

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

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

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

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Selected Evergreen Plants to Propagate from Stem Cuttings

Washington State University

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

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-leaved 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.