

Nursery Crop Science

College of Agriculture and Life Sciences • NC State University

Propagating for Beginners

Summer and fall seasons are a good time to root cuttings of many favorite landscape plants. Broadleaved evergreens such as evergreen azaleas, abelia, boxwoods, camellias, cotoneasters, eleagnus, euonymus, hollies, jasmine, leucothoe, osmanthus, pieris, rhododendrons, and viburnums root well during these seasons. Some conifers can also be rooted, the most likely to root are spreading types of junipers, chamaecyparis, thuja, cryptomeria and leyland cypress. However, conifers may require more time to develop roots than broadleaved evergreen plants. Many conifers actually root best in late fall or winter after a hard frost. Deciduous shrubs and some perennials can be rooted in the summer. When terminal shoots are stiff enough to stand erect and not wilt rapidly, cuttings can be made. These plants include buddleia, duetzia, winged euonymus, forsythia, honeysuckle, prunus species, spirea and vitex. Most tree species are difficult to root. Crapemyrtle, some elms and maples can be rooted, dogwoods and stewardia are more difficult and oaks, redbuds and sourwood usually do not root.

Propagation techniques can be very simple or elaborate. A greenhouse is not required to be successful in rooting plants. To keep it simple, cutting can be rooted in plastic or clay pots with bottomless milk jugs placed over the top like a small greenhouse or cuttings can be placed in small flats or trays covered with clear plastic stretched over a wire frame. Trays or containers should have holes in the bottom to allow excess water to drain. The plastic covers keep humidity high in the propagation units and reduce water loss from the cuttings while they are rooting. A shady location should be chosen to root cuttings; direct sun should always be avoided. Rooting may be improved if cuttings are misted occasionally, possibly twice a day. The propagation substrate can be a mix purchased from a garden center or retail store or you can choose from a wide variety of materials. However, soil should not be used because in shallow pots or trays, it stays too wet and contains many weed seeds and diseases unless it is sterilized. Sand can be used, but it is heavy and cuttings often form brittle roots that break off easily and are difficult to transplant. Horticulture professionals usually prefer combinations of sphagnum peat moss, perlite or fine particles of pine bark to root cuttings.

Rooting hormone talcs that can be purchased from most any garden center, hardware or farm supply store also speed rooting and help cuttings form more roots. Difficult to root plants often benefit from the use of a commercial liquid rooting hormone solution. If a rooting hormone is used, be sure to remove some of the rooting hormone talc from the container and put it on a paper and roll the lower 1 inch of the stem in the talc. You may find it convenient to remove some of the lower foliage from the cutting. Usually cuttings should be 4 to 5 inches long and can be a single stem or have some small branches. Most commercial growers wound the base of the stem of the cutting. This can be done with a sharp knife and cutting a line down 1 or 2 sides of the stem about one inch in length at the base of the cutting. However, do not remove more than 1/2 of the circumference of the surface epidermis or the cutting may die.

Rooting for most broadleaved cuttings require 4 to 6 weeks; conifer and tree species will take longer and maybe left until next spring in the propagation unit. After they are rooted they may be potted into screened pine bark potting media and grown in 1 gallon or even larger containers. Once the cuttings have been potted, you may want to scatter about one tablespoon of dolomitic limestone and a slow release fertilizer preferably with minor elements (usually a heaping teaspoon is enough) over the surface of the media in the pot. Water the pots frequently, no less than every other day during the hot part of the summer when the plants are growing rapidly.

If propagation facilities more elaborate than pots or trays in the shade are required many types of structures can be considered.

Small hoop frames and intermittent mist propagation systems are described in Horticulture Information Leaflets HIL 404 , entitled “A simple intermittent mist system for propagation” and HIL 405 entitled “Low investment propagation/winter protection structure”. Copies of these leaflets maybe useful for construction of frames and designing a mist propagation system. Another bulletin that may be of interest is AG 426 “A Small Backyard Greenhouse for the Home Gardener”. If you want to build anything more detailed than discussed in these publications contact manufactures of greenhouses. Be sure to read manufactures information covering aspects of greenhouse construction, heating systems, ventilation systems, cooling systems, benching systems, directional orientation and other aspects related to successful greenhouse production. There are many greenhouse manufacturing firms, from which to choose: some are listed below:

Greenhouse Manufacturers/Distributors List

Atlas Greenhouse Systems, Inc.
1-800-346-9902

American Greenhouse Builders, Inc.
1731 Williams Road
Lewisville, N.C. 27023
919-945-9450

