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## PROPAGATION TIPS ON SOME LESS WIDELY GROWN PLANTS

JAMES E. CROSS

Environmentals

P.O. Box 730

Cutchogue, New York 11935

These wide ranging comments will include nothing spectacular or particularly new to anyone who is regularly propagating the particular plants mentioned but might be useful to those of you who may one day meet up with these same plants at your propagation bench — or they might be useful as something to try on some other plant which might present a similar type of obstacle to commercially acceptable success.

If, as is usually the case, we are propagating a specific cultivar, the most important part of the successful effort is the selection of the specific wood for propagation so that we achieve exact reproduction. However, in our rush to get on with it, we may very well spend a lot less time and care on wood selection than would be called for by its relative importance.

There are two main considerations in the selection of the wood to be propagated:

- 1) Ease of rooting — and the percentage of success.
- 2) Success in obtaining exact duplication.

Let us first consider ease of rooting. If the particular plant roots so readily that the new roots may break off as you are sticking the cutting, this factor is not of significance. However, if the plant is not so easily rooted, the selection can be very important, especially when one is working with semihard or hardwood in the fall or winter, as is the case in our own nursery. For example, in the case of *Rhododendron* 'Purple Gem' the selection of cuttings is not all that important since almost any healthy growth, including the last shoots of the season on container-grown plants, can be utilized. However, with *R. carolinianum*, or *R. minus*, or their hybrids, like *R.* 'Windbeam', *R.* 'P.J.M.', or *R.* 'Dora Amateis', consistently higher rooting can be obtained if the smaller, thinner shoots from the shady side of the plant are used. Our experience suggests 85 to 95% rooting rather than the 65 to 75% rooting achieved without careful cutting selection.

Sometimes a really difficult-to-root plant will put out roots quite readily if the whole plant from which the cuttings are taken is well shaded when in growth. *Kalmia latifolia* 'Myrtifolia' is a good example of this type.

The more hardy Eastern native *Arctostaphylos uva-ursi* presents some propagation problems not encountered with West Coast forms. Years ago, we went through all of the variables plus a number of special prayers. We even used as a medium sand from underneath native stands as well as regular sand "seeded" with debris from beneath large stands in the wild. All of this experimentation ceased when we quit using the most tempting long end runners and tried the very short side branches from the middle of the plant. Now we get 95% rooting. This plant does have a mycorrhizal association but this needs to be taken into account in transplanting — not rooting. One way to achieve successful transplanting from the propagation bench into another type of medium is to:

- 1) Do any top and, especially, root pruning in the propagation bench, and put the pruned cuttings right back in the propagating medium for a few weeks until the pruned roots develop laterals.

- 2) Take along and transfer as much as possible of the propagating medium to the new growing medium.

- 3) Try to moderate the extremes of the environment, in-

cluding irrigation, until the plants have had a chance to get established.

*Leiophyllum buxifolium* and its variety *prostratum* from Grandfather Mt, may be easier to propagate by softwood cuttings than by hardwood cuttings in fall or winter. Take hardwood cuttings as early as possible, in October if you can, and take only the short side shoots from near the main branch terminals, which tear off easily with a small piece of heel when you pull downward. Propagation by seed works fine on the species and, if taken from a well isolated plant, will reproduce the variety, *L.b. prostratum*.

In fall propagation of *Kalmia angustifolia*, you will do much better if you use the same upper side shoots, as with *Leiophyllum*.

The genus *Daphne* provides quite a number of worthy and quite saleable woody ornamentals. *Daphne* × *burkwoodii* and its cultivars, 'Carol Mackie' (a variegated sport) and 'Somerset', *D. caucasia*, *D. cneorum*, and *D. tangutica* are particularly noteworthy.

As those of you who have visited the Sheridan Nurseries in Canada know, the species *D. cneorum* roots well from softwood cuttings under double shade without mist. If you have reason to try later in the year, take cuttings in early October if possible. If later, try to use cuttings from the more succulent container-grown plants. Rooting of hardwood cuttings of the almost deciduous species appears to be in direct proportion to the number of leaves on the cuttings when taken. On semi-hardwood cuttings taken in October, the thinner inside cuttings or those from a shaded plant or shaded side of a plant will give better results.

An extra well-drained propagation medium is important with *Daphne*. We use perlite with just a touch of peat to give a little tougher root than develops in straight perlite. A wound is beneficial. This can be just a razor blade slit on the stem. Transplanting the rooted cutting is the key to successful propagation of *Daphne*. Try to do this in stages so that only one ingredient is changed at any one time. Do not cut the roots and change the surrounding environment at the same time

Let us turn now to the other main reason for care in selection of cutting wood — success in obtaining exact duplication. Some of our best dwarf forms of woody ornamentals present real problems in achieving this objective of exact duplication

*Chamaecyparis*, especially *C. pisifera* and its squarrosa cultivars, will give great variation from a single plant even if

you carefully select the tiny, tight little fans or tufts. For example, even with great care *Chamaecyparis pisifera* 'Compacta' (or its smaller version 'Nana') you will still have two or three significantly different rates of growth in a given crop.

*Ilex crenata* has what I consider to be instability, but this may be a poor word choice. In any event the end shoots have greater vigor than basal shoots. If you follow the natural human tendency to clean up and prune the stock plant when taking cuttings you will end up with faster growing forms. *Ilex crenata* 'Helleri' is one example. There are several distinctly different plants in commercial trade. A more extreme example is the very dwarf form, 'Dwarf Pagoda'. If you take the heavier end shoots (the easiest to see and take) you will change the plant completely in a couple of generations. This may be what happened to 'Mariesii' which, in the old descriptions, sounds just like 'Dwarf Pagoda'. Instead, take only the very short stubby side spurs which are a little harder to handle but there are plenty of them and they root just as readily.

