

rooting, it improves the quality of the rooting. Captan improves rooting one step, Benlate improves it two steps.

JOHN McGUIRE: I have heard of two cases of injury from the use of Benlate. Dave Leach mentioned one of them. Perhaps he would like to comment here.

DAVE LEACH: What I found was that it inhibited rooting with the system I used. I used Nearing propagating frames which are essentially a cold frame with a visor on the south side and no heat. It would seem to me that when you are using mist propagation there is a good possibility that the Benlate is diffused. Using about 120 clones and a 1000 cuttings, the evidence was rather strong that in using this method of rooting, Benlate inhibited rooting.

MODERATOR FLEMER: Thank you once again, John.

As part of our program this afternoon, we have a panel which is going to bring us some short reports on "Propagating Experiences, Old and New". Mr. Zoph Warner will act as moderator for this panel.

MODERATOR WARNER: When Bill asked me to organize this panel, I decided to choose some individuals who I thought might have some interesting things to talk about and then give them as much leeway as possible in choosing their subject. So I didn't ask them to stick to the panel title too closely, but I think we are all right because I heard one of the participants say he wasn't even going to talk about propagating. We are a little short of time and so no questions will be taken until each of the participants has presented his paper.

In choosing people for this panel one of the things I thought about was the fact that in the commercial world one is often judged by how much money he makes and so with this in mind, I would like to lead off the panel with Joe Cesarini because before he got into this business he was a bricklayer and everyone knows how much money they make.

## PROPAGATION OF *CARPINUS BETULUS* 'FASTIGIATA'

JOE CESARINI

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At Johnson Avenue Rare Plants Nursery, I used to propagate cultivars of *Carpinus betulus* by grafting them, during the winter months, on previous spring-potted understock of *Carpinus betulus* or *Carpinus caroliniana*. The grafting was done in the greenhouse at a temperature of 65° F, using the modified veneer system. I was somewhat annoyed by the unpredictable results so I explored a different way of propagation.

## ROOTING SOFTWOOD CUTTINGS WITH MIST

Although I have been propagating *Carpinus betulus* 'Fastigiata' from cuttings for only 3 years, I thought the little bit of knowledge I have gained may be of interest to you. From my trial and error system and my crude way of observing things it has been noticed that the most important factors can be pinpointed, but I really don't know which ones should be given the priority on the list. However, the combination of all give some pretty good results.

**Source and Type of Cuttings.** The stock plant should be healthy and vigorous, free from insects and diseases. The cuttings should be the current season growth about 6 to 8 inches in length. A shallow side wound is beneficial.

**Time of Taking Cuttings.** This varies according to the type of growing season so I don't like to give a set date. However, I take the cuttings just about the time that the last leaf on the cutting reaches the ultimate size and the last bud is not fully developed. At our place of operation, this happens on the average about the middle of July.

**Rooting Medium.** In our preliminary trial we used different types of media—sand, perlite, peat moss, mixtures of sand and perlite, sand and peat moss and perlite and peat moss. The results ranged from a complete failure to quite rewarding. The best result of all was with a mixture of perlite and peat moss.

**Strength of Hormones.** Here we tried different types of hormones. Hormodin No. 2, Hormodin No. 3, and our own mixture that we call 2% IBA. Without any doubt in my mind, to root *Carpinus betulus* 'Fastigiata' as of now, 2% IBA is required.

**Dormancy Period.** I have found that in order for the cutting to grow well the following year, the rooted cuttings of *Carpinus betulus* 'Fastigiata' require a dormancy period. I place them after they are well-rooted in a greenhouse where I try to keep them at a temperature as close to 32° F as possible during the winter months. About late March or April the weather warms up and, as they start to grow when the danger of frost is over, I transplant them in containers for continued growth.

## CONCLUSION

By following the combination of these few old but simple rules, some nice plants of *Carpinus betulus* 'Fastigiata' can be grown without going through the costly and laborious task of grafting. This system works so well that I am rooting these cuttings right in pots. I think that I have this type of propagation worked out and now to satisfy my curious mind I am trying to root them from hardwood cuttings during the winter months. This method still is in the infancy stage but is

starting to make sense. So I hope some day to have all the problems worked out and come up with the right combination and report to you and share my information. If somebody is also doing such work, I really would like to hear from them.

## PROPAGATING EXPERIENCES

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This "Propagating Experiences" panel we have embarked on now will likely turn out to be the surprise package of our annual meeting since it is open to so many interpretations.

It took our moderator, Zoph Warner, who was responsible for arranging this discussion, a great deal of persuasion to convince me that I ought to participate on this panel. Not only do I suffer from a liberal amount of stagefright when it comes to giving a talk, but I simply could not get excited about the subject: Propagating Experiences—Old and New.

I could not help but think that here we have a highly successful Plant Propagators' Society, which for the last 20 years has made great strides in promoting and discussing the newest techniques in the field of ornamental horticulture, and here am I trying my darndest just to keep up with them. How in the world can I tell you good people something that's really new in plant propagation?

And as far as old propagating experiences are concerned, here again it is all well and good to sit down and reminisce about the good old days, especially when one is in a slightly sentimental mood while in the company of fellow nurserymen and with the help of a tall glass of beer to refresh the old memories.

But in this Society which is so geared for the exchange of new ideas, dwelling on obsolete practices of years ago is somewhat irrelevant to say the least. However, I then happened to look over the list of names of the participants in this discussion and I changed my mind somewhat. It struck me that all the growers on this panel at one time or another received their training in Europe. One can say that this is a mere coincidence. I prefer to think that there is some significance.

Each one in this group got his horticultural education and training in those so-called old days that we are supposed to touch upon this afternoon. They became thoroughly familiar with the then existing propagating techniques and the hard ways of growing nurserystock with limited mechanical means and without the help of hormone substances, mist systems, polyethylene and peat pots—just to mention a few. They certainly had to have a great deal of motivation and spunk