

green stock, took very little of our time and the costs were minor.

I might add that we are presently engaged in constructing a glass propagating house and boiler room workshop and if all goes well, we will be able to plant our cuttings inside this year.

## CORYLUS AND CORNUS FROM CUTTINGS

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This paper represents some of the trials conducted at Sheridan Nurseries over the last two years, 1964 and 1965. The trials were to find a way to root such plants from cuttings which were previously propagated by all other means but cuttings. It was our thinking that for instance if a layer would root why not a cutting, which would be much quicker made and also give a much greater yield per plant and would do away with large stool blocks. On grafting, the raising of understocks and subsequent sucker growth from this understock could be eliminated.

*Corylus maxima atropurpurea* was our first trial and in 1964 100 4 - 6 inch tip cuttings were made after the first flush of growth had hardened. This would be in the middle of July in our region. Half the cuttings were treated with Seradix #2, the other half with Seradix 3# (Seradix is both in content and formulation similar to Hormodin).

The cuttings were placed in a greenhouse bench under intermittent mist controlled by time clock. The medium was sand of a coarseness known as concrete sand. Cuttings were inspected after five weeks and the following observations were made: —

Small cuttings had excessive callus in both treatments and were also swollen as far as dipped. No rooting on either. There was a good portion of rooted cuttings in the #3 treatment while only few cuttings were rooted with #2 treatment. Especially heavier cuttings showed no sign of rooting.

We also stuck at this time cuttings of *Cornus mas aurea*, treated with #3 Seradix, into the same medium and mist system. No roots were found at the end of eight weeks when cuttings were taken up.

Rooted *Corylus* cuttings were heeled in a cold frame, but all were dead by Spring 1965.

After these experiences the following changes were made in 1965: — Only heavy tip and shoot cuttings were made of *Corylus max. atropurpurea*, *Corylus avellana aurea* and *Corylus avellana contorta*. Rooting was over 50% and to prevent winter death, cuttings were either potted or planted out direct into beds. The plants showed quite a good root development in the bed which was much better than the potted plants. Hormone

treatment was restricted to #3 Seradix. Our failure with *Cornus* brought on the following changes: — Hormone Treatment was changed to:

- 1) treatment with Chloromone 100%.
- 2) quick dip in 2% indolebutyric acid (IBA in 50 grams alcohol in 450 grams water)
- 3) treatment with a liquid dip 15 minutes in 1.5% indolebutyric acid solution diluted in equal parts of water as above (2).

Rooting commenced in three weeks and roots showed all along the portion inserted in the medium. Our best results were with Chloromone and quick dip 2%; up to 75% heavy rooting was obtained with both treatments.

To mention but a few of other plants where partial rooting was obtained: —

*Acer saccharum erectum*

*Acer rubrum* "Armstrong"

*Davidia involucrata*

*Hydrangea petiolaris*

MODERATOR TOM PINNEY: We now have time for some questions from the last five papers.

AL LOWENFELS: I would like to ask how you got the *Davidia* seed to grow because last winter at the meeting one of our members gave me some seed and neither he nor I could get them to grow. Can you tell us how you grow your seed?

RAY HALWARD: These seeds I received from the Arnold Arboretum and I don't think they had any previous treatment. We have a black muck which is very acid in nature. I don't know whether the seeds are coming through this year, but I know quite definitely we didn't give them any treatment. They come through quite frequently, although they are slow in germinating when we sow them in the fall of the year as soon as we get the seed.

PETER VERMEULEN: We got some seeds from Hal too and we've been using the hot-cold treatment with good success — forty days hot. We take our *Davidia* seeds and put them in a plastic bag with damp German peat moss and put them in the green house with a 60 - 75 or 80° F. night and day and then 40 days in the ice box at about 40° F. and then again outside. Then we start watching for germination.

TOM PINNEY: When do they germinate?

PETER VERMEULEN: This will vary, sometimes it might be 25 - 30 days after they are out the second time in the heat. They will develop over a period sometimes it may be 2 - 3 weeks.

RAY HALWARD: I started the heat treatment during May and June in the cold frame. They don't show any roots until July. I don't give them any other treatment and they seem to be quite happy.

BILL FLEMER: I would like to ask Ray Halward how those *Davidia* cuttings grow up. I know we rooted many cuttings but they don't grow very vigorously as compared to seedlings.

RAY HALWARD: I'll tell you next year.

CASE HOOGENDOORN: Ray, you're talking about difficult to root things. Did you ever try to root *Acer griseum*?

RAY HALWARD: Two years ago I took cuttings of *Acer griseum* from five year old plants. We took them about the end of May and they rooted very quickly. I think you'll find this was also written up in one of the quarterly bulletins.

CASE HOOGENDOORN: Did you use any hormone?

RAY HALWARD: Sephadex #3 I believe. I'd have to check back. It might have been Rootone but I don't think it was.

GERALD VERKADE: When Mr. Peterson took the spruce cuttings in April or March, did you check in September to see if any of them were rooted?

JOERG LEISS: Yes, I think Mr. Peterson mentioned that he spot removed cuttings in September or even August. We are using the same procedure and are getting roots by August. It takes generally about ten weeks. I feel that timing isn't very essential as long as you can provide those 10 long weeks you get roots on just about every spruce you can name.

CASE HOOGENDOORN: You said you rooted *Acer griseum*. Do you still have them or do you lose them after you took them out of the medium or did you lose them after the first winter?

RAY HALWARD: As a matter of fact, Case, we still have them. We don't lift them out of the medium.