

We grow all our plants in flats, 20 to a flat, and keep them in the greenhouse or plastic house until all our field work is done, generally by the 15th of June. By the time we are ready to plant, the flats are a solid mass of roots and have to be cut into squares for planting.

We line the plants out in beds 7 ft. wide with 6 plants to the width of the bed, same spacing both ways; that gives them enough space for two season's growth. After planting, we spray with Simazine, at the rate of two pounds per acre, for control of weeds.

From then on they are watered and fertilized just like large nursery stock.

Our soil is a heavy clay, not too good for growing rhododendrons, but with lots of sawdust tilled in, it seems to be all right. By lots, I mean at least six to ten inches. Any kind of sawdust is all right — cedar, fir, hemlock, or even barkdust.

Fertilizing has to be watched very closely. Plants will starve without lots of plant food. Start with enough to make you lose some sleep, then do it again in about ten days. Then watch your weeds, if *they* are happy, the nursery plants will be too.

If the weather gets hot, which it seldom does here, we water the rhododendrons right in the middle of the day even when the soil is moist. We did have one or two days in the 90's this year.

MODERATOR SNODGRASS: The next subject is to be the seed production of Exbury type azaleas. Our speaker is a rhododendron grower, as you guessed. He has traveled in Europe and picked up a lot of new introductions. He is President of the American Rhododendron Society, very active in horticulture and has introduced a lot of new hybrids. John Henny!

### EXBURY AZALEAS

JOHN HENNY

*Henny & Wennekamp, Inc.*

*Brooks, Oregon*

First of all it probably would be well to define just what is meant by the term, Exbury azalea. This is a strain of azaleas that was developed by the late Lionel de Rothschild at Exbury. It was developed by taking the best of the Knaphill varieties that Anthony Waterer had been working on and then crossing and selecting and recrossing and selecting until the strain developed into what is now called the Exbury strain of Knaphill azaleas. These are different from the *mollis* types in that they flower for the most part from two to three weeks later in the season. They have much larger flowers with rounded instead of pointed petals. The flowers tend to lay back flat instead of funnel-shaped and they are fleshy and of heavy substance. Also the foliage colors quite well on most of them in the fall.

These azaleas, like most other deciduous ones, do not propagate readily from cuttings in commercial quantities. Grafted plants of deciduous azaleas are not very satisfactory in that they tend to sucker quite freely and if these suckers are not religiously removed they will soon take over the graft.

For this reason we have been attempting, for the past 15 years, to grow these plants from seed and get them so that they can be sold to color without having seen them bloom. This we have been able to do with the yellows, orange, and orange-reds. The whites and pinks have, as yet, escaped us. However the white and pink crosses that we have made, and are still making, give us huge flowers of good substance, interesting colors and some of them fully double, but only 65 to 70 per cent in the color that we want.

It has also been our experience that all of the plants do not necessarily make good parents so that in crossing these plants, accurate records should be kept so that the good combinations can be remade and the inferior ones eliminated. We have seen some really poor forms that are being offered as Exbury azaleas.

We usually sow our seed between August 1 and 10. Germination is rapid from seed that was harvested during the previous January. However, sometimes the days get short and cloudy by the latter part of September and the seedlings just do not grow on to get large enough to pick off readily. If this happens a 150 to 200 watt light bulb left burning over the seedlings for three or four weeks usually will keep the seedlings growing. We plant the seeds in flats that have been filled to within an inch of the top with screened peat moss. The seeds are sown on top of the peat and are not covered with anything but a glass, which is left on tight until the seedlings start to root into the medium. The glass is then slowly raised every day or two until it is removed entirely. Morton Soil Drench C is used as per directions to eliminate damping off fungi.

The seedlings are usually ready to pick off by late October or early November and we do this at our leisure until the first of the year. We use a mixture of about ten percent sand, the balance peat moss, for the medium to pick them off into. The seedlings are planted 72 to a standard Oregon nursery flat, which is 15 x 20 inches. The flats are also dipped every year in a two percent copper-naphthenate solution. This not only makes the flats useable for many years but also stops any wood rotting fungi that will sometimes appear. The seedlings are then left in the flats until the following June or July by which time the greenhouses are empty of rhododendrons. They are then transferred into the benches and left there until the middle or latter part of September, at which time they are planted in beds in the open fields to be left there until they are budded.

