

## PROPAGATION OF ANTHURIUM CUTTINGS

THOMAS B. CROAT  
Missouri Botanical Garden  
2345 Tower Grove  
St. Louis, MO 63110

Recent improvement in the success of propagation techniques employed for general aroid collections prompts me to pass on the information to other members. Though I was not trained as a horticulturist, my trial and error procedures in the establishment of thousands of newly introduced aroids over the course of several years has of necessity educated me. Although I am still not satisfied with my loss rate, there has been so much improvement that I feel compelled to pass on this information in hopes of inducing others to report on successful propagation techniques.

In the past, cuttings and whole plants (usually devoid of leaves and most roots) were potted up directly after the shipment was received in an epiphytic potting medium (see Croat, 1979, *Aroideana*, Vol. 2(3) Appendix I., p. 81). This "direct-potting" method was not very successful especially if material arrived during the often cloudy, short winter days encountered in St. Louis. The rate of success with this procedure was often as little as 50%. Usually any plant which did produce a new leaf survived but many plants would simply languish for long periods without visibly growing and in time would rot. I attributed the failure of this method to the fact that an inactive plant was unable to remove water from the soil and the soil remained too wet, even with a moderate amount of watering. The direct-potting method was somewhat more successful, if the pots could be stored in well-illuminated warm areas; and least successful if pots had to be stored at the floor level or in shady areas. In such cases, especially in the winter months, the rate of loss far exceeded 50% of all plants.

Hearing that others had used layers of sphagnum on benches or in tubs to propagate aroid cuttings and being very short of space for propagation, it was decided to build a series of sphagnum beds midway between the surface of my benches and the floor. This was done by laying old pipe on top of the leg braces for each of 10 3' x 8' tables, then stretching 1" mesh chicken wire on top of this framework and covering the wire with a deep layer of unmilled sphagnum. Since shipped plants from an expedition usually arrive in large and frequent shipments the technique also provides for prompt handling of the material. After insuring that cuttings are properly marked with a permanent tag (usually aluminum or plastic with indelible writing) they are placed along the edge of the rack with the growing tip directed to the outer edges. They are then covered with an additional layer of sphagnum moss and watered periodically to keep the moss moist. Because of cold ground water temperatures in St. Louis during the winter months a system for pre-warmed water has also been developed by passing water through a series of steel tanks housed within the greenhouse so that it is preheated to room temperature between waterings. In addition, all tables are equipped with heating cables under the sphagnum moss to keep the bed temperature at a constant 70°.

This procedure, making use of sphagnum moss for propagation, has been much more successful than the direct-potting procedure. Plants are left in the sphagnum until they produce both leaves and roots. I believe it is especially necessary for a plant to develop good roots before being transferred to the potting medium.

Another advantage of the sphagnum propagating method is that it allows one to safely handle a great deal more material quickly. For example, our sphagnum beds, totalling about 225 square feet, accommodated about 2000 collections of various sized plants from the most minute to cuttings 7-8 cm in diameter and almost 1 meter long. For best success, however, one should go through the beds regularly to give special attention to plants that are not faring well, to remove dead plants and rotten parts; and to remove and pot up plants which have developed adequately. In our case, because of time limitations, this usually meant going through the beds about once every month.

The procedure would perhaps be even more successful if plants had been dipped in a fungicide, such as Banrot, before putting them in the sphagnum. We relied only on an occasional fungicidal drench of the entire sphagnum beds. Evidence of better growth on the sunny side of the sphagnum beds also indicates that this technique might be more successful if the sphagnum beds were on top of the tables in full sunlight (something we couldn't do for lack of space).

Finally, I should add a warning that the technique is not completely without its bad effects. For example, in a single case we lost all plants on one side (the shady side) of a single table to presumably some unknown infection. This loss of 90 plants was staggering and perhaps could have been avoided if the plants had been isolated from one another.

Despite these problems the technique remains the most generally successful that we have tried and it will be continued.



Figure 1. Sphagnum beds in green houses showing plants about three months after shipment from South America.