

# PLANT PROPAGATION & ADDITIONAL INFORMATION FOR ROSE CUTTINGS

**Plant Propagation** is from the Earthkind chapter of *the real dirt* handbook of Parker County Master Gardeners (Second Edition) written by Patti Lankford, Parker County Master Gardener, Propagation and Earthkind Specialist

## **Plant Propagation by Layering: Instructions for the Home Gardener**

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### **Grandma's Mason Jar Method for Rose Cuttings**

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Several methods of plant propagation, reproduction of plant life, will be described below:

**Seed germination** starts when water is absorbed through the seed coat, the protective outside layer of a seed. A seed will be in a dormant state, not germinating, until water is introduced, allowing some seed to remain protected until conditions are right to support germination and the resulting new tender plant.

- Stratification, weakening of the seed coat by changes in temperature.
- Scarification, weakening of the seed coat by abrasion, can each occur in nature or by manual means.

The manual means of stratification will mimic the process that occurs in nature. Differences in moisture and temperature are nature's way of accomplishing stratification. The manual process of chilling can be accomplished by placing seed in moist, sterile growing medium in a disinfected closed container. Enclose the container in a tightly sealed plastic bag and place it in non-freezer section of the refrigerator. Toward the end of the stratification period, if seeds have started to sprout, carefully transplant them. Plants that typically require seed stratification include many trees, shrubs and certain perennials.

In nature, one way seeds are subject to abrasion is by passage through digestive systems of birds and animals, thus weakening the seed coat. Seed coats can also be weakened by being blown around in abrasive elements such as sand. Several manual methods can be used to scarify seeds such as nicking the seeds with a knife or file, avoiding damage to the seed eye or embryo, rubbing the seeds with fine sandpaper, or by soaking seed over night. Bluebonnets, mountain laurel and Mexican buckeye are examples of seeds that need scarification.

Perlite and/or vermiculite either exclusively or blended with soil provide excellent planting mediums. The medium should be moist but not saturated. When planted in a soil medium, seeds must not be planted so deeply that the seed leaves cannot break the surface. Usually the correct depth is twice the diameter of the seed. Seeds that are very tiny should only be placed on the surface and pressed down to assure contact with the planting medium. When adding moisture, take care not to wash the seeds away from the spot where you have put them. The initial leaves from a germinating seed, or cotyledons, are contained in the seed. Planting mediums should consist of loose, well draining particles that will allow tender roots and leaves to move through the medium. If seeds have been planted too deep, they will never have a chance to reach light and continue growth. The growth of true leaves, appearing after the seed leaves, indicates that root growth of the seedling has

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occurred and the seedling can be transplanted to a larger container. You may also test for root growth by gently lifting under the leaves, resistance indicates root growth. The seedling is very fragile and when transplanting do not hold seedling by stem but gently lift from under the root system or lift by leaves.



**Emerging**

Moisture, temperature and light are critical for this entire process. Measures should be taken to control the air and moisture around new plants. One method is to put the planting container inside a plastic bag closed with a twistee. From time to time check and if too much moisture can be seen inside the bag, temporarily open the closing to allow some moisture to escape. Clear soda bottles can be cut to fit over planting containers to accomplish this same type of control, opening lid temporarily if too moist. Do not put seedlings into direct sun light. As seedlings gain sufficient size to be planted outside, they can be gradually exposed to more sunlight, wind and temperature changes in a process called hardening off.

Be aware that a seed carries genetic material from two sources and should have characteristics contributed by both parents.

The viability of a seed depends on how long it retains the small amount of water enclosed in it at maturity. Sometimes you can test viability of seeds you have harvested by putting them on a moist paper towel enclosed in a plastic bag to see if they can germinate.

**Harvesting** seeds from your garden can be one of the most rewarding elements in propagation. You will want to observe the life cycle of your plant to look for the time when seeds are mature. You want to gather

seeds just before they start to be disbursed but not before they are mature. Collect them in bags or jars that can be labeled with plant names and gathering dates. Part of the process will require that seeds be separated from the pods they have grown in. Be sure seeds are dry before placing in long term storage in bags or jars in a cool dry place such as a refrigerator.

**Cuttings** of plant material will produce genetically identical plants from source plant. This means they will have the same characteristics of the source plant such as bloom color, light requirements, mature size potential etc. Depending on stability of the source, **tip**, **softwood**, **semi-hardwood**, **hardwood** or **root** cuttings may be taken. If **tips** of stems are flimsy, droopy or small in diameter, use a larger part of the stem, cutting off the weak tip.

**Softwood** refers to current year's growth, **semi-hardwood** refers to late in the year growth on herbaceous perennials and **hardwood** refers to permanent woody stem growth.