Stuppy Greenhouse Mfg., Inc.
1-800-877-5025

X.S. Smith, Inc.
Old Deal Road
P.O. Box 868
Eatontown, N.J. 07724
1-800-631-2226

Jaderloon
P.O. Box 685
Irmo, S.C. 29063
800-258-7171

Nexus Greenhouse Corp.
7 Lawterdale Circle
Asheville, 28804
800-228-9639

Janco Greenhouses
P.O. Box 18441
Raleigh, N.C. 27069
919-787-2383

A.H. Hummert Seed Co.
2746 Chouteau Ave.
St. Louis, MO. 63103
800-325-3055

GUIDELINES FOR ROOTING OF CUTTINGS

<u>Botanical Name</u>	<u>Common Name</u>	<u>Time to Take Cuttings</u>	<u>Kind of Cutting</u>
<u>Evergreen Plants</u>			
Abelia grandiflora	Glossy Abelia	summer, winter	semi-hardwood
Abies spp.	Fir	Winter	hardwood
Arbutus menziesii	Madrone	fall	semi-hardwood
Berberis mentorensis	Mentor Barberry	late summer, fall	semi-hardwood
Berberis julianae	Wintergreen	late summer, fall	semi-hardwood
Buxus microphylla	Littleleaf Boxwood	late summer, fall	semi-hardwood
Buxus sempervirens	Common Boxwood	late summer, fall	semi-hardwood
Buxus sempervirens cv 'Suffruticosa'	English Boxwood	late summer, fall	semi-hardwood
Camellia	Camellia	summer	semi-hardwood
Cedrus spp.	Cedar	late summer or fall	semi-hardwood
Chamaecyparis spp.	Chamaecyparis	late fall or winter	hardwood
Cryptomeria japonica	Cryptomeria	summer	semi-hardwood
Daphne spp.	Daphne	summer	semi-hardwood
Erica spp.	Heath	summer or winter	semi/hardwood
Euonymus fortunei	Creeping Euonymous	summer, winter	semi/hardwood
Gelsemium sempervirens	Carolina Jessamine	late summer, fall	semi-hardwood
Hedera helix	Ivy	summer	semi-hardwood
Ilex cornuta	Chinese Holly	summer, winter	semi-hardwood
	(Burfordi, etc.)		hardwood
Ilex crenata	Japanese Holly	summer, winter	semi-hardwood
	(Helleri, Convexa, etc.)		hardwood
Ilex opaca	American Holly	summer	semi-hardwood
Ilex x Fosteri	Fosters Holly	late summer, fall	semi-hardwood
Ilex vomitoria	Yaupon Holly	summer, fall	semi-hardwood
Ilex aquifolium	English Holly	summer, fall	semi-hardwood
Juniperus chinensis	Pfitzeriani, Hertzi,	late summer, winter	hardwood
Juniperus conferta	Shore Juniper	late summer, winter	hardwood
Juniperus horizontalis	Andorra, Bar Harbor	summer, winter	semi-hardwood/hardwood
Kalmia latifolia	Laurel (Moutain)	winter	hardwood
Ligustrum spp.	Privet	summer, winter	semi-hardwood
Lonicera japonica	Jap. Honeysuckle	summer, winter	semi-hardwood/hardwood
Magnolia spp.	Magnolia	summer	softwood
			semi-hardwood
Mahonia aquifolium	Oregon Grape	late summer, fall	semi-hardwood
Nandina domestica	Nandine	late summer, fall	semi-hardwood
Nerium oleander	Oleander	summer	semi-hardwood
Osmanthus spp.	Osmanthus	fall, winter	semi-hardwood
Pachistima canbyi	Pachistima	summer	softwood
Pachysandra terminalis	Pachysandra	summer	semi-hardwood
Photinia spp.	Photinia	late summer, fall	semi-hardwood

Picea spp.	Spruce	winter	hardwood
Pieris spp.	Pieris	summer	semi-hardwood
Prunus laurocerasus	Laurel (Cherry)	summer, winter	semi-hardwood/hardwood
Pyracantha spp.	Firethorn	late summer, fall	semi-hardwood
Rhododendron spp.	Azalea	summer	semi-hardwood
Rhododendron spp.	Rhododendron	summer	softwood/semi-hardwood
Taxus spp.	Yew	fall, winter	semi-hardwood
Ternstroemia gymnanthera	Japanese Cleyera	late summer,fall	semi-hardwoodhardwood
Thuja spp.	Arborvitae	fall, winter	semi-hardwood/hardwood
Tsuga spp.	Hemlock	fall, winter	semi-hardwood/hardwood
Viburnum spp.	Viburnum	summer	semi-hardwood
Yucca	Adams Needle	late summer, winter	(rootcuttings)

