

## ALTERNATIVE MEDIA FOR AIR LAYERING<sup>1</sup>

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Sphagnum moss has been the traditional medium used in air layering. Its desirable traits are a good water-holding capacity, good aeration characteristics, and a low capability to carry diseases. The difficulty of handling, wrapping, and tying a handful of wet moss make it a less than efficient system for mass production. Using a 1 in. bark ring girdle and sphagnum moss with either aluminum foil or plastic film required 3 to 3½ min., respectively, to apply an air layer (1). In addition, the cost of sphagnum moss is increasing and this, coupled with the cost of labor to produce an air layer, suggests a need to evaluate some alternative media and systems of air layer production.

Plant propagation classes at the University of Hawaii have experimented with different media as alternatives to the use of sphagnum moss. In addition, some new technologies have created potentially interesting materials which require evaluation.

One of the early substitute substances was called "Red Moss." It was a shredded form of the inner, fibrous redwood bark. It dried out faster than did sphagnum but was nearly as satisfactory as sphagnum for fast-rooting species. Red Moss was more difficult to separate to obtain a good handful, and the difficulties in applying it were the same as for sphagnum. It did not remain in our market too long, however.

The most successful alternative was the use of an expanded peat plug, the Jiffy 7. Once wet and expanded to full size, it was sliced part way through and placed around the girdled stem. Water retention was good and rooting was satisfactory, but the small volume of the peat plug was a limitation to development of a large root mass. The time spent in making the girdle, applying the slashed peat plug, and wrapping with aluminum foil was just under 2 minutes (1), a much more efficient operation than with sphagnum moss. A larger plug would be desirable, but the cost factor must be considered as well.

Castle and Cooke's Techniculture, Inc., in Salinas, California, developed a small peat plug bound with a rubbery space-age polymer for the rooting of cuttings. A sample was made for us to try out for air layering. It held water well, had a good volume for root development, and was easily handled and wrapped with foil. Rooting was satisfactory. The cost of a large plug may be un-

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<sup>1</sup> Poster presentation

economic, but on high value layers such approaches may have an advantage.

The phenolic foam blocks used for propagation also offer potential for use as easy-to-use air layer units. The present size of foam propagation blocks presents the same small volume disadvantage as peat plugs, but large sheets 2" thick may be carved to form blocks of suitable size and a central cavity is easily carved out.

Rockwool has been available for over 15 years and has found extensive use in propagation and culture of horticultural crops. It is offered in blocks of different size as well as larger slabs which can be cut to desired size. Water is readily taken up, but the wet weight of a saturated block may be too great and some draining must be allowed. A slice to the middle of the block permits its application to the girdled portion of a branch, and it is easily handled and wrapped as a single unit.

#### LITERATURE CITED

1. Myers, D. and R. A. Criley. 1980. Various cuts, media, and wrapping material used in air layering of *Schefflera arboricola*. *Hort-Digest* 56:5-7.

### **A NEW, EFFICIENT METHOD FOR EVALUATING ROOT GROWTH POTENTIAL OF PLANTING STOCK USING A ROOT AREA INDEX<sup>1</sup>**

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Root growth potential (RGP), the ability of seedlings to promptly and abundantly initiate and elongate new roots after transplanting, is an important and useful attribute of planting stock performance. However, it is generally laborious, tedious, and subjective to measure. A method was developed that employs aeroponic culture of seedlings in a root mist chamber (RMC) and measurement of root growth by changes in root area index (RAI) with a video camera and digitizing area measurement system. The

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