

AIR LAYERING FOR DIFFICULT-TO-ROOT PLANTS

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Air layering is a useful method of producing roots on the stem of indoor landscape plants that have become “leggy” through the loss of their lower foliage.

This method, believed to have been developed centuries ago by the Chinese, has been used successfully as a mean of propagating some of the more difficult-to-root plants. Because it required excessive care and patience, air layering was used only by the highly trained plantsman.

The procedure was to wound the stem or branch of a plant and enclose the wounded stem with moist sphagnum moss or similar rooting medium until roots develop from the wounded area. Success was dependent upon the ability of the propagator to keep the rooting medium moist until the roots were formed and large enough to support the new plant. Only since the development of polyethylene film has air layering become a practical method of propagation for the home gardener and amateur horticulturist.

Air layering seldom is used on plants that root easily by other less complicated methods, but it is useful for rooting ornamental plants such as ornamental figs, dieffenbachia, croton and others of a herbaceous nature. Woody plants frequently propagated in this manner include magnolia, holly, camelia, azalea and many of the fruit and nut bearing plants such as citrus, apple, pears and pecans.

For optimum rooting make air layers in the spring on shoots produced during the previous season or in mid-summer on mature shoots from the current season’s growth. On woody plants, stems of pencil size or larger are best. The stem may be much thicker on the more herbaceous plants.

Steps for making a successful air layer are illustrated in the following drawings:

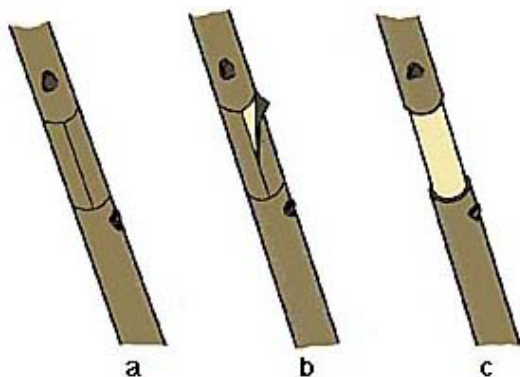


Figure 1. Method of wounding woody plants such as magnolia, gardenia, rose, fig and similar plants. With a sharp knife, make two parallel cuts about 1 1/2 inches apart around the stem and through the bark and cambium layer. Connect the two parallel cuts with one long cut (a) and remove the ring of bark (b), leaving the inner woody tissue exposed (c).

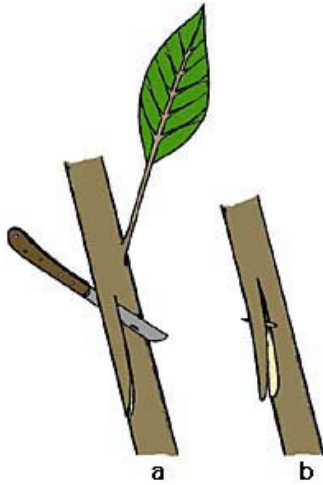


Figure 2. Method of wounding plants having less woody stems in preparation for air layering. This method usually is used on foliage plants such as the rubber plant, (*Ficus benjamini* and *Ficus elastica*) and the dieffenbachia.

- (a) With a sharp knife, make a long upward cut from 1 1/2 to 2 inches long, almost to the center of the stem.
- (b) Insert a wood sliver, toothpick or twisted piece of sphagnum moss into the wound to hold it open and prevent cut tissue from reuniting. At this point, the wounded area may be dusted with one of the commercial rooting compounds to speed up the rooting process. Such compounds, however, do not insure root production on difficult-to-root varieties.



Figure 3. Apply a handful of damp sphagnum moss so that it envelopes the wounded portion of the stem. Tying the moss in place with string helps keep it in position while completing the process. The sphagnum moss should be soaked several hours to insure that it is thoroughly moist. Squeeze out surplus water before using, since excessive moisture will result in decay and deterioration of the plant tissue.

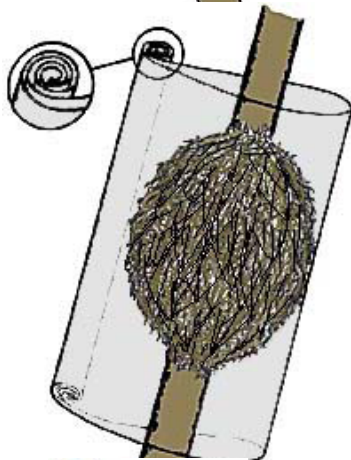


Figure 4. Using a sheet of polyethylene film approximately 6" X 12" or 8" X 12", depending upon the size of the plant stem, wrap the ball of sphagnum moss using the butchers fold (see insert) to secure a tight seal where the two ends of the sheet are joined.

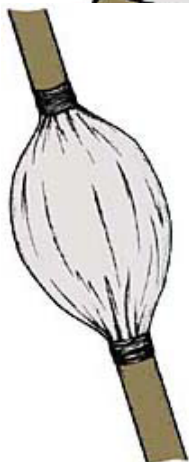


Figure 5. Draw the upper end of the film snugly around stem making sure that none of the moss is exposed. Fasten securely with electrician's tape, taking care that the tape extends beyond the film and adheres to the stem. Repeat the procedure on the lower end, again making sure there is a snug fit. Moisture must not escape and excess moisture must not enter when watering or syringing the plants. Support the plant with stake or splint to prevent breakage at the wounded area.



Figure 6. After the new roots have penetrated the moss ball and are visible on all sides, the rooted branch may be removed from the parent plant. The rooting time will vary with plant variety as well as the season in which it is performed.



Figure 7. Remove the newly rooted plant from the parent plant with a sharp knife or pruning shears, making the cut just below the ball of moss and roots. (Not illustrated) Carefully remove the polyethylene film. Without disturbing the roots or removing the ball of moss, plant in a container using a good potting mixture or plant in a well-prepared soil bed.



Figure 8. Placing a polyethylene tent over the newly potted plant for 4 to 8 days until the root system is well established is helpful as it will aid in preventing excessive loss of moisture. Keep the plant under a light shade and avoid direct sunlight until the new root system is well developed.

Many plants are lost in the final stage of the process because the root system is not sufficiently developed to sustain the top portion of the new plant. By utilizing the plastic tent illustrated in figure 8 or by keeping the new plant in a humid environment, it is possible to develop a good root system on rather large cuttings. Once the plant is well established, it is best to harden off the foliage by gradually exposing it to normal atmosphere. This can be done by cutting a few holes every few days in the plastic tent to reduce the humidity until it is similar to the external atmosphere.

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