The bottom cut of your cutting should be just below a leaf node which has cells programmed for growth. Trim remaining internode from mother plant down to just above its next node so that mother plant will be stimulated to produce new growth at that node. Try to make the bottom cut of your cutting so that at least 2 leaf nodes can be placed in planting medium. Because internodes can vary greatly, you will need to use larger containers to get 2 nodes in the planting medium for plants with larger internodes. The cut end of cutting should be dipped into rooting hormone. Use a dibble, a pencil-like piece of wood, to make a hole in the planting medium, insert the cutting in planting medium, and firm the medium around cutting.



**Rooted geraniums**

Some softwood cuttings will root well in water.



**Ivy rooted in water**

To reduce transpiration, the emission of moisture by leaves, remove most of the foliage leaving only 2 or 3 leaves. If leaves are large, cut away about ½ of each leaf. Cut away any flowers or buds.

**Semi-hardwood** cuttings are taken late in summer after the year's growth has partly matured. Certain plants having permanent woody stems such as; shrubs, roses or trees, can use the last year's **hardwood** for cuttings.

**Hardwood** cuttings, from dormant woody plants, about the diameter of a pencil, should be taken in the fall.

Until you have root growth, the only way water can enter cutting is through cut end of cutting. You will be balancing amount of moisture that can enter the cutting with

amount of moisture that will be transpired through leaves. As roots are produced, more moisture can enter the cutting. Protect this moisture balance by using plastic bags, or drink bottles as described for seedlings. Use same type of planting medium as for seed germination and follow the same procedures and testing for root growth for transplanting to larger containers. It may take 1 year to 1 ½ years from the cut for a **hardwood** cutting to be ready to plant outdoors.

**Root** cuttings can be taken from certain plants when the plant is almost dormant and carbohydrate content of the root is high. Cut top of the root straight across with the bottom cut slanted. It is important to plant the root in a loose well drained medium with the top of the root at the surface. Sometimes new leaf sprouts appear before there is new root growth, so it is important to check for root growth before replanting.

**Dividing** plants can produce new plants. Growth patterns of many plants produce a dense cluster at a central spot. These clusters, which have their own individual root systems, can be divided into smaller clumps and replanted. You can trim back the foliage at replanting. Most ornamental grasses fit this category. Some plants, such as iris, that have large rhizomes can be divided, so that each section survives with a growth bud, then separate and replant. Plan to divide iris every 3-5 years or if crowding occurs. Bulbs produce offset bulblets that can also be separated once skin has developed between the bulb and bulblet and replanted. Some plants have new growth that sprouts from root suckers that can be separated and replanted. This type of propagation will produce genetically true plants.



**Dividing iris**

## **Plant Propagation by Layering: Instructions for the Home Gardener**

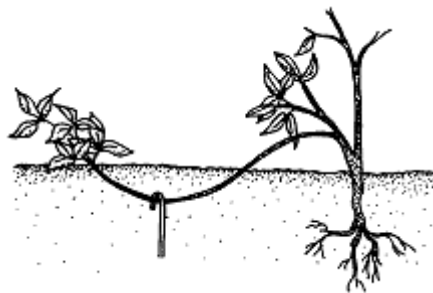
Stems that are still attached to their parent plant may form roots where they come in contact with a rooting medium. This method of vegetative propagation is generally successful, because water stress is minimized and carbohydrate and mineral nutrient levels are high. The development of roots on a stem while the stem is still attached to the parent plant is called *layering*. A layer is the rooted stem following detachment (removal) from the parent plant.

Some plants propagate naturally by layering, but sometimes plant propagators assist the process. Layering is enhanced by wounding the stem where the roots are to form. The

rooting medium should always provide aeration and a constant supply of moisture.

### **Types of Layering:**

**Simple layering** can be accomplished by bending a low growing, flexible stem to the ground. Cover part of it with soil, leaving the remaining 6 to 12 inches above the soil. Bend the tip into a vertical position and stake in place (Figure 1). The sharp bend will often induce rooting, but wounding the lower side of the bent branch may help also. Simple layering can be done on most plants with low-growing branches. Examples of plants propagated by simple layering include climbing roses, forsythia, honeysuckle, boxwood and wax myrtle.



**Figure 1**

Simple layering can be done in early spring using a dormant branch, or in late summer using a mature branch. Periodically check for adequate moisture and for the formation of roots. It may take one or more seasons before the layer is ready to be removed for transplanting.

