EXPLORING ROOTING MEDIA

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Many plant propagators recognize the value of oxygen in a rooting medium. This is evident in the literature of our Society. The word "sharp" occurs frequently when sand is used to support the cutting while in the process of rooting. Other defining words are used throughout the literature.

It is NOT my intention to discuss details concerning sterility, nutrient content, or pH of the rooting media. Rather, my concern is the oxygen content available in the media for active rooting.

B. A. Briggs states (I. P. P. S. Proceedings, 1966) if constant over-wetting of the cutting stem occurred when using the "air rooting" technique, poor rooting followed; if not, good rooting resulted. This demonstrates the necessity of a favorable water/oxygen relationship in the medium.

On Long Island plant propagators seek a commercial source of water washed "concrete grade" sand for the rooting medium. Very often the amount and value of the washing can be questioned. The mechanical analysis of a lot of sand delivered for the purpose of rooting a variety of cuttings showed 20% very fine sand and 5% silt.

Remember when the propagator pounded the sand around his cuttings in the sand bench? If the sand was a course, sharp grade, this was imperative; but if it was clogged with fine sand and silt, the rooting of cuttings was less than satisfactory. A friend of that era often made reference to the "milk bottle test" to determine a sand's potential as a good propagation medium. This test is as follows. First take ½ cup of sand in a quart bottle; add ¾ quart of water. Shake vigorously and allow one minute to settle. To read the results note the density of silt and clay in suspension. Note the quantity of very fine sand on top of the settled-out sand. If a very dense suspension of silt and clay exists, the sand should not be used. Also if a wide band of very fine sand appears in the settling, less than satisfactory results will develop. To clean a silt-loaded sand by washing is a laborious and costly task.

It is here, with sand containing very fine sand, silt, and clay that such materials as fibrous peat, vermiculite, perlite and styrofoam come to the aid of the propagator. Singly or collectively these materials in varying proportions are added to the sand. The addition of these materials decreases the bulk density of the sand. This results in oxygen bearing pores, and naturally the oxygen increase in the medium. When using a sphagmum moss peat medium, inorganic substances such as vermiculite, perlite, course sand and styrofoam lessens the soggy moisture build-up of the high water holding capacity of the peat.

The problem of imbalance in the water/oxygen relationship is intensified with misting. Excess water applied to maintain cutting turgidity, needs to be carefully avoided. Short blasts of mist at proper intervals should be the mode of application. Misting intervals of thirty seconds or longer, applied with time-clock regularity, may be cause for over watering and water/oxygen impalance.

This past season our nursery management students set up a series of tests with various media to demonstrate the points I have outlined. All cuttings were carefully selected for uniformity. The cuttings were misted with short blasts. the intervals between misting under the control of the 'Mist-a-matic'. The sand used in these demonstrations contained 25% very fine sand and silt. An average grade of sphagmum peat was used as well as horticultural grade perlite and #4 vermiculite. The species used in the demonstration were *Rhododendron obtusum, Cotoneaster microphylla,* and *Pyrocantha coccinea.* Twenty different media blends and straight materials were used. Sand, when used alone, produced the poorest results on all three species. Peat alone produced somewhat better percentages of rooting than sand alone. When peat in a blend of an equal volume of perlite or vermiculite, or a mixture of peat, perlite and vermiculite were used, the best results followed.

This test does not rule out the choice of sand as a good rooting media, but it does indicate the value of a clean sharp sand, free of very fine sand and silt. It also indicates a satisfactory alternative to washing the sand available to us. Further work along this line must be done to substantiate the concept of the water/oxygen balance imperative in a rooting medium.

MODERATOR REISCH: Our next speaker on the panel is a fellow citizen from Ohio, Mr. Richard Bosley, who will speak on ground bark as a growing medium.

GROUND BARK — A CONTAINER GROWING MEDIUM

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Introduction

The use of wood residuals, as a container medium, is becoming quite popular. Many nurseries are using proportions running as high as 80-100%. This utilization of wood residual materials has been made possible by the development of methods of stabilizing the product against nitrogen withdrawal from the growning medium.

I wish to acknowledge the great service that Dr. O. A. Matkin and his Soil and Plant Laboratory, Inc., has made to the industry as a whole and more specifically to our nursery in the development of wood products into suitable growing media.