Propagating Rhododendrons From Stem Cuttings

In tackling the many problems which had to be dealt with, we concentrated on one variety, Rhododendron Roseum Flegans. This is one of the most easily rooted of the varieties which we normally grow. Using this variety we commenced a series of experiments which began to show us what Rhododendrons need in order to root and from this base we have worked out into other and more difficult varieties until now we are rooting fair quantities of quite a number including many of the so-called "red flowering" types.

We have found that 12 different factors closely affect the results obtained and in order to achieve good results, it is necessary to know just how to balance these factors for each of the varieties concerned.

TIMING—This is one of the most important single factors. We have found that the difference in percentage of rooting can be as much as 50% with only two weeks difference in the date of taking the cuttings. For instance, Ignatius Sargent taken on August 16th gave 36% rooting while the cuttings taken from the same plants on Sept. 5th gave 74% under identical conditions of treatment. Similar critical timing has come out in many other varieties and under our conditions here in southern New Jersey, we have found that the period from mid August to the end of September is the best.

TYPE OF CUTTING—Thin cuttings taken from side growths have given consistently higher percentages of rooting. Strong vigorous terminal growths are the worst. Similarly cuttings taken from the underside of large trees have rooted very much more readily than cuttings taken from the vigorous growing top growths.

MAKING THE CUTTINGS—We gather cuttings early in the morning when the plant material is fully turgid. We immediately place it in a cool cellar and damp it down to keep it cool and moist while the cuttings are prepared. We have found that short cuttings of 3-4″ in length root more readily than longer ones. If long ones are made and inserted they tend to root half-way up the stem at a point closer to the surface of the rooting medium and the insertion of the long stem seems only to delay the rooting process. There seems to be no obvious ease in keeping a heel on the base of the cutting. We have obtaind just as good rsults with or without a heel. The leaves on the individual cutting are reduced to a maximum of four unless they are rather small when perhaps five or six may be kept. No leaves are helfed as is sometimes produced. We retain leaves untouched or remove them entirely.

WOUNDING—This is the second very important procedure which we practice. I do not say that Rhododendron cuttings cannot be rooted without wounding but we have proved time and again that by carrying out this procedure we greatly increase the speed and total percentage of plants rooted. The cutting is prepared in the normal way, excessive leaves removed, the base of the stem is trimmed to the desired length and then using a sharp knife a thin slice is removed from the base of the cutting for a distance of about 1½. This slice cuts through the outer corticle tissue and exposes the cambium layer beneath. We believe it best not to cut right through the cambium laver if it is possible to gauge the cut this accurately but when unskilled people are operating on large quantities, every variation can be found. The actual depth of the wound, as long as it does not cut the stem in half, seems to be not too critical. We have found some variations respond even better to a double wound of this kind whereby a similar slice

is removed from the other side of the stem leaving two small sections between the cuttings intact.

HORMONE TREATMENTS—There are growers who say that there are no results obtained by the use of hormones which the skilled propagator cannot develop without them. This is an argument to which we do not subscribe. We believe that used intelligently the plant hormones have a most definite place in modern plant propagation and we use them extensively. For our easily rooted varieties we use a powder containing 6 mg/g of indole utyric acid. This is the strongest commercially available powder in this country. This strength suits admirably the variety Roseum Flegans. However the results of our tests seem to show that many of the varieties of Rhododendrons would respond to very much more stronger treatments. For instance, the variety Dr. Dresselhuys was hardly effected by treatments with this powder. We therefore purchased some indolebutyric acid and mixed our own powder at a strength which would be 20 mg/g and this greatly increased the number of varieties which were successfully rooted. Cynthia gave 15% rooted with the weaker powder but 83% rooted with the stronger one. Many varieties require much stronger hormone treatments in order to be stimulated into the production of roots.

Even although we were using these stronger powders which for all normal plants would be quite lethal, some of the extremely difficult red-flowering varieties still resisted our efforts and remain untouched by these stronger powders. This last year, therefore, we have tested some powders which are 12 times as strong as the strongest one we had used to date. We have obtained some clear-cut results which seem to show that our arguments were right. They are however on only small test quantities and these results have to be interpreted this year in a commercial way to establish their true value.

MEDIUMS—We have tested a number of different rooting mediums, including vermicolite, but we prefer a mixture of about 90% acid type or German type peat and 10% clean, sharp sand.

INSERTING THE CUTTINGS—We insert the cuttings fairly close together in the benches so that the leaves support each other in an upright position. It is important not to insert the cuttings too deeply. Nothing is gained thereby because roots are only produced higher up the stem close to the surface. We have the cuttings so that if it is 3-4″ long we insert about 2-2½″ in the rooting medium. All leaves should of course be clear of the bench.

BOTTOM HEAT—We maintain a steady bottom heat of about 70°-75°. Cuttings taken in August will respond to a very high temperature but if they have not rooted in three months then they are more likely to do so if the bottom temperature is dropped to 60°

HUMIDIFICATION—This is the third point which we have found to be of extreme value in the rooting of Rhododendrons. For the past two seasons we have maintained our propagating houses close to 100% as possible. This has made a marked difference in the percentages rooted. I would quote one example. On the variety American, cuttings taken without humidification gave use 6% rooted while cuttings taken from humidification gave 80% rooted. All other factors were similar. This is a somewhat extreme example but the trend is consistent throughout.

AIR TEMPERATURE—As cuttings are taken in August and September when we normally experience very hot weather, the air temperature in the greenhouses even under the fog system can go above 100

which is definitely detrimental. We try to keep the air temperature at a maximum of 85 by running cold water down the outside of the greenhouses and maintaining the fog system running through the day inside. Light shading may be necessary in excessively hot weather.

LIGHT—The question of shading brings up the matter of light intensity in the propagating houses. We believe that this has a very definite bearing upon the results obtained and we try to keep the maximum light intensity comparable with the proper control of air temperature. Humidification, air, temperature and light are all inter-connected and all require very careful watching to maintain a proper balance.

ROOTING—Under the conditions described above, the cuttings will rapidly form a bed of callus and will then apparently remain dormant for some time. They may rest in the bench for 8-10 weeks with little activity and then suddenly they will commence to root. It is necessary to be very careful in the handling of the rooting cuttings because in many instances the roots are lightly attached to the stem of this stage and break off very easily.

RESTICKING UNROOTED CUTTINGS—Cuttings which are otherwise healthy but which have not rooted or which have one or two roots just commencing should be restuck into the bench. This is particularly true of the red-flowering varieties and slower rooting types which sometimes require as long as six months to produce a proper bell of roots. Speed of rooting will vary according to varieties and those which are slow must be treated with patience.

POTTING—The cuttings are immediately potted into 3″ pots into a suitable acid and peatty pot mixture and returned to the houses from whence they have just come. The object of this is to keep them in a similar atmosphere and to encourage them to produce a sturdy pot ball of roots before being taken from the greenhouse and placed in frames for wintering. Once firmly established in the pots, the plants can be taken out and plunged in frames in a bed of peat so that the top of the pot is covered and they will come through the winter with no difficulty whatsoever.

These plants set out early in the spring will develop into strong 10-12″ plants in the first season.

Chairman Scanlon: Thank you Jim that was to the point and should certainly give us plenty of ideas to digest.

Considerable discussion ensued on the formation of a permanent Society. Finally the chair appointed a committee on organization to draft a constitution. The first meeting of the committee was set for the evening after dinner.

Chairman Scanlon: The next speaker unfortunately could not be with us. Forrest Strong is one of our good friends and we are all sorry he could not make it. His paper will be read by Dr. Roger U. Swingle. Thank you Roger.