**Tip layering** is quite similar to simple layering. Dig a hole 3-4 inches deep. Insert

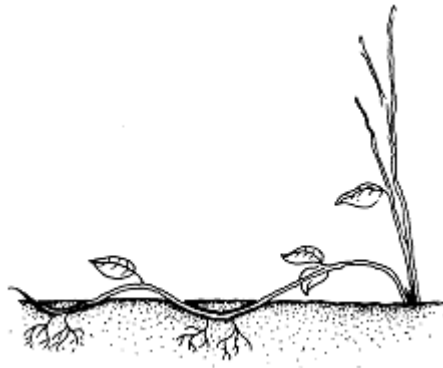
the tip of a current season's shoot and cover it with soil. The tip grows downward first, then bends sharply and grows upward. Roots form at the bend. The re-curved tip becomes a new plant (Figure 2). Remove the tip layer and plant it in late fall or early spring. Examples of plants propagated by tip layering include purple and black raspberries and trailing blackberries.



**Figure 2**

**Compound (serpentine) layering** is similar to simple layering, but several layers can result from a single stem. Bend the stem to the rooting medium as for simple layering, but alternately cover and expose sections of the stem. Each section should have at least one bud exposed and one bud covered with

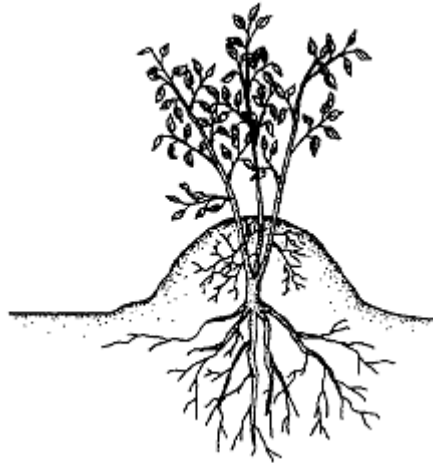
soil. Wound the lower side of each stem section to be covered (Figure 3). This method works well for plants producing vine-like growth such as heart-leaf philodendron, pothos, wisteria, clematis and grapes.



**Figure 3**

**Mound (stool) layering** is useful with heavy-stemmed, closely branched shrubs and rootstocks of tree fruits. Cut the plant back to 1 inch above the soil surface in the dormant season. Dormant buds will produce new shoots in the spring. Mound soil over

the new shoots as they grow (Figure 4). Roots will develop at the bases of the young shoots. Remove the layers in the dormant season. Mound layering works well on apple rootstocks, spirea, quince, magnolia and cotoneaster.



**Figure 4**

**Natural Forms of Layering:** Sometimes layering occurs naturally, without the assistance of a propagator. Runners and offsets are specialized plant structures that facilitate propagation by layering.

Plants that produce stolons or runners are propagated by severing the new plants from their parent stems. Plantlets at the tips of runners may be rooted while still attached to the parent or detached and placed in a rooting medium. Examples include strawberry and spider plant.

A runner produces new shoots where it touches the growing medium (Figure 5).



**Figure 5**

Plants with rosette stems often reproduce by forming new shoots, called offshoots, at their base or in the leaf axles. Sever the new shoots from the parent plant after they have developed their own root systems. Unrooted

offsets of some species may be removed and placed in a rooting medium. Some of these must be cut off, whereas others may simply be lifted from the parent stem. Examples include bromeliads and many cacti.

### **Grandma's Mason Jar Method for Rose Cuttings**

For the beginner this is probably the easiest way to take cuttings. Not much equipment is needed, just a clear quart-size glass jar and some cuttings from your favorite rose.

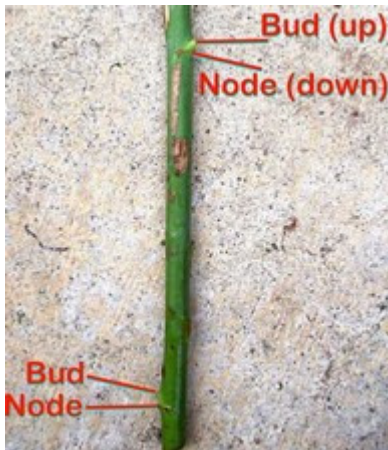
For you modern soda pop lovers, a 2-liter plastic bottle with the top cut off will work just as well.



Cut a piece of rose stem about 6 inches long, remove the bottom set of leaves, and just stick the stem into the ground a couple inches deep, and cover with a jar. You will need to periodically water the soil around the jar; otherwise the rose stem will dry out. It will take a couple of months for the rose stem to take root and begin leafing out with its new growth. The best time of year is



spring or early fall. If you live in a mild climate, then winter and summer can also be successful for rooting roses. Intense summer heat of 100° is not conducive for taking cuttings, nor are 32° or below winters.



**Dr. James K. Roland:** “November is the perfect time to propagate roses. The perfect spot to plant is on the southeast side of the house. I water about every 2 weeks. Also, remember to make **cuttings the width of your little finger**, cut just below a node, and leave only one set of leaves, and **leave them in the ground until mid March** and then pot.”