Selected Deciduous Plants to Propagate from Stem Cuttings

Washington State University

Amended by Linda McHam 3/13/09

Scientific Name	Common Name	Season to Take	Type of Cutting	Rate of Success
Abelia x grandiflora	Abelia	Fall	HW	High
Akebia	Fiveleaf Akebia	Summer	SW	High
Acer spp.	Maple	Summer	SW	Some root poorly
Alnus spp.	Alder	Winter	HW	Some root poorly
Amelanchier alnifolia	Serviceberry	Summer	SW	
Berberis spp.	Barberry	Spring, Winter	SW, S-HW, HW	
Buddleia spp.	Butterfly Bush	Summer	SW, S-HW	
Calycanthus floridus	Sweeetshrub	Summer	S-HW	High
Callistemon spp.	Bottlebrush	Summer	S-HW	
Catalpa spp.	Catalpa	Summer	SW	
Celastrus spp.	Bittersweet	Summer, Winter	SW, S-HW, HW	
Cercis spp.	Redbud	Summer	SW	
Chaenomeles spp.	Flowering Quince	Summer, Winter	S-HW, HW	
Chionanthus spp.	Fringe Tree	Summer	SW	Some root poorly
Clematis spp.	Clematis	Summer	SW, S-HW	
Cornus spp.	Dogwood	Summer	SW, S-HW	Some root poorly
Cotinus coggygria	Smoke Tree	Summer	SW	
Cotoneaster spp.	Cotoneaster	Summer	SW, S-HW	
Crataegus spp.	Hawthorne	Summer, Winter	SW, HW	
Cytisus spp.	Broom	Summer, Winter	S-HW, HW	
Deutzia spp.	Deutzia	Summer, Winter	SW, HW	
Elaeagnus angustifolia	Russian Olive	Winter	HW	
Euonymus spp.	Spindle Tree	Winter	HW	
Ficus carica	Common Fig	Winter	HW	High
Forsythia spp.	Forsythia	Summer, Winter	SW, HW	
Ginkgo biloba	Ginkgo/Maidenhair	Summer	SW	
Gleditsia triacanthos	Honey Locust	Winter	HW	
Hibiscus spp.	Hibiscus/Rose Mallow	Summer, Winter	SW, S-HW, HW	
Hydrangea spp.	Hydrangea	Summer, Winter	SW, HW	
Hypericum spp.	St. John's Wort	Winter	S-HW	
Jasminum spp.	Jasmine	Summer, Winter	S-HW, HW	
Koelreuteria spp.	Goldenrain Tree	Summer	SW	Some root poorly
Lagerstroemia indica	Crape Myrtle	Summer, Late Fall	SW, S-HW, HW	High
Liquidambar spp.	Sweetgum	Summer	SW	
Liriodendron tulipifera	Tulip Tree	Summer	SW	

SW = softwood; S-HW = semi-hardwood; HW = hardwood

Selected Deciduous Plants to Propagate from Stem Cuttings

Washington State University — Amended by Linda McHam 3/13/09

Lonicera spp.	Honeysuckle	Summer, Winter	SW, HW	
Magnolia spp.	Magnolia	Summer	SW, S-HW	
Malus spp.	Crab Apple	Summer, Late Fall	SW, S-HW, HW	Some root poorly
Morus alba	Mulberry	Summer	SW	
Parthenocissus quinquefolia	Virginia Creeper	Summer, Winter	SW, HW	
Parthenocissus tricuspidata	Boston Ivy	Summer, Winter	SW, HW	
Philadelphus spp.	Mock Orange	Summer, Winter	SW, HW	
Populus spp.	Poplar	Summer, Winter	SW, HW	
Prunus spp.	Cherry	Summer	SW, S-HW	Some root poorly
Prunus spp.	Peach	Summer	SW, S-HW	
Prunus spp.	Plum	Summer	SW, S-HW	
Pyrus spp.	Pear	Late Fall	HW	Some root poorly
Rhododendron spp.	Azalea	Summer	SW	
Rhus spp.	Sumac	Summer	SW	Some root poorly
Ribes spp.	Currant	Summer, Winter	SW, HW	
Robinia pseudoacaia	Black Locust	Summer	S-HW	
Rosa spp.	Rose	Summer, Winter	SW, S-HW, HW	
Rubus spp.	Blackberry/Raspberry	Summer	SW	High
Salix spp.	Willow	Summer, Winter	SW, S-HW, HW	
Sambucus	Elderberry	Summer	SW	
Spiraea spp.	Spiraea	Summer, Winter	SW, S-HW, HW	Some root poorly
Symphoricarpos spp.	Snowberry	Summer, Winter	SW, HW	
Syringa vulgaris	Lilac	Summer	SW	Some root poorly
Ulmus spp.	Elm	Summer	SW	
Vaccinium spp.	Blueberry	Summer, Winter	Sw, HW	
Viburnum spp.	Viburnum	Summer, Winter	SW, S-HW, HW	Some root poorly
Vitis spp.	Grape	Summer, Winter	SW, HW	
Weigela spp.	Weigela	Summer, Winter	SW, S-HW, HW	
Wisteria spp.	Wisteria	Summer, Winter	SW, S-HW, HW	

