

forget to make shoots. We did a small-scale test using Florel (Ethephon). A heavy spray was applied to container plants in full flower at the rate of 3 oz to 1 qt. For 1 month there was flower inhibition and the lateral shoot development was three times that of the control. We will test further to see if this affected the rooting rate.

Stachys byzantina 'Silver Carpet' is much preferred over the species because of the lack of flower stalks. It is difficult to produce because it rots quickly in the heat of summer under mist. It needs to be moved out from the mist after 3 days to a shady area with light hand misting or produced in the cool months.

Penstemon 'Husker's Red' roots readily from shoots cut from below ground level. Stem cuttings root slowly and then it takes 2 months for side shoots to develop to make a full plant.

Campanula 'Joe Elliott' (syn. *C.* 'Joan Eliot') can be done in the fall or after blooming and the side shoots have begun to develop.

Sanguisorba obtusa cuttings did well when taken in early June.

Potentilla xtonguei and *P. neumanniana* 'Nana' (syn. *P. verna nana*) are cool-month growers. They can be taken up until frost in the fall but we prefer to force them in the winter. The shoots are easily pulled off by hand and they need the brown sheath at the base of the cutting to root.

Potentilla 'Gibson's Scarlet' is difficult as it easily rots. They do best if forced in the late winter and the shoots are taken when small and tender and the mist is very light.

Question Box

Moderated by Ralph Shugert and Steve McCulloch

Question: For Joerg Leiss. Could you explain once again how to produce *Corylus avellana* 'Contorta' using root pieces to graft onto?

Tim Brotzmann: *Corylus avellana* is not a good understock because it throws root suckers. Use another species such as *C. colurna*.

Question: Will variegated forms of *Aralia elata* and *A. spinosa* if put on their own roots (as by layering) produce variegated suckers or the normal green form?

Tim Brotzmann: I asked Joerg that question but he did not know the answer. My feeling is that it would throw the green form.

Question: Does *Thuja occidentalis* 'Smaragd' ever set seed or ever bloom?

Ken Twombly: We have grown it for about 15 years and have never seen it set seed.

Question: Has anyone had experience using growth retardants on perennials?

Harlan Hamernik: Yes, there are a number that will work, however, the procedures have not been worked out for the broad range of herbaceous perennials. A grower needs to experiment. One of the most effective is Florel that is used in the florist industry. We are doing work at our nursery but mainly to make better plants for propagation.

Question: Are there other economical ways to sterilize cuttings other than bleach before they are stuck?

Voice: There was a paper in the past proceedings on the use of hydrogen peroxide.

Cameron Smith: We have used 3% hydrogen peroxide with a few ppm of ferrous sulfate which increases the effectiveness tremendously. This combination gives the cleaning effectiveness of the industrial strength hydrogen peroxide (30%).

Peter Nickerson: We spray our entire propagation house with Green Shield before propagating our lilacs. We also wash our cuttings in Green Shield.

Ralph Shugert: We can buy Green Shield cheaper than Clorox.

Bill Barnes: Green Shield is the same as Lysol. Some plants are sensitive so be careful if you soak them in it.

Question: Has anyone had success rooting 'Blue Star' Juniper—timing, hormone, size, date?

Rob Means: A trick we try with some of the *Juniperus squamata* types is to put them in a dry house and cover with newspaper for the first 10 days or so. We stick them in January and mist them lightly once a day. Let the medium slowly dry until almost bone dry and then water them and they take off. If we put them under mist they die.

Bill Hendricks: If you take standard cuttings you are doomed to failure. We found that you should take 1-in. cuttings that are very soft.

Question: How can you root cuttings of *Daphne cneorum*?

John Wilde: In the 1930s I found by accident that you can simply layer them. I noted that if you put a lot of peat moss around the plants and pinned the stems into the peat mulch the smaller side shoots rooted and you could get a lot of small rooted plants by the end of the season. This is what L.H. Bailey had recommended years earlier I subsequently found out.

Bob Gouveia: We have rooted them. We use softwood cuttings and root them in perlite and sand (1:1, v/v) with very little mist. They rot very easily. As soon as rooted we take them out of the mist. We could never grow them in containers but we could in the field.

Question: What is the best way to germinate seeds of *Helleborus orientalis*?

Bill Hendricks: Let the seed germinate under the mother plants and transplant after they germinate.

Robert Herman: Sow them immediately after ripening, carry them through the summer, bring them into a cool greenhouse (40F), and they will start to germinate by December. You could also leave them outside through the winter and they will germinate in the spring.

Question: For Bob Geneve. Is there evidence for viruses causing fasciation in plants? Can it spread with propagation or by insect vectors?

Robert Geneve: I know of no cases. I know of bacterial causes that can be spread.

Question: Where did Heather McCargo purchase her compost? Price?

Brian McGowan: Massachusetts Naturals in Westminster, Massachusetts, for about \$500 a trailer load.

Question: Has anyone had experience germinating bulbuls of *Begonia grandis*?

Bill Barnes: Put the bulbuls in a plastic bag with moist perlite, place in a refrigerator until spring, and plant out.

Steve McCulloch: We root them from stem cuttings.

Question: For Bob Gouveia. Fertilizer on *Stewartia*, what rate and form of nitrogen?

Bob Gouveia: We use Peters 20N-20P-20K at 200 ppm, at 10-day intervals in the rooting medium. Once they are potted, we continue the same fertilizer every 10 days.

Question: For Ron St. Jean. With what other genera does the double dip work on?

Ron St. Jean: We have used it for many different taxa of both *Thuja* and *Juniperus*.

Question: For Ron St. Jean. Would like to hear discussion of understocks in use for grafting *Chamaecyparis* species, *Thuja* species, and *Juniperus* species.

Ron St. Jean: We only root hetzi juniper and plumosa juniper for understocks.

Question: For Calvin Chong? Regarding windshield cleaner fluid, do you use this straight, or blend with IBA?

Brian Maynard: Just a solvent or carrier for the auxin.

Question: We've had bad luck overwintering successfully liners of *Styrax japonica* 'Pink Chimes'. Can anyone make a recommendation for us to try?

Ron St. Jean: We overwintered seedlings in a pit house.

Tim Brotzmann: I think there are root hardiness concerns that can carry over in the field for a number of years. We have overwintered 'Pink Chimes' in the rooting flats in a deep pit house.

Question: Is the use of rooting hormone necessary in any examples of root-piece propagation? Are there plants which readily generate shoots, but do not produce vigorous roots?

Dick Bir: We have tried various concentrations of hormones on root cutting and found that it was useless.

John Wilde: From work that I did in the 1940s, they may have a negative effect.

Question: Anyone have information on yellow nut sedge control in transplant beds or field production?

Brian Gilson: We have used Pennant in a granular formulation.

Darell Apps: I use the liquid formulation of Pennant on daylilies and have had almost perfect control. I do have to come back some times because it is short lived.

Ralph Shugert: Classic is the only chemical I have had success with on this weed.

Question: For Mike Hoffman. How come you didn't use double poly for your drip problem in rose propagation?

Mike Hoffman: We don't have a drip problem in the spring and summer.

Question: Does the depth that roots develop in a direct-stick program translate to a depth of planting problem through production into the landscape?

Steve McCulloch: No. We do a lot of direct stick and it is not a problem.