We have found that by handling them in this manner we can save almost a year's time in growing the plants to flowering size. Also the seedlings can be picked off when we have more



time than we would have in the late spring, which would be the time to pick off if the seed was sown in late December or early January.

MODERATOR SNODGRASS: Now who has the first question? Yes, Frank.

MR. FRANK DOERFLER: This is for Bill Menke. What type of sawdust do you use and are there any weed problems from the seeds of your sudan cover crops?

MR. BILL MENKE: On the first question, Frank, sawdust: we take any kind that we can get. Very often we get cedar. We get hemlock. We get fir. We prefer fir, and we'd rather have bark dust if it didn't cost so much. It doesn't seem to make a whole lot of difference. As to the Sudan grass seed, I don't think it reseeds because we kill it before it goes to seed, before it is completely mature. There are a few seed pods, but I don't believe they were mature.

MR. ALBERT LOWENFELS: What medium is used in the flats for planting azaleas seeds?

MR. JOHN HENNY: When we plant the seed we screen horticultural peat moss and use the standard Oregon nursery flat. The seed is then sown right up on top of the peat, not covered — only with a glass — the glass is covered then only with paper. Then when the seed first starts to sprout, the paper is removed. This is done in the greenhouse. By the time the seedlings are beginning to touch the glass, then we slowly start to raise the glass daily, until we finally remove the glass entirely. There will be periods as we start to raise the glass when there will be rather heavy condensations of moisture; if this is the case and if I am in a hurry, I just turn the glass over and put the dry side down. If I have a little extra time I will wipe the moisture off. The mixture we use when we transplant from the seed flat into other flats is the same type of peat moss again only we do put in some sand to keep the mixture open so that the water will drain down rather than forming a flat coating on top which can get almost impervious to water.

In the spring when the plants start to bloom or start to grow — usually along in early April — we do start then, about every ten days, using about three tablespoons of liquid fish fertilizer per gallon of water and feeding the plants about every two weeks just to keep them coming along and getting nice and sturdy. A gallon of water probably would be adequate for about 30 to 35 flats; we then wash the fertilizer in with water.

MR. PERCY EVERETT: A question for Bill Menke. How soon after the sudan cover crop is tilled into the ground can you plant?

MR. BILL MENKE: Right away, as quick as we get the ground in shape.

MR. PERCY EVERETT: After the Exbury azaleas germinate how long do you attempt to keep them growing before they go dormant?

MR. JOHN HENNY: We don't make any particular effort at this. It seems that with these fall seedlings, if they go dormant, they don't show it because the foliage stays on usually for about a year or year and a half. They just don't drop these small leaves at all. We have transplanted them as much as 6 or 8 months later.

MR. PERCY EVERETT: Did you have any trouble with your seedlings going prematurely dormant?

MR. JOHN HENNY: No. Not in this area.

MR. ROBERT BODDY: Mr. Menke, what is the program for pinching or pruning the field-grown rhododendrons that are grown in the sun?

MR. BILL MENKE: Most of my plants are planted right out in the full sun. From the liners I don't do any pinching whatsoever the first year. I just let them go ahead and grow. They look lanky. We do our pinching after danger of frost the next spring. Sometimes we cut way down on them, that is, we cut down into the first year's growth. We generally get two growths on a liner in the summer time. We cut one completely off to get a branched plant. In case there is a late spring frost with a warm period before it, sometimes the plants start growth — start the dormant buds and then you're in trouble, because you lose the buds — so that's why we do our pruning, not pinching. We prune, in late May.

MR. ROBERT BODDY: What about your larger plants, your three and four year old plants? Do you use the same procedure?

MR. BILL MENKE: Generally there isn't any pruning necessary. If the plant is started out well-branched, near the ground, we just let them grow from then on. Some varieties, Cynthia for example, tends to grow rather lush and leggy so sometimes we cut the top growth off, but most of the others, once they are started right from the liner, we just let them grow.

MR. HALL: I would like to ask Mr. Henny another question about planting his azalea seed. Do you plant it on top of the peat moss? What age or stage of seedlings would you transplant first?

MR. JOHN HENNY: We plant directly on top of screened peat moss, planting about the first week in August. They're usually ready to pick off about the latter part of October. It will depend on the season. If we happen to have a lot of sun and bright weather with nights warm, they'll come along faster than that. Ordinarily, though, about the latter part of October, which would be 90 days.

