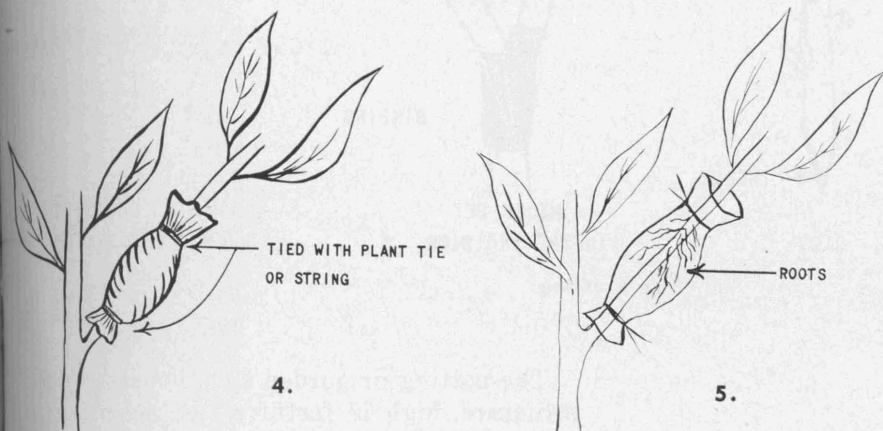
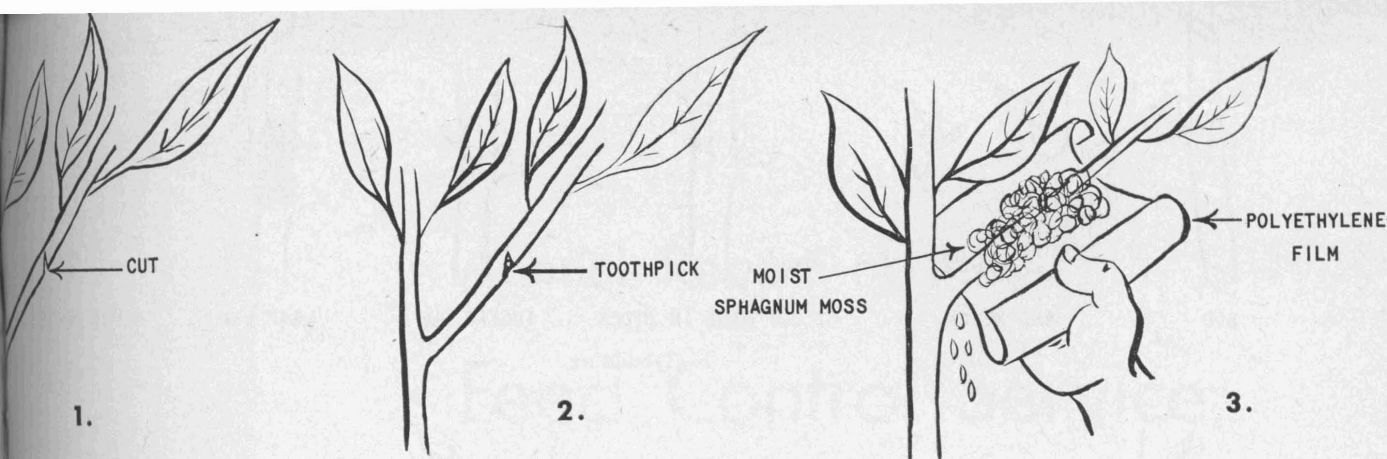


DIVISION

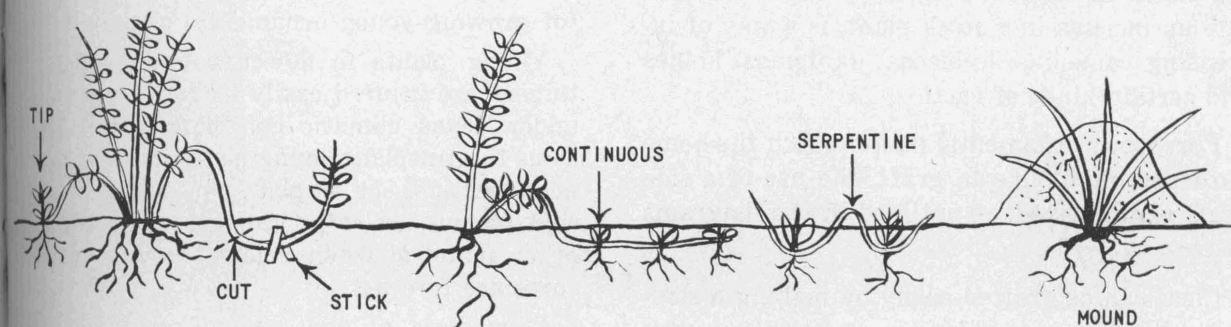
Propagation by division

The procedures used in this type of layering are outlined in the diagrams (page 7). If polyethylene film is not readily available, kitchen-grade aluminum foil can be substituted. The roots in the moist ball of sphagnum moss will grow quickly and abundantly. Cut the rooted stem or branch off and plant the new plant in fresh soil when inspection shows that the ball is well filled with roots.

In the other types of layering, select shoots of young growth that bend easily. It usually is advisable to wound the stem where it is covered with soil. This cut limits free movement of food materials and induces root formation. Heap moist, sandy soil over the cut; place a brick, peg or bent wire on the branch to hold it in firm contact with the soil. Keep the soil con-



Easy-to-follow steps in air layering: 1. preparing limb for air layering; 2. placing toothpick to hold cut open; 3. applying moss to area; 4. completing air layering operation; 5. appearance of roots on layer.



