

EASTERN REGION QUESTION BOX

The Question Box Session was convened at 8:40 a.m. with Ralph Shugert and Bruce Briggs serving as Moderators.

MODERATOR SHUGERT: Question for Dr. Waxman. What pregermination treatments do you apply to seeds of eastern larch?

SID WAXMAN: Stratify for 30 to 60 days and then plant.

MODERATOR SHUGERT: Question for Dale Deppe. How often do you replace stock block plants?

DALE DEPPE: We do not have a system of continuous stock block replacement. When we first plant we usually plant about $\frac{1}{4}$ of the number that we eventually will need. So we have had to replant additional blocks later as we increase production. By pruning back the stock blocks hard we have had good success rooting the cuttings with the stock blocks and have not had to replant.

RALPH SHUGERT: When I worked for the old Cole Nursery we used to keep blocks for 8 years. That timing was just the owners decision and may have been related to juvenility. We would start a new block after 6 years so it would be ready for use after the eighth year of the old block.

PETER VERMEULEN: Our stock blocks of dwarf and unusual stock plants have proven valuable. As they mature and we must thin them out, they command a very good price. They will never be in excess.

MODERATOR SHUGERT: Question for Sid Waxman. Does grafting change the form or growth of witches'-broom seedlings of dwarf conifers?

SID WAXMAN: I think selecting the scion and not the understock is more critical. In most situations, such as white pine, I have seen very little stretching out of the grafted plant except when you use a strong upright terminal shoot as a scion. I think that lateral shoots are the best. Strong terminal shoots are not to be recommended for dwarf conifer plants.

MODERATOR SHUGERT: Question for Michael Dirr. In your talk you mentioned that fertilizer is more important than lights in promoting bud break after rooting. Isn't this contrary to research in the last few years?

DICK BIR: I just visited Mike and we discussed that very point. Yes, it is contrary, and it was just working for him on the lace bark elm trees. After rooting them he was fertilizing to get bud break and it was more important than light.

RICK LEWANDOWSKI: I would like to comment on that. Mike is in Georgia and is rooting some of these plants in late April and has a considerably extended growing season. So I would caution you on his statement relating to fertilization being more important than light.

MODERATOR SHUGERT: Soliciting comments from the floor on the efficiency of white versus black shade cloth or lath. Can it be used to advantage on other than ericaceous stocks?

DICK BIR: I showed the slide so I guess I should answer the question. I have only seen it used on ericaceous plants—rhododendrons and mountain laurel, with excellent results. They were growing much better than those growing under black shade in the same nursery.

STEVE MCCULLOCH: We ran a little experiment comparing white poly versus black shade cloth and found that temperatures under white were much lower than under black.

MODERATOR BRIGGS: In regard to alcohol-based quick-dips, is there any difference in the burn experienced with different types of alcohols?

STEVE MCCULLOCH: We do not use alcohol to dissolve plant hormones, but acid or base in the lab. Outside we just use commercial preparations.

BILL BARNES: Research done at the University of Tennessee comparing various solvents for auxins showed that serious plant damage can occur from methyl alcohol, isopropyl alcohol, and acetone. It was also noted that denatured alcohol may contain denaturants such as benzene or toluene. These substances are causing the problem with denatured alcohol. If you get pharmaceutical grade alcohol or ethyl alcohol (95%) from the liquor store it does not have these elements and you do not get the toxic symptoms. Work that Calvin Chong and I are doing has shown that when the auxin concentration gets above 5000 ppm, the loss of root quality and basal burn are significantly different with alcohol than with propylene glycol. Propylene glycol at these high concentrations of auxin causes much less damage than alcohol.

MODERATOR SHUGERT: To Michael Dirr. Do you prefer a certain solution for rooting hormones like K-IBA or Dip-n-Grow? What are advantages and disadvantages of each?

VOICE: Mike is using K-IBA extensively. K-IBA looks good, it is soluble in water so you do not have the ethanol problem. Since it is dissolved in water it is not absorbed as well as from the alcohol solutions. He also uses a wide range of other rooting products.

BILL BARNES: With high solvent solutions you are often running into toxicity. K-IBA being water-soluble is much safer. However, you must use K-IBA at a higher concentration. We use K-IBA at 20,000 ppm to root 'Bradford' pear cuttings and get 80 to 90% success. If you use it in an alcohol solution you have to use something in the order of 5000 ppm and get less rooting. I do not know what would happen if you went higher with the alcohol solution, possibly damage to the cuttings.