SW = softwood; S-HW = semi-hardwood; HW = hardwood

Selected Evergreen Plants to Propagate from Stem Cuttings

Washington State University

Amended by Linda T. McHam 3/13/09

Scientific Name	Common Name	Season to Take	Type of Cutting	Rate of Success
Abies spp.	Fir	Winter	HW	Low
Akebia quinata	Five leaf Akebia	Summer	SW	Moderate to High
Berberis spp.	Barberry	Summer, Fall	SW, HW	Moderate to High
Buxus spp.	Boxwood	Spring, Summer, Fall	SW, S-HW	High
Calluna vulgaris	Heather	Summer, Winter	S-HW, HW	High
Camellia spp.	Camellia	Summer	S-HW	Moderate to High
Camellia sasanqua	Sasanqua	Summer	S-HW	Moderate to High
Cedrus spp.	Cedar	Late Summer, Fall	S-HW	Low
Chamaecyparis spp.	False Cypress	Late Fall, Winter	HW	Moderate to High
Cryptomeria japonica	Cryptomeria	Summer	S-HW	Slow to root
Daphne spp.	Daphne	Summer	S-HW	Moderate
Erica spp.	Heath	Summer, Winter	S-HW, HW	High
Euonymus spp.	Euonymus	Summer	S-HW	High
Gardenia jasminoides	Gardenia	Summer	SW	High
Hedera helix	Ivy	Summer	S-HW	High
Ilex spp.	Holly	Summer, Winter	S-HW, HW	Moderate to High
Juniperus spp.	Juniper	Summer, Winter	S-HW, HW	Upright does poorly
Kalmia latifolia	Mountain Laurel	Winter	HW	Low
Ligustrum spp.	Privet	Summer, Winter	SW, HW	Low to High
Magnolia spp.	Magnolia	Summer	SW, S-HW	Moderate to High
Mahonia aquifolium	Oregon Grape	Summer	S-HW	Moderate to High
Nerium oleander	Oleander	Summer	S-HW	High
Osmanthus spp.	Tea Olive	Spring, Summer	S-HW, HW	High
Pachysandra terminalis	Pachysandra	Summer	S-HW	High
Picea spp.	Spruce	Winter	HW	Low
Pieris spp.	Pieris	Summer	S-HW	Moderate to High
Pinus spp.	Pine	Winter	HW	Low
Prunus laurocerasus	Cherry Laurel	Winter	S-HW, HW	High
Pyracantha spp.	Pyracantha	Summer	S-HW	High
Rhododendron spp.	Azalea	Summer	S-HW	Moderate to High
Rhododendron spp.	Rhododendron	Summer	SW, S-HW	Low to High
Taxus spp.	Yew	Fall, Winter	S-HW, HW	Moderate
Thuja occidentalis	American arborvitae	Summer, Winter	S-HW, HW	High
Thuja orientalis	Oriental arborvitae	Late Spring	SW	Low
Tsuga spp.	Hemlock	Fall, Winter	S-HW, HW	Low
Viburnum spp.	Viburnum	Summer	S-HW	Moderate to High

SW = softwood; S-HW = semi-hardwood; HW = hardwood

Taking Stem Cuttings for Propagation of Woody Plant Material

Softwood cuttings (SW) are prepared from soft, succulent, new growth of woody plants, just as it begins to harden (mature). Shoots are suitable for making softwood cuttings when they can be snapped easily when bent and when they still have a gradation of leaf size (oldest leaves are mature while newest leaves are still small). For most woody plants, this stage occurs in May, June, or July. The soft shoots are quite tender, and extra care must be taken to keep them from drying out. The extra effort pays off, because they root quickly.

