

LITERATURE CITED

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MODERATOR CESARINI: Thank you, Mr. Fordham for a very informative talk. Our next speaker also needs no introduction to us because he is a past-president and is well known to all of us — Mr. Vince Bailey. Mr. Bailey is going to tell us how to root softwood cuttings outdoors.

OUTDOOR SOFTWOOD CUTTING PROPAGATION

VINCENT K. BAILEY
Horticultural Consultant
Newport, Minnesota

I should like to introduce the subject, "Outdoor Softwood Cutting Propagation", with a discussion of the need for something other than the conventional method in the greenhouse although your results, and ours at Bailey's, have been very satisfactory with various types of mist.

The past 15 or 18 years have produced many variations of the use of mist propagation systems. Many of you here have heard a number of them described and no doubt have used one or more of them. We, at Bailey's, are very happy with a circular bed. My nephew, Rodney Bailey, discussed this with you two years ago. We are even more sold on the system now.

All of us are familiar with the fine stands obtained with many varieties when greenhouses are used. You are all familiar with the cost of building a greenhouse as well as the rather high maintenance cost. We need a reason for considering going to any other method. The reason we at Bailey's have adopted the outdoor method is purely a matter of economics. We are producing a quality liner at a greatly reduced cost by getting away from the high capital investment.

We have tried a number of methods the past few years to reduce the overall costs of producing liners from softwoods. You are all familiar with the development of root-promoting hormones, which are a great help. Cheesecloth and other similar materials have been tried and I am sure are still used by some. At Bailey's we adopted the open area with misting, or rather a fine spray, as a partial substitute or supplement to the greenhouse. The greenhouses are still used to full capacity, but the open, outside, method is used for further expansion.

The description of our method is as follows: The area is plowed and worked smooth with a disc and harrow. We are now ready to make the beds. With a dump truck and a Melrose

“Bobcat” loader, we apply two to three inches of sand over a 22-foot diameter circle. A metal garden edging forms the outside of the bed. With two men and the proper equipment, this bed is made ready to plant in about one-half hour. Each bed will hold from 15,000 to 25,000 cuttings, depending upon the variety. Four of these beds are surrounded with snow fencing, and then a very fine spray or mist nozzle is located in the center of each 22-foot bed.

The mist is shut off completely before dark and turned on in the morning after daybreak. You are all aware that the mist can and must be reduced as rooting progresses. I mean only that the percent of time *on*, to time *off*, is decreased.

For simplicity of operation, all the time-clocks and solenoid valves are placed in one central location. The water is conveyed from the solenoid valve to its respective bed by a $\frac{5}{8}$ -inch rubber hose. By having all of the controls in one unit, we are able to completely dismantle the system each fall, store it inside over-winter, and reassemble it again in the spring with a minimum of plumbing and electrical connections to make. We merely connect the control system to our water supply and electric supply.

Each time-clock controls one solenoid valve which, in turn, controls the water for four separate beds. Although almost any rotary type lawn sprinkler will do an adequate job of misting, we prefer the Hardford spike sprinkler because it is easy to move from one part of the bed to another when adjustments must be made for windy conditions.

With normal weather conditions and newly-planted cuttings, the clocks will be on 5 times for about 6 seconds each, in every 12-minute cycle. This, of course, must be adjusted as the light, temperature, wind, and humidity conditions change. The 12-minute cycle clocks are controlled by a 24-hour clock that turns them on in the morning and off at night.

You can see from my description that the capital investment is very low. The controls are not expensive since one is used for four beds. They last a long, long time. The 4-foot snow fence is an inexpensive item and lasts many years. There is one thought I wish to express and that is, to be assured of good results, the person in charge must make adjustments when necessary. Unusual conditions may arise which may necessitate changes here and there at rather short notice. The machine is a great help but the answer to full success is the human element.

