

will develop a leader. In 3 years a 5 to 6 inch well shaped plant will form.

HANS HESS: Len, would you give us some idea of the root structure you have on the cuttings? Our experience is that you have 1 to 2 roots and subsequently develop a poor root structure.

LEONARD SAVELLA: When they root the cuttings have 1 to 2 roots. After rooting the cuttings are transferred to flats containing a peat and sand medium. During transplanting, the root system is pruned. You will be surprised at the amount of new root growth you get from that pruning. The plants are again rooted/pruned when set in the field. Root pruning is very important.

JOERG LEISS: Was your hormone treatment important? We found that hormone treatment made no difference.

LEONARD SAVELLA: We have not tried rooting without a hormone.

CARMINE RAGONESE: What is the purpose of dipping in water after making the cuttings?

LEONARD SAVELLA: To prevent desiccation.

WILLIAM SCHWARTZ: What was your temperature above and below the cuttings?

LEONARD SAVELLA: No bottom heat was used.

## **HOW I SOLVED A DIFFICULT PROPAGATION PROBLEM**

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There is an implication in the title of this panel that parallels a common misconception on the "ah ha!" theory of solving a problem or making a discovery. I suggest that the process is usually a gradual and evolving one rather than a sudden revelation. There is an analogy, for instance, with the "discovery" of a new cultivar. It generally takes 15-25 years to get a new cultivar to market, so, when do we say it is new? Was it when the cross was first made or when the plant was first selected? To the horticulturist or nurseryman neither event may be remarkable for it may be several years later before he is certain that the cross or selection is truly unique. Even then his excitement may be tempered until he is certain the plant can be propagated and he sees how it is received in the market place. Likewise, timing of when a problem is

solved may be as difficult to pinpoint as to say when a discovery was made.

The problem I confronted was vegetative propagation of mountain laurel. I was breeding and selecting beautiful cultivars but had a poor record for propagating them from cuttings. The approach used to solve the problem was, at least in hindsight, simple and straight forward. It entailed determining what had been done by calling, writing, or visiting those with experience; attending meetings such as IPPS to ask questions; and searching the literature, such as back issues of the IPPS Proceedings. The propagation methods reported to work best were tried and then the most successful components of several systems were combined.

I did this and soon learned the conditions necessary for good rooting; that is, cuttings taken about October 1, placed in a medium of 2 peat: 1 coarse perlite, bottom heat 75°F, and placed in a humidity case (2,3). Wounding and auxin treatments have not proven critical under these conditions. However, Fordham (1) and Williams and Bilderback (5) have reported good response with auxins such as talc treatments containing 1,000 ppm of 2,4,5 TP or a 5 sec. dip in IBA plus NAA at 2500 ppm.

Success was still not outstanding, however, for I was dealing with a species that is difficult to root under the best of conditions. Perhaps, because I was working with several selections, it soon became apparent that ease of rooting in mountain laurel varies among selections just as it does among rhododendrons. Cuttings taken from different plants at the same time and treated the same way responded quite differently. Thus, we tested many plants and selected ones whose cuttings root reliably year after year. Named cultivars released that are relatively easy to root include 'Pink Surprise', 'Pink Charm', 'Nipmuck', and 'Quinnipiac' (3). Although the results vary from year to year, selections such as these yield at least twice as many rooted plants as do mountain laurel plants not selected for ease of rooting (60-90% rooting compared to 5-50% rooting, respectively).

The problem of vegetative propagation of mountain laurel has not been truly solved, but enough progress has been made so that more nurserymen now propagate named cultivars. Past experience with other plants suggests that there will be further incremental improvements in rooting mountain laurel cuttings. In addition, a dramatic change is presently occurring with the onset of tissue culture propagation. Several laboratories have successfully cultured mountain laurel and at least one commercial nursery lists such propagated plants for sale.

Other means to aid in the vegetative propagation of this species have been demonstrated. Cuttings from 1-2 year old seedlings root readily and, these seedling stock plants, when grown from seed of the right controlled cross, come true-to-type. For instance, plants of miniature habit (*K. latifolia* 'Myrtifolia'), when crossed with miniature, yield 100% miniature (4). However, this technique has not been adopted commercially.

My advice in trying to solve or at least improve a propagation method is to take advantage of the best features of systems that already have been demonstrated to be successful. Keep testing new and promising combinations, and repeat the successful ones. If you cannot be the one to improve the technique, at least, be ready to adopt improvements discovered by others. Be delighted if you solve the problem suddenly and completely, but be realistic in expecting solutions to usually come slowly and gradually.

#### LITERATURE CITED

1. Fordham, A.J. 1977. Propagation of *Kalmia latifolia* by cuttings. *Proc. Inter Plant Prop. Soc* 27:479-483.
2. Jaynes, R A. 1975 *The Laurel Book*. Hafner Press, New York.
3. Jaynes, R.A. 1979. 'Nipmuck' and 'Quinnipiac', red-budded selections of mountain laurel, *Kalmia latifolia*. *The Plant Propagator* 25:22-12.
4. Jaynes, R A. 1981. Inheritance of ornamental traits in mountain laurel, *Kalmia latifolia*. *J. Heredity* 72:245-248.
5. Williams, R.F. and T.E Bilderback. 1980. Factors affecting rooting of *Rhododendron maximum* and *Kalmia latifolia* stem cuttings. *HortScience* 15:827-828.

LEONARD SAVELLA: Have you had any success in rooting the banded types?

RICHARD JAYNES: Very limited success. We have one selection 'Carousel' which is showing promise.

RALPH SHUGERT: Have you tried rooting, lifting and refrigerating for 4 to 6 weeks?

RICHARD JAYNES: Yes, with some limited results. Mountain laurel is not like rhododendrons. It probably needs closer to 8 weeks of cold to break dormancy. Some propagators have taken cuttings after the first of January for rooting. The problem has been rooting reliability.