

## SPEEDING PRODUCTION OF HARD-TO-ROOT CONIFERS

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As every propagator of conifers knows, there are many species and varieties of *Juniperus* which are slow and hard to root, and even if we succeed we likely have a plant with a poor root system. *Juniperus virginiana* is well known for this; even with all the root-inducing materials it is often impossible to get the needed fibrous root system.

The usual procedure in propagating such slow-rooting varieties is to graft them onto potted stock in late winter, but for this purpose the stock must first be grown from seeds or cuttings and at best this causes a delay of a year or two. Besides, the potted stock or the pre-rooting of the cuttings takes considerable greenhouse space, which increases the expense of the whole operation.

Much quicker results at much less expense can be obtained by taking cuttings of certain easy-to-root varieties, which have the tendency to develop a good root system, and grafting scions onto them immediately before they are placed in the rooting medium.

Easy-to-root varieties are *Juniperus chinensis* 'Hetzii', or *J. communis* 'Suecica'. Both root quickly; cuttings up to 12 to 15 inches long, if taken at the most favorable time (which we find is during the winter months), root in five to six weeks.

Scions up to 15 inches long of various slow-rooting varieties of *J. virginiana*, *J. scopulorum*, or *J. communis* are side-grafted onto these above-mentioned cuttings.

The graft union should be about two inches above the base of the understock cuttings and the cuttings should be inserted in the rooting medium about four inches deep, or in such a manner that the graft union is completely, though loosely, covered by the medium; or in other words, the medium should extend slightly above the union.

The boxes containing the grafted cuttings are then placed on the greenhouse bench under intermittent mist with spray applied approximately 5 seconds every 5 minutes. It is important to make sure that the boxes drain well so that the bases of the cuttings do not remain wet for any length of time. No mist is applied during the night or in the daytime during very dull weather.

We find the month of January and the beginning of February to be the best time to propagate our junipers through grafting. By April the understock cuttings are usually well-rooted and the scions are firmly united with the stock. By this time the tops of the rootstocks can be removed and the new plant can then be potted and planted out in a cold frame, again deep enough that the entire graft union is completely covered. Some of the varieties which are slow to root from

cuttings readily produce roots of their own just above the graft union after the top of the understock has been removed.

For propagators in northern regions it is not easy to follow this method of propagation. It is often impossible to gather conifer cuttings during the most favorable time because of deep snow and low temperatures. Where such conditions exist, one can make large cuttings of the easy-to-root varieties before the onset of bad weather and place them under mist and at low temperatures until the scions can be gathered. In the meantime, the cuttings will have produced callus or even be rooted to some extent. The scions can then be grafted on them. Such cuttings, even when kept all winter, need little greenhouse space—much less than potted stock.

In conclusion we recommend the following:

1. Timing. Taking the cuttings at the most favorable time (winter) to assure quick rooting.
2. Select an easy-to-root variety which also has the tendency to develop a good root system.
3. If large, long scions are used in grafting, we prefer the side-tongue graft because it makes a very solid union.
4. Good drainage of the grafting boxes and the use of a medium that drains easily is most important.
5. Bottom heat (70°F) is essential.

MODERATOR BRIGGS: Our next speaker is from Fremont, California, near San Francisco. Don Dillon, of Four Winds Growers, will talk to us on his citrus propagation procedures, Don:

### **SIMULTANEOUS GRAFTING AND ROOTING OF CITRUS UNDER MIST**

DONALD DILLON  
*Four Winds Growers  
Fremont, California*

In order to simultaneously root and graft citrus successfully it is necessary to have the right climatic environment. All of our propagation is from mother-plant twigs; these mother plants are grown in the open air, without shelter from the elements. Having the right type of wood is essential. However, the simultaneous graft healing and understock rooting is done under controlled hot-house conditions.

An ample supply of the right hardened-off shoots of new growth are a "must" in successful twig grafting. Both scion-wood and rootstock wood must be available simultaneously at the proper time. We grow our own original mother plants, both for rootstocks and for scions.

Our selections and methods are based on "research," if you will pardon our usage of this word with this definition —