We have found that the following do very well with the above-described method:

Number of Cuttings Planted	Plants
28,000	<i>Acer ginnala</i> 'Compacta'
2,000	<i>Cornus alba siberica</i> 'Gouchaulti'
30,000	<i>Cornus alba</i> 'Elegantissima'
4,000	<i>Hydrangea arborescens</i> 'Grandiflora'
12,000	<i>Hydrangea paniculata</i> 'Grandiflora'
65,000	<i>Lonicera x xylosteoides</i> 'Claveyi'
9,000	<i>Lonicera xylosteum</i> 'Nana'
1,800	<i>Philadelphus lemoinei</i>
3,000	<i>Philadelphus lemoinei</i> , 'Sylviani'
8,000	<i>Philadelphus virginialis</i> O'Minnesota-Snowflake'
5,000	<i>Philadelphus virginialis</i>
8,000	<i>Physocarpus opulifolius</i> 'Luteus' ('Aurea')
13,500	<i>Physocarpus opulifolius</i> 'Nanus'
18,000	<i>Potentilla fruticosa</i> 'Gold Drop'
33,000	<i>Potentilla fruticosa</i> 'Katherine Dykes'
3,000	<i>Potentilla fruticosa</i> 'Mount Everest'
11,000	<i>Potentilla fruticosa</i> 'Vilmoriniana'
7,000	<i>Prunus glandulosa</i> 'Rosea'
12,000	<i>Spiraea x bumalda</i> 'Anthony Waterer'
9,000	<i>Spiraea x bumalda</i> 'Frobell'
10,000	<i>Spiraea nipponica</i> 'Snowmound'
2,000	<i>Spiraea thunbergii</i>
10,000	<i>Viburnum trilobum</i>
19,000	<i>Viburnum trilobum</i> 'Compactum'

We reserve greenhouse space for the harder-to-root items, such as the following:

Number of Cuttings Planted	Plants
4,200	<i>Euonymus alata</i> 'Compacta'
480	<i>Euonymus alata</i> 'Compacta #2'
85,000	<i>Philadelphus coronarius</i> 'Aureaus'
21,000	<i>Prunus x cistena</i>
24,000	<i>Prunus triloba</i>
25,000	<i>Prunus virginiana</i> 'Shubert'
260,000	<i>Ribes alpinum</i>
2,500	<i>Syringa velutina</i> (<i>S. palibiniana</i>)

The results are very satisfactory even if they are not 98 to 100 percent. Such a percent of success is something for us to feel proud of when we think back to that nice stand of some viburnums or some other item that looked so good. I like to have the foreman count and report the actual number of each variety planted and then the number rooted. These facts are much more meaningful to me than to hear a foreman tell me he

had a beautiful stand of *Prunus* — it must have been about 100 per cent.

MODERATOR CESARINI: Thank you, Mr. Bailey; that was a very good paper and I'm sure everyone is interested in ways to save money. Our next speaker is a personal friend of mine and one of the most progressive young men in our organization. I look up to him but I also feel sorry for him because he is filling in the position which was last held by our good friend, Mr. Martin Van Hof. I feel sorry for him because he has a lot of room to fill. At this point I introduce to you Mr. Larry Carville.

PROPAGATION OF SOFTWOOD CUTTINGS UNDER POLYETHYLENE TENTS

LAWRENCE L. CARVILLE
The Rhode Island Nurseries, Inc.
Newport, Rhode Island

Propagation by softwood cuttings under poly tents is not a new technique but it is a topic which merits periodic review by this Society. Over the years, as experimentation gives way to new methods, and as improvements are made to accepted techniques, we have a responsibility to the membership of our Society to spread the Gospel and share in the wealth of new knowledge.

The method currently being used by The Rhode Island Nurseries was developed and perfected by a valued friend of mine: my predecessor and the Dean of American Propagators, Mr. Martin Van Hof. Previous references to this subject can be found in papers by Mr. Roger Coggeshall in the 1953 edition of the Proceedings and by Mr. A. R. Buckley in the 1955 edition of the Proceedings. Mr. Van Hof began his experimentation with this method in the early 1950's and it has been perfected over the years. In my brief association with The Rhode Island Nurseries I have found this method to be extremely simple and at the same time highly successful.

Materials Propagated. Perhaps a logical approach to this subject would be first to tell you what material we are propagating under poly tents and then to briefly explain the mechanics of outdoor propagation under polyethylene tents. At the present time, we are successfully propagating *Cornus alba* 'Argenteo-marginata', *Deutzia gracilis*, *Euonymus* 'Sarcoxie', peegee hydrangea, *Kolkwitzia amabilis*, *Pachysandra terminalis* and several varieties of each of *Hibiscus syriacus*, *Hydrangea hortensis*, forsythia, ligustrum and weigelia. This list in no way limits the kind of material which may be rooted under poly tents but merely indicates what species we are sticking under poly.