MR. BRUCE BRIGGS: Mr. Whalley, in cutting back the leaves on rhododendron cuttings, does the angle of cut have any effect on fungus development?

MR. ROBERT WHALLEY: We haven't noticed any, Bruce, so I wouldn't be able to pursue that. We haven't made any study of it.



MR. BRUCE BRIGGS: The reason I was asking is that some claim that if you cut the leaf on a slant the water drains off better. If you cut it flat, the water would lay on top of the leaf and you are more apt to have some rot start on top of the edge of the leaf.

MR. ROBERT WHALLEY: We haven't noticed anything in this regard. Many of our people do come through the greenhouses and want to know why the leaves were cut. There is a margin where the leaf is cut. But we have never had any rot problems.

MODERATOR SNODGRASS: I might just add one thing. On these smaller leaf cuttings, I don't believe we've cut the leaves. It is just the larger ones that are cut to provide air circulation.

MR. HALL: Mr. Whalley, what mix do you use for starting your rhododendron cuttings?

MR. BOB WHALLEY: Two parts of sand — sharp nursery sand — to one part of peat moss. We use a finer grind of peat moss in our rooting medium than we do for transplanting.

MR. BILL CURTIS: This is for Harry Carlson. Do you have any trouble in rooting *Juniperus siberica* or *jackii*? Is there anything in timing to help you root them?

MR. HARRY CARLSON: So far we haven't had any trouble at all. They seem to root quite readily — as easy as *J. tamariscifolia* or the other junipers.

MR. BILL CURTIS: Do you put them in early or late?

MR. HARRY CARLSON: In October and the first part of November. As a rule we put them in then, and with not too much heat and they are rooted by February or first part of March. They root quite readily for us.

MODERATOR SNODGRASS: Incidentally, the only problem I have ever noticed with *Juniperus siberica* or *J. jackii* is that they are tough to transplant. They are real good to grow in containers. Personal observation. Is that true, or are you successful in digging them from the field and having them grow on?

MR. HARRY CARLSON: Well, so far, they grow pretty well for us in ball and burlap. They are doing all right.

MODERATOR SNODGRASS: Apparently Harry Carlson hasn't had my experience.

MR. O. M. HELTON: Is it general in Oregon and this area to root cuttings in flats rather than in open benches?

MR. ROBERT WHALLEY: We handle different types of plants. We find the handling is actually one of the primary reasons we prefer flats. Once we have used the flats in propagation, we never use them again. We reuse our flats in transplants, and then send the flats with plants out to the different customers. It's actually ease of handling for us. Because of our particular business we have many different varieties of plants

that we handle at the same time and different locations in our houses — in other words, we might be feeding plants at different houses at the same time.

MR. O. M. HELTON: I was aware of that, but is this a general practice in propagation in this area — in flats rather than in open beds?

MR. ROBERT WHALLEY: Probably the primary reason we have gone to flats is that once you have filled the bench completely full of sand, put all your cuttings in, and then you have heating element trouble, then you're going to have a dig into your medium and disrupt the growth of the cuttings. So we would prefer to be able to pick up the flats and expose the elements. This fall I had a couple of cables that have given me trouble already and I would hate to have gone into those beds without the flats.

MRS. WHALLEY: I believe, though, that it is not a common practice in this area to use flats. I think it is much more common to plant directly into beds. I think we are one of the exceptions.

MODERATOR SNODGRASS: We plant in benches. We have hot water pipes so we don't have this heating cable problem. I think probably more of the growers in this area plant regularly in benches rather than in flats.

MRS. LEONA DREW: I have rooting beds on the ground with just lift-up covers. I don't have much room. I use flats because some species root easily and I can take out the flats and put them in another cold frame that is heated with cables and start over again and put some more things in. Sometimes I do that about three times a year. I get more material propagated that way.

MR. FRANK DOERFLER: What about the nodules or callus knobs that appear on the base of cuttings and what do you do with them — take them off or what?

MR. BILL CURTIS: *Juniperus tamariscifolia* can be very bad about this. If I am short of cuttings I will pull the callus knob off and put the cutting back and in 30 days time there will be a real heavy root system. Some things like the *Magnolia grandiflora* will also form a callus knob. I put them back and in about thirty days they'll root again too. The only thing is that if you use a hormone on any of these plants that have developed a knob, you had better put on a pair of gloves because there is some effect from the hormone that will cause a roughness to the knob which will cause discomfort to the fingers as you pull the knob off.