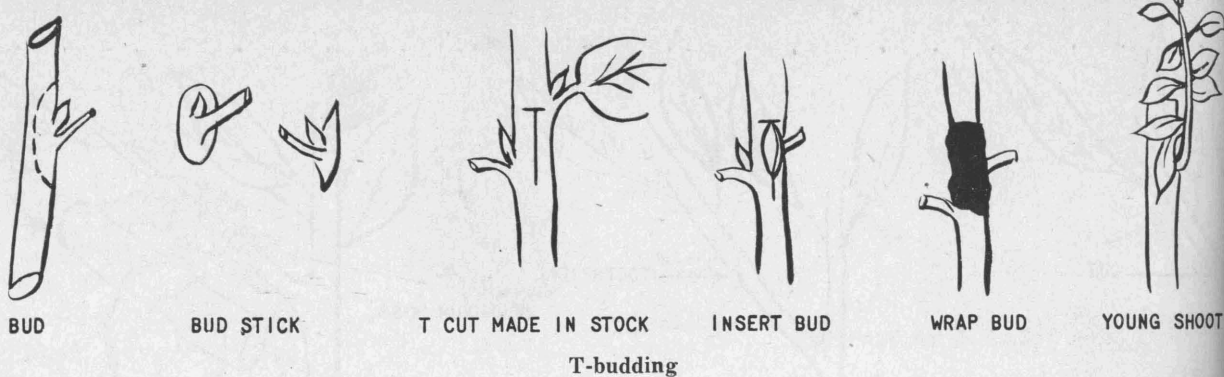
Other types of layering

stantly moist and when the roots formed are about 1 or 2 inches long, cut the layered branch away from the parent plant, and plant it in fresh soil.

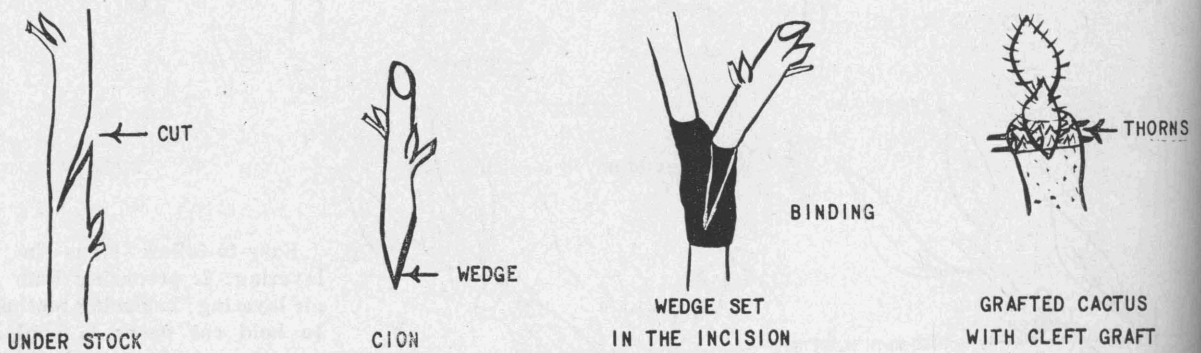
Under most Texas conditions do not attempt propagation by layering earlier than February 1. Layers can be made earlier or year-round in the Lower Rio Grande Valley or Gulf Coast areas, but should not be attempted earlier than March 15 or April 1 in the Panhandle.

Budding

Most ornamentals are propagated by other means, but roses and some ornamentals that are difficult to propagate, are sometimes budded. For the average home owner who wishes to attempt this method, the T budding or inverted T method is suggested, as outlined in the diagrams (page 8). Budding can be done in early spring when the bark will "slip" or peel freely. With some practice, a good percentage of the buds should "take."



T-budding



Side grafting

Grafting

Grafting, which is the method of reproducing plants in which a twig with buds is inserted into an incision in a stock plant, is a way of increasing camellias, hibiscus, gardenias, hollies and certain kinds of cacti.

For woody ornamental plants which the home gardener might like to graft, the use of a side graft is suggested, as outlined in the diagrams above.

Cacti can be grafted easily by making a sloping cut with a razor blade in any position upon a selected stock plant. The cion is sharpened to fit into this slot and then held in place by 2 or 3 long cactus thorns. Nails or pins should not be used since they will rust and cause injury.

Management of Growing Plants

When the young propagated plants—whether seedlings, rooted cuttings or layers—show an abundance of well-developed roots about 1 inch in length, they should be potted or planted in their new location.

The potting or garden soil should be loose in structure, high in fertility and rich in organic matter.

Clay pots are the most satisfactory containers for growing young ornamental plants.

Young plants in flower pots or other containers are injured easily by low temperatures under Texas climatic conditions. Make provisions to transplant young plants in their permanent locations, or to place the potted plants in cold frames, or cover the pots with straw or other material when below freezing temperatures are forecast.

Regardless of the type of container used, (especially tin cans), be certain adequate drainage material such as broken pots, gravel or charcoal is placed in the container before the plant is potted.

Be sure the soil is firmed well around the cutting or seedling, and water well when first planted, then sparingly, until a healthy root system becomes established.

As soon as the plants are established and growing well, they should be planted in their permanent location.

Never fertilize newly-planted plants until they are well established in their new location.