There are other plants where it is better to clean off the strong odd ball shoots before taking any cuttings for propagation. Another clear cut case in point is the prostrate forms of *Cotoneaster microphyllus*. If you take the strong upward shoots, each generation is likely to be less reliably prostrate.

Those of you familiar with the prostrate and low spreading forms of conifers will know that selection of wood for grafting has been used to achieve habits of growth other than evidenced by the parent plant. One such as *Abies pinsapo* 'Glauca' which, in our trade, has no leader. *Pinus flexilis* 'Pendula' is probably the result of selection from low side branches. There are a number of low growing *Abies* which presumably originated by this same selection of wood with little or no apical dominance.

There are also examples of unintentional differences in the progeny because of the type of wood selected for grafting. Grafts of *Picea pungens* 'Compacta' produce remarkably similar progeny in a given crop whereas great variation exists with grafts of *P. pungens* 'Montgomery', a similar plant. Tom Dilatush of Dilatush Nursery in South Robbinsville, New Jersey, proposed that all of the strong central shoots in each cluster on 'Montgomery' have strong apical dominance whereas those taken from most anywhere on 'Compacta' do not have any tendency to put up a central leader.

The dwarf forms of *Picea abies* are so unstable or variable that you can find several distinct foliage forms on a mature plant. In any event, to retain these they should only be propagated as cuttings. Grafting is very likely to produce a much

faster growing, but less compact growth habit. Most often we speak of the vigor of the understock pushing through into the scion. If you listen to the keen observations of Tom Dilatush, you will conclude that many of the dormant buds of dwarf Norway spruce have reversion tendencies and that the vigor of the understock activates these. In very young grafts you do not always notice this difference until it is too late.

The wounding of cuttings has been a subject of considerable discussion in the *IPPS Proceedings*. It is not always worth the extra labor on species which give high quality root systems with no wound, or where the regular procedure for stripping away the foliage provides the equivalent of an intentional wound.

There are some cases where a wound does not appear to achieve the expected response but, nonetheless, is well worth while. The so-called brooms or Scotch brooms, *Cytisus* and *Genista*, provide an excellent example of this phenomenon. The low-to-prostrate forms generally root easily, but the very popular upright growers like *Cytisus* × *praecox*, the Warminster broom, are more of a problem in that cuttings typically send down a couple of fleshy, brittle roots right to the bottom of the medium with little or no side branching. A light wound, like a ½ in razor blade slice, will not produce roots along the wound but will somehow cause a beautiful, fully packed circle of roots from the base that gives a high quality, easy to transplant, rooted cutting.

It can be difficult to achieve consistent high quality rooting with *Gaylussacia brachycera*, the box huckleberry, thought by some to be the world's oldest living plant. You can get roots but they are variable, sparse and poorly attached. We tried everything including cutting type, timing, medium, hormone, etc., but could not get consistent results. However, once we used a light wound with a razor blade we obtained consistently good rooting year after year regardless of other factors.

*Vaccinium vitis-idaea* var. *minus*, the mountain cranberry, readily develops roots but their adherence is poor. The razor-blade slit wound remedies this and all but eliminates transplanting losses.

Although pruning the rooted cutting is not considered part of propagation in the strictest sense, pruning often needs to begin before the plants leave the propagation area. There are plenty of instances where early or timely pruning is essential for a high quality branch structure. In some cases, regular pruning clearly shortens the time until the plant is saleable, even though it may not actually accelerate growth. The pre-

viously mentioned *Cytisus* and the evergreen *Cotoneaster* are good examples.

There are also plants where pruning accelerates or encourages continuation of bud break and growth. If the tips are pruned off of *Gaylussacia brachycera* just as each flush is fully extended, you will achieve several season's growth in one. *Daphne* has similar characteristics. The rooted cuttings are always slow to make that first break but this time can be made up quickly if the tips are pruned just before the flush of growth hardens off. Unlike the evergreen *Ilex* or *Kalmia latifolia*, you do not need to wait for dormant buds to form and mature to get multiple breaks.

A contradictory example is *Cassiope mertensiana*, the so-called mountain heather, from Bruce Briggs' country (the Pacific Northwest). You will achieve a better branched plant with more flowers at the end of the first season if you withhold all pinching or pruning. *Vaccinium macrocarpon* 'Hamilton', a delightful very dwarf form of cranberry, responds in similar fashion.

## **PROPAGATING ACER GRISEUM FROM CUTTINGS**

DIXON P. HOOGENDOORN

Hoogendoorn Nurseries, Inc.  
Middletown, Rhode Island 02840

*Acer griseum*, the paper bark maple, is possibly one of the most beautiful and interesting small trees available to our trade. The leaves are trifoliate while possessing a delicate soft green texture. In certain locations, leaves will turn a good red color in the fall. The bark curls back to reveal the coppery trunk underneath on trees more than a couple of years old.

It has been reported that a definite flowering sequence problem exists with this particular tree which results in many sterile embryos. Therefore, most of the seed produced is non-viable. This is one reason that *Acer griseum* remains a relatively rare tree today. Grafting this species has been impractical, if not impossible.

Many years ago, my father, Case Hoogendoorn, became very interested in *Acer griseum* and purchased 500 two-year seedlings from Gulf Stream Nurseries, Inc., Wachapreague, Virginia. They were planted in a stock bed with the intent of using these plants for vegetative propagation purposes. We usually prune the stock plants in March to initiate vigorous