Deciduous Plants

<u>Botanical Name</u>	<u>Common Name</u>	<u>Time to Take Cutting</u>	<u>Kind of Cutting</u>
Acer spp.	Maple	summer	softwood
Alnus spp.	Alder	winter	hardwood
Amelanchier spp.	Serviceberry	summer	softwood
Berberis thunbergii	Japanese Barberry	late summer, fall	semi-hardwood/hardwood
Buddleia spp.	Butterfly Bush	summer	softwood /semi-hardwood
Callistemon spp.	Bottlebrush	summer	semi-hardwood
Catalpa spp.	Catalpa	summer	softwood
Ceanothus spp.	Ceanothus	summer or winter	softwood/semi/hardwood
Celastrus spp.	Bittersweet	summer or winter	softwood/semi/hardwood
Cercis spp.	Redbud	summer	softwood
Chaenomels spp.	Quince (Flowering)	summer or winter	semi/hardwood(root cuttings)
Chionanthus spp.	Fringe Tree	summer	softwood
Clematis spp.	Clematis	summer	softwood/semi-hardwood
Cornus spp.	Dogwood	summer	softwood/semi-hardwood
Cotinus coggygria	Smoke Tree	summer	softwood
Cotoneaster spp.	Cotoneaster	summer	softwood /semi-hardwood
Crataegus spp.	Hawthorn	summer or winter	softwood/hardwood
Cytisus spp.	Broom	summer or winter	softwood, hardwood
Deutzia spp.	Deutzia	summer or winter	softwood, hardwood
Elaeagnus angustifolia	Russian Olive	winter	hardwood
Euonymus alata	Winged Euonymus	summer	semi-hardwood
Forsythia spp.	Forsythia,	summer	semi-hardwood
Ginkgo biloba	Ginkgo	summer	softwood
Gleditsia triacanthos	Honey Locust	winter	hardwood
Hibiscus spp.	Hibiscus	winter	hardwood
Hydrangea spp.	Hydrangea	summer or winter	softwood
Hypericum spp.	St.-John's Wart	summer	semi-hardwood
Jasminum spp.	Jasmine	summer or winter	semi-hardwood
Koelreuteria spp.	Goldenmin tree	summer	softwood

Lagerstroemia indica	Crapemyrtle	summer	semi-hardwood
Liquidambar spp.	Sweetgum	summer	softwood
Liriodendron tulipifera	Tulip Tree	summer	softwood
Lonicera spp.	Honeysuckle	summer or winter	softwood, hardwood
Magnolia spp.	Magnolia	summer	softwood/semi-hardwood
Malus spp.	Crab Apple	summer, late fall	softwood/sem/-hardwood
Morus alba	Mulberry	summer	softwood
Parthenocissus quinquefolia	Virginia Creeper	summer or winter	softwood, hardwood
Parthenocissus tricuspidata	Boston Ivy	summer or winter	softwood, hardwood
Philadelphus spp.	Mock Orange	summer or winter	softwood, hardwood
Populus spp.	Poplar	summer or winter	softwood, hardwood
Prunus spp.	Cherry	summer	softwood/semi-hardwood
Prunus spp.	Peach	summer	softwood/semi-hardwood
Prunus spp.	Plum	summer	softwood/semi-hardwood
Pyrus spp.	Pear	late fall	hardwood, softwood
Rhododendron spp.	Azalea	summer	softwood
Rhuss spp.	Sumac	summer	softwood
Ribes spp.	Currant	summer or winter	softwood, hardwood
Robinia pseudoacacia	Locust (Black)	summer	semi-hardwood
Rosa spp.	Rose	summer or winter	softwood/semi/hardwood
Salix spp.	Willow	summer or winter	
	softwood/semi/hardwood		
Sambucus spp.	Elderberry	summer	softwood
Spiraea spp.	Spirea	summer	semi-hardwood
Symphoricarpos spp.	Snowberry	summer or winter	softwood, hardwood
Syringa spp.	Lilac	summer	semi-hardwood
Ulmus spp.	Elm	summer	softwood
Vaccinium spp.	Blueberry	summer or winter	softwood, hardwood
Viburnum spp.	Viburnum	summer	semi-hardwood
Vitis spp.	Grape	summer or winter	softwood, hardwood
Weigela spp.	Weigela	summer	semi-hardwood
Wisteria spp.	Wisteria	summer or winter	semi-hardwood

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Prepared by Ted E. Bilderback and Richard E. Bir