MODERATOR SNODGRASS: Bill, do you re-dip the cuttings in hormone after you've removed the knobs?

MR. BILL CURTIS: No, I don't.

MR. ALBERT LOWENFELS: What type of wound is generally used on your cuttings?



MR. ROBERT WHALLEY: We cut through the cambium area. It is an open-faced wound that is approximately an inch long and  $\frac{1}{4}$  inch wide.

MODERATOR SNODGRASS: I might add on that we have experimented with wounding and we also use this type of wound. We make a straight angle cut — and then it doesn't matter to us which side we wound whether we flip the cutting over and cut through the cambium with a slice, or take it on the same side as the angle cut. Others make almost a point, cutting both sides of the scion equally and bring them to a long point. Other people take the tip of their cutting knife, and after they make the normal cut on the scion — the angle cut — they flip it over, just take the tip and cut just a little slice down into — not a slice off the cutting, but a cut into the cutting — and they have had good luck. So it sort of boils down to whatever works best for you.

MR. FRANK KAMATA: Could we hear something about the use of a copper screen to induce root branching.

MR. PERCY EVERETT: The forestry people have put a copper screen under the seed bed, I'd say fifteen inches under the soil. When the seedling root gets down there the tip is killed. The results in a very nice branching of the root. I tried this scheme in raising some of our native oaks and pines, and I can vouch for the fact that this procedure does a very good job. Rather than getting an extremely coiled root system into cans by taking the seedling out of the flat, we grow them in seed beds and then transplant them directly to the field. That way we have gotten away from this terrific problem of coiled roots which you people with rhododendrons and azaleas don't worry about. Those of us who grow trees do have this problem. It's a very serious problem that the nursery industry needs to do something about because when you sell a person a tree with an extremely coiled root system you're doing him a disservice. This copper screen is used primarily on seedlings and it provides a much better root system rather than the long, wiry, winding root which in the past has been a problem to the eventual consumer and to the nurseryman.

MR. DAN SCHMIDT: Why use the copper screen when you can undercut to cause root branching?

MODERATOR SNODGRASS: We do undercutting to provide the feathering out of roots but this copper screen may do real well when the seedlings are grown on not quite so large a scale operation or when the seedlings are grown in narrow seed beds.

MR. DAVID A. LAWYER: Has anyone used Clorox or Purex as a preventive of soil problems in the greenhouse.

MR. RALPH MOORE: In the propagation of miniature roses we have been using Clorox for the past year and a half or two years. We have used it in various concentrations — 2 to 8 teaspoons of the concentrate per gallon of water. It seems like the

plants can stand quite a variation. We've had no difficulty. We have even dipped freshly-made cuttings right in these Clorox solutions, and still there hasn't been any difficulty. One of the main reasons we've done it is because on one or two varieties of roses we have had considerable incidence of crown gall and it occurred to us that this might be a preventive, and so far it has apparently worked very well.

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## SATURDAY AFTERNOON

October 5, 1963

This session convened at 1:30 P.M. with Wayne Melott, Moderator, presiding.

MODERATOR MELOTT: When I started in the nursery business about 30 years ago, we had one apple rootstock, French Crab; two cherries, Mahaleb and Mazzard. We had one plum root, Myro. We had one peach root, Lovell plus Muir and about everything else they could mix up into the bag, but that's all we had, just a few rootstocks. Now look what we have. You can't even count them. You haven't got enough fingers, toes, arms and legs all together to tell how many Merton-Mallings and East Mallings and Mazzard F-12-1's, Stockton Morellos and Mahalebs, Myros, and Myro 29's, and Marianna and just about everything. Give me the good old days! I am not going to say anything more about rootstocks because we have a real good program coming up. We have, first of all, a second generation nurseryman here in the Pacific Northwest, who is co-owner of the Pacific Coast Nursery Company, in business with his brother, John; they are located here in the Portland area and in Sunnyside in Washington. Martin's going to talk on seedling production. Martin Holmason!

### SEEDLING PRODUCTION

MARTIN HOLMASON  
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I don't believe that trying to cover the methods of seedling production in 20 minutes would be as hard as trying to tell you how to build an atomic bomb but I will have to try as I don't know how to build a bomb! There are many sides to the ques-