One solution to the solvent problem is to dissolve the auxin in 1% KOH. IBA is completely soluble and you get no basal burning with an extremely fine root system. This suggestion was based on research in the Journal of Environmental Horticulture. That research showed that IBA dissolved in KOH is more effective than an equal concentration of K-IBA. The KOH appears to have an independent effect, possibly pH.

MODERATOR BRIGGS: Has anyone tried pretreating hardwood cuttings with IBA prior to placing in winter storage for spring sticking?

DAVE BAKKER: We did some *Prunus × cistina* cuttings last year with powder and found that the usual spring treatment was better.

PETER VERMEULEN: We tried some *Juniper*, *Taxus*, and *Ilex* hardwood cuttings that way some years ago. The fall cuttings were treated, put in poly bags, and placed in cool storage (cold cellar) for spring sticking. Some of the *Ilex* actually rooted in the bag.

CALVIN CHONG: We used to take cuttings in November, treat them with 5000 ppm IBA, and put them in a closed barn in sand for the winter. By late March/April some of them had rooted or callused and were ready to be planted out. In most years the technique worked quite well but we had a few failures.

ED LOSLEY: I know a Lake County nurseryman who rooted yews and arborvitae by taking cuttings in early winter, treating with

hormone, packing upright in flats of sphagnum moss, and sticking them in cold frames in early spring. He did this with a great deal of success.

BRUCE BRIGGS: If you look back at some of the old Proceedings you will see that they used some bottom heat to callus cuttings and then put them back in cold storage to retard development. You might review that.

MODERATOR BRIGGS: What is the status of IBA in regard to the new registration required by the EPA?

DALE DEPPE: Just to add a question to that. Are we going to have time to put in an order before they cut it off?

RALPH SHUGERT: I believe that there is going to be plenty of warning.

CALVIN CHONG: It will cost \$5 million to get approval for IBA use. The feeling when I attended the horticulture meetings this past year was that there is money to be made from IBA and that some company will put up the necessary funds for registration.

DAVE BAKKER: I bring in some powders from Europe, and they warn users not to smoke when using IBA powders. To put that warning on the can, someone must have done the research to make that statement.

MODERATOR SHUGERT: To Francis Gouin. My experience with sludge is that there is little life, (weeds, earthworms, etc.) even after it has been stockpiled for over a year. Have you observed this?

Have you ever successfully grown viburnums in a container mix with more than 10% sludge?

FRANCIS GOUIN: Yes, we see the same. You will get June beetles if not covered and that is a problem sometimes. Yes, we have grown viburnums and used up to 30%.

MODERATOR SHUGERT: Does anyone have information about field growing *Daphne × burkwoodii* 'Somerset' or 'Silver Edge', or any other hardy (Zone 5 to 6) daphne? If so, I would be interested in learning the cultural techniques for successfully producing the plant.

PAUL VAN DER KROFT: We have a very sandy soil with a high pH, and it is no problem. *Daphne* × *burkwoodii* does best in alkaline soils, contrary to most of the other daphne types. Any fertilizer we put on today is gone tomorrow, which goes along with the need for lower fertility.

MODERATOR SHUGERT: If the seed of woody plants germinates at the wrong season, what should I do with them? For instance, if they germinate in November can I just let them grow all winter, the next spring, the next summer, let them go dormant and carry on, or do they have to have a dormant period? If they do how do I induce it?

RALPH SHUGERT: If I did not time things right or made an error with seeds, such as *Malus* and they should sprout in the stratification box, my experience has been that if they have not germinated too much that you can sow them, even on the frozen ground, and cover with a mulch.

MODERATOR SHUGERT: Does anyone know of performance decline in *Philadelphus coronarius* 'Aureus'? Many growers in southern Ontario have witnessed poor and erratic growth on this plant compared to the way the plant grew 20 years ago. Is there a virus or genetic decline?

DAVE BAKKER: *Philadelphus coronarius* 'Aureus' is very susceptible to root knot nematode and they should check for that pest. Fumigate if you have nematodes and put clean rooted cuttings into the soil. That plant also does not do well on low pH, but does on high alkaline soils. Wet soils are also a problem.

RALPH SHUGERT: You can use Basamid to control the nematodes.

MODERATOR SHUGERT: Questions for Mark Richey. Are you using any mist on your *Taxus* cuttings stuck into perlite?

MARK RICHEY: We try to keep the humidity up by wetting the walk ways in the house and if the foliage feels warm or we get a sunny stretch we will hand-water. Generally we are quite cloudy and that is the key. In sunny places you cannot do the same.

