

same ideas and are always looking for these new things.

Our next speaker is Mrs. Leona Drew, and she'll talk to us about cold-frame propagation. Mrs. Drew!

PROPAGATION BY HEATED FRAMES

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Propagation by this method has been used for many years. The results, in most cases have been equal to the more modern way, in greenhouses, with mist systems, and other modern conveniences.

First, location; this can be either inside of a lath house, or out in the open, provided the frames are shaded. The shade can either be permanent or controlled manually.

The construction of these frames is not expensive; in fact, this is an ideal way for young people, who are starting out on a shoestring, to get started in plant propagation. The frames are generally built, in length, of multiples of three-foot sashes. A frame, six feet in width by fifteen feet in length, seems to be the most advantageous. Whenever two frames are constructed together, back to back, they should be twelve feet in width, with the center four inches higher than the outside edges. Instead of using glass sashes, we find it more economical and easier to lift, to use a cover constructed of two pieces of angle iron put back to back at the center, to be used as hinges. The frame of the cover is made of 2 x 2 lumber, with plastic near-glass tacked on. Space 2 x 2's every eighteen inches to keep cover rigid. Plan for counter-balance weights so each fifteen foot section can be lifted with one hand and will stay where put.

Whenever the water table is low, the frame can be set so the bottom is a few inches below ground level. If excess water is a problem in winter, then the bottom of the frame should be raised enough to miss the ground water during heavy thaws or rain storms. The outside of frame can be constructed of wood or concrete, keeping in mind that all joints should fit as tight as possible. The tighter the fit, the better the frame retains moisture. Assuming the outside height is sixteen inches and center height is twenty inches, then put in four inches of sand as a bottom layer, then lay the electric heating cables. Cover with about two inches of sand. Then either four-inch deep flats can be set on this sand, or the rooting medium may be put directly on top of the sand, about four inches deep. We find it much easier to use the flats, as they can be filled and the cuttings put in them in the potting shed. Then the flats are set in the frames.

In the rooting of conifers, the use of sharp sand or perlite, with about one-third peat moss mixed in, seems to work very

well. Cuttings of most conifers root best if taken with a node, and are about 3½ to 5 inches long. These are dipped in any good rooting powder (indolebutyric acid formula) then put in the flats with a dibble in rows about 1½ inches apart. Water flats enough to firm cuttings. After this, water only with a fine spray once a day when the weather is warm. Keep sand moist but not too wet, as this will cause rot. Set the thermostat for 60° to 70° F. A great many conifers will root without any bottom heat, but it takes much longer.

Inside of the propagating frame all material coming in contact with cuttings, as rooting media, water, etc. should be very sanitary. Molds and fungi can spread very fast in warm, damp air.

The propagation of broadleaf evergreens is very interesting. There are many types and varieties, some of the most fascinating being the rhododendrons, camellias, azaleas and heathers. All of these do best on an acid medium, and a mixture of half peat moss and half perlite seems to work well for rooting. The larger-leaved varieties need more space in the flats and it is a good idea to cut the leaves back about half way and take off some of the bottom leaves. Some varieties root quickly but others will take from four to six months. After a period of trial a person can learn to root almost any plant. However, at this time it is not so much a question of how to root, but what to root, trying to guess what the style in plants will be in five years.

MODERATOR SNODGRASS: This year there's a new hormone on the market called Root Miracle. I purchased it to try to find out if this Root Miracle will help to root the Loderi series of rhododendrons. It's a liquid that you immerse the cutting in overnight — ten hours on the hardwood cuttings; next year we will know whether that works. We've had real good luck rooting Britannia.

MRS. DREW: I used Root Miracle last year on several different things. I had very bad luck on the rhododendrons I put in early; I find you do have to have very hard wood in order to have success, but when it does work you get wonderful roots — two or three times as many as you do with powder hormones, but never take real tender cuttings, like sometimes I do. I did find it worked absolutely wonderful with *grandiflora rosea* camellias. I've had lots of trouble with *grandiflora*, but almost everyone that I put in with Root Miracle really rooted well and had big roots. I feel that it is a question of when you take the cuttings and how long you leave them in the solution. I think, myself, that on their schedule they have indicated too long a treatment. I think you can burn the cuttings. Another thing you have to do with the Root Miracle is dry the cuttings off. Most of the time I leave them out over night. I make them in the afternoon, spread them out on the bench, let them dry overnight, put them in the solution in the morning. With the *grandi-*

flora camellias, I think I left them in four to five hours, and it did work.

MR. ED WOOD: One thing on this Root Miracle; basically, as I understand it, the active ingredient is indolebutyric acid. If you are used to using a dry powder, I think you are going to find, as Mrs. Drew says, that when you put a very succulent cutting to soak overnight in this solution you are going to get into trouble, no matter what it is.

MR. RAY BURDEN: Earle of Athlone is a comparatively difficult rhododendron to root; I have had good success in rooting it by using Hormodin No. 3 (indolebutyric acid) in pure sand, no peat moss. There may be a reason why that particular variety does not do well in peat moss.

MODERATOR SNODGRASS: Does anyone else have a real good tip? Bill Curtis.

MR. BILL CURTIS: You are all interested in saving money. I found that if you use for bottom heat the heating cable that the heating contractors use for wall heating or ceiling heating, that you cut your cost about in half; its real good cable; you just get the length that you need for your particular rooting bed. Go to one of your electric supply dealers. You can save yourself a lot of money.

MODERATOR SNODGRASS: We'll resume now with a talk by Bob Whalley. He's going to talk about custom propagation of rhododendrons. Mr. Whalley!

CUSTOM PROPAGATION OF RHODODENDRONS

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Actually, as you may know, there is no difference in the propagation whether custom or otherwise, but we do quite a lot of custom rooting.

When the cuttings are ready for rooting, that is, if they are brittle enough to snap off rather than bend, our customers bring them to us, often in clean wet burlap bags or, better yet, in plastic sacks. This test does not always hold good, as a few types actually should be put in when they are soft or even sticky, but it is a general rule. We urge that they be brought to us as soon as possible after cutting, so they will be fresh for making up. We usually make our cuttings about 4½" or 5" long with a slanting cut on the end and a single, medium-deep wound. We pull off the bottom leaves and any flower buds, leaving the top 6 or 7 leaves, which we cut into half, so as to allow the air to circulate through the flat. We root our cuttings in flats and use a mixture of two-thirds sharp river sand, one-third peat moss, well