Semi-hardwood cuttings (S-HW) are usually prepared from partially mature wood of the current season's growth, just after a flush of growth. This type of cutting normally is made from mid-July to early fall. The wood is reasonably firm and the leaves of mature size. Many broadleaf evergreen shrubs and some conifers are propagated by this method.

Hardwood cuttings (HW) are taken from dormant, mature stems in late fall, winter, or early spring. Plants generally are fully dormant with no obvious signs of active growth. The wood is firm and does not bend easily. Hardwood cuttings are used most often for deciduous shrubs but can be used for many evergreens. Examples of plants propagated at the hardwood stage include forsythia, privet, fig, grape, and spirea.

The three types of hardwood cuttings are straight, mallet, and heel. A straight cutting is the most commonly used stem cutting. Mallet and heel cuttings are used for plants that might otherwise be more difficult to root. For the heel cutting, a small section of older wood is included at the base of the cutting. For the mallet cutting, an entire section of older stem wood is included.

Procedures for Rooting Stem Cuttings

Cuttings should generally consist of the current or past season's growth. Avoid material with flower buds if possible. Remove any flowers and flower buds when preparing cuttings so the cutting's energy can be used in producing new roots rather than flowers. Take cuttings from healthy, disease-free plants, preferably from the upper part of the plant.

The fertility status of the stock (parent) plant can influence rooting. Avoid taking cuttings from plants that show symptoms of mineral nutrient deficiency. Conversely, plants that have been fertilized heavily, particularly with nitrogen, may not root well. The stock plant should not be under moisture stress. In general, cuttings taken from young plants root in higher percentages than cuttings taken from older, more mature plants. Cuttings from lateral shoots often root better than cuttings from terminal shoots.

Early morning is the best time to take cuttings, because the plant is fully turgid. It is important to keep the cuttings cool and moist until they are stuck. An ice chest or dark plastic bag with wet paper towels may be used to store cuttings. If there will be a delay in sticking cuttings, store them in a plastic bag in a refrigerator.

http://www.ces.ncsu.edu/depts/hort/hil/hil-8702.html

Taking Stem Cuttings for Propagation of Woody Plant Material

While terminal parts of the stem are best, a long shoot can be divided into several cuttings. Cuttings are generally 4 to 6 inches long. Use a sharp, thin-bladed pocketknife or sharp pruning shears. If necessary, dip the cutting tool in rubbing alcohol or a mixture of 1 part bleach to 9 parts water to prevent transmitting diseases from infected plant parts to healthy ones.

Remove the leaves from the lower one-third to one-half of the cutting. On large-leafed plants, the remaining leaves may be cut in half to reduce water loss and conserve space. Species difficult to root should be wounded.

Treating cuttings with root-promoting compounds can be a valuable tool in stimulating rooting of some plants that might otherwise be difficult to root. Prevent possible contamination of the entire supply of rooting hormone by putting some in a separate container before treating cuttings. Any material that remains after treatment should be discarded and not returned to the original container. Be sure to tap the cuttings to remove excess hormone when using a powder formulation.

The rooting medium should be sterile, low in fertility, and well drained to provide sufficient aeration. It should also retain enough moisture so that watering does not have to be done too frequently. Materials commonly used are coarse sand, a mixture of one part peat and one part perlite (by volume), or one part peat and one-part sand (by volume). Vermiculite by itself is not recommended, because it compacts and tends to hold too much moisture. Media should be watered while being used.

Insert the cuttings one-third to one-half their length into the medium. Maintain the vertical orientation of the stem (do not insert the cuttings upside down). Make sure the buds are pointed up. Space the cuttings just far enough apart to allow all leaves to receive sunlight. Water again after inserting the cuttings if the containers or frames are 3 or more inches in depth. Cover the cuttings with plastic and place in indirect light. Avoid direct sun. Keep the medium moist until the cuttings have rooted. Rooting will be improved if the cuttings are misted on a regular basis.

Rooting time varies with the type of cutting, the species being rooted, and environmental conditions. Conifers require more time than broadleaf plants. Late fall or early winter is a good time to root conifers. Once rooted, they may be left in the rooting structure until spring.

Newly rooted cuttings should not be transplanted directly into the landscape. Instead, transplant them into containers or into a bed. Growing them to a larger size before transplanting to a permanent location will increase the chances for survival.