A NEW POTTING SOIL MIX

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The purpose of this report is to describe a new kind of soil mix that has been very satisfactory for container-grown stock Our studies on container-grown stock at the laboratory during the past three years have been directed toward the objective of producing the best mix that could be easily reproduced and would present the best growing medium.

The mixes used in these studies varied widely and included soil-sand-peat, soil-peat, sand-peat, perlite-soil, perlite-soil-peat, perlite-peat (German and domestic), and perlite alone. Within each of these combinations, the percentage of the various ingredients varied in fractions of 25 percent.

These tests included 18 of the common varieties of commercial ornamental plants grown in the Northern latitudes of the United States. The 24,000 plants involved in this work were fed both solid and water soluble fertilizers of two basic types. One type was of a 4-1-1 proportion and the other type was a 1-2-2 proportion. The general conclusions reached from these studies are as follows:

1. Peat moss was essential in all mixes, but no advantages could be noted for it in a quantity of more than 25 percent in any of the mixes except for the perlite-peat combination. In this case 50 percent peat gave the mix a little more body.

2. Sand was excellent in maintaining a more porous mix for the first year, but became more difficult to wet after this period. Some sands presented a cement-like surface which made watering difficult. in lower New York it was very difficult to find uniformity in sand deposits. This caused considerable difficulty in reproducing similarity in mixes.

3. No instance was noted where the addition of soil contributed to improved plant growth. Since this observation is radically different from previous conceptions, the importance of soil will receive further study. If soil can be entirely eliminated there will be less difficulty experienced from contamination by soil diseases and insects.

4. German sedge peats appeared to be superior to domestic peats developed from woody plants for the growth of rhododendrons, azaleas, *Kalmia* and pieris.

5. The most flexible and uniform potting mix was a combination of peat and perlite*. This mixture was the lightest in weight and held the greatest amount of moisture. When dry it can be easily rewet throughout its entire mass within seconds. This uniformity in moisture distribution in the can is believed to be responsible for the more liberous root systems that developed in the mixes. Perlite keeps the mix porous, appears to resist decay, and does not become soggy. It holds moisture somewhat like particles of virgin soil.

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*Perlite is a porous, sterile mineral derived from volcanic rock which is exploded by high temperatures

MODERATOR COLE: If there are no questions for Dr. Baumgartner, we will go right along to a talk by Tony Shammarello, A. M. Shammarello & Son, Nursery, South Euclid Ohio, on the subject of rhododendron propagation. He will tell us of his experiences with cuttings.

Mr. Shammarello presented his paper entitled "The Propagation of Rhododendrons by Stem Cuttings." (Applause)

THE PROPAGATION OF RHODODENDRONS BY STEM CUTTINGS

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I have been propagating rhododendrons from stem cuttings for the past 20 years In the past it was a matter of luck in regard to the percentage of rooting obtained. However, with the aid of mist, polyethylene, and hormones, the percentage of rooting has increased and is consistent from year to year. Despite these new aids we have to adhere to the basic principles such as the time of taking the cuttings, the medium and amount of bottom heat applied.

I consider it of primary importance to have a stock block of plants to provide an ample number of healthy cuttings We take our cuttings from mid November to mid December, since this time of the year seems to work out well for the rooting of most varieties. A cutting of about one quarter inch in thickness and from two to two and one half inches in length is used. Three or more medium sized leaves are generally left on a cutting, although if the leaves are quite large we trim off a portion of the leaf. Cuttings are then heavily wounded, dipped into 2 percent indolebutyric acid and inserted in the medium. The medium is prepared by thoroughly mixing together 80 per cent German peat, 10 per cent sharp, silica sand, and 10 per cent styrofoam. We maintain a temperature of 75 degrees in our rooting medium. At the time of sticking we thoroughly water the cuttings in, and usually they will require no further watering until they are lifted and potted. The greenhouse bench, which contains the cuttings has a 10 inch high polyethylene covered frame built over it. This cover, which is completely sealed is kept on the bench until the cuttings have rooted. Rooting usually takes place within 60 to 90 days.

We plant our rooted cuttings into a 3 inch peat pot and plunge these 4 inches apart in a 4 inch layer of Michigan peat in our greenhouse benches. They are then transplanted from the greenhouse after the 1st of June, and planted in beds 9 to 10 inches apart, under irrigation This is the procedure which has enabled us to grow rhododendrons on a commercial scale I hope this has been of some interest and I shall be glad to answer any questions which you may have later on. Thank you.

MR. ALBERT LOWENFELS (White Plains, N Y.): What is the source of heat in your greenhouse propagation benches, electric cables?