MODERATOR SHUGERT: Is anyone using a herbicide in their liner beds that they are comfortable with?

DAVE BAKKER: We use Treflan, at 1 lb a.i./acre. There are exceptions: arborvitae, *Microbiota*, *Chamaecyparis* and *Euonymus*.

FRANK GOUIN: Surflan has been effective. This year we are using a combination of Pennant and Gallery on the seed beds. Goal is still part of our program on conifer beds. We have been using Pennant on yellow nut sedge.

RALPH SHUGERT: On our sandy soil we need more than one application for yellow nut sedge control.

FRANK GOUIN: In Maryland, in the middle to the end of March, we have excellent control on heavy and light soils. I read the statement out of Tennessee on Paraquat use in the middle of the summer and it does kill the nutlets in one month.

MODERATOR BRIGGS: Question for Dr. McGown. Do you see a narrowing of the earth's vegetation gene pool by using asexual reproduction through tissue culture? For example, many food crops are being selectively bred for disease and pest resistance. Is this something that we really want to be achieving if it reduces the viability and gene pool of our world plants?

DEB MCGOWN: No, I do not think so. In commercial plant tissue culture we are looking at only propagating plants that can be economically propagated that way. My philosophy has always been that if you can do it from seed, then do it from seed because it will be a cheaper plant. When you look at urban landscapes I think we are probably increasing the genetic diversity.

DICK ZIMMERMAN: You are not reducing the genetic base with tissue culture techniques any more than you would be using cuttings or grafting.

MODERATOR BRIGGS: Where is the research describing the nature of variation in tissue-culture clonal stocks? Is it induced on original explant tissue by media components? Is it failure to recognize callus proliferation that looks like axillary proliferation?

DICK ZIMMERMAN: Some of the variation is there. We also know that as a plant ages, changes occur, for example—ploidy; that is not noticeable unless you take the cells out of the plant. Axillary buds in tissue culture will not show any difference. Callus culture, however, will allow those cell changes that I mentioned above to be expressed.

MODERATOR BRIGGS: Is anyone culturing flowering dogwood tree forms? If so, is this a high or low nutrient requiring plant?

DEB MCGOWN: We grow the kousa types and use 2 to 4 μm BA.

STEVE MCCULLOGH: We grow the groundcover type; it is much different than the tree type and grown on a high salt (MS) medium and BA. The tree types have a low salt requirement.

MODERATOR SHUGERT: Is there a publication listing patented and/or trademarked plants?

BILL FLEMMER: The National Association of Plant Patent Owners, which is a subsidiary of the AAN, has a newly updated version that is coming out this spring, I think. They have just put it on a computer. It will list patented plants up until the most recent plant patents. A list of trademarked plants is also being prepared.

MODERATOR SHUGERT: Does anyone know of any silver maple cultivars with very fine and deeply dissected leaves? I have some at my nursery and am interested in the possibility of introducing a new cultivar.

DAVE THOMPSON: Longwood Gardens has a cultivar called 'Borus Graciosa'. It is probably the most dissected type of maple that I have ever seen and it has excellent fall color.

BOB OSBORNE: There is a plant breeder in New Brunswick, Canada that contacted me about propagating a threadleaf form.

MODERATOR SHUGERT: Can biocontrol take care of black vine weevil?

FRASER HANCOCK: We bought some years ago a nematode that attacked the grub form. We found it quite effective. I could find the name of the company if someone is interested.

ED LOSLEY: The only known biological control of black vine weevil is a nematode.

VOICE: I am from Connecticut and the product Fraser was talking about is Biosafe and is sold by Peaceful Valley in California.

MODERATOR SHUGERT: Does anyone have cost comparisons between sewage sludge versus other soil amendments?

BRUCE BRIGGS: Depending on where you live it can cost nothing to \$8.00 per cu. yard.

DAVE THOMPSON: We have been using it for the last 6 years in our soil mix, but we have decided to discontinue this year mainly because of supply problems. We ran into drainage problems because of a high silt content (30%). Our mix, which was peat moss:sharp sand:sludge (1:1:1, v/v/v), was used to grow a wide range of conifer, broadleaf and deciduous plants. We had excellent success except for those plants that were a little intolerant of wet feet. We were able to cut our fertilizer bills in half with sludge.

MODERATOR SHUGERT: Question for Bakker. Why are you using sand and not perlite on Alberta spruce?

DAVE BAKKER: It works and I would not change because the cost is minimal for either medium. Perlite will work under mist but cuttings take forever to root and is therefore not an effective use of a mist system.