

Eucalyptus Trees Are Propagated From Cuttings

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Propagation of Eucalyptus trees by seed has been satisfactory for many years, since this was the only practical way of obtaining new plants. However, Eucalyptus grown from seed may show variation in leaf characteristics and tree shape due to cross pollination of flowers on trees which produce the seed.

Propagation of Eucalyptus from stem cuttings has been considered impractical, since the number of cuttings which rooted was very poor. Propagation by vegetative means entails more labor and requires more exacting conditions than plants grown from seed, but the added cost of vegetative propagation is feasible when a high percentage of the cuttings root. Vegetative propagation is important when one wants to maintain the same characteristics of the plant from which the cuttings were obtained.

Mist to Prevent Drying

The Department of Horticulture initiated an intensive program of propagating various strains of Eucalyptus from stem cuttings. This project was made possible by the installation of an automatic misting system which prevented loss of moisture from the leaves of the cuttings in the propagating benches. The misting system is time actuated and permits settings varying from one second misting out of every two minutes up to 30 seconds misting out of every two minutes.

The time setting of the system was adjusted at various seasons of the year to compensate for high air temperature and

low humidity which accelerated evaporation of water from the leaf surface. The misting nozzles have fine orifice openings which break up the water particles into a fog-like mist. The tiny particles of water cling to the leaf surface and minimize water loss from the leaves. Each nozzle delivers approximately five gallons of water per hour if allowed to run continuously.

Previous experience with plants classified as difficult to root has indicated that rooting of cuttings is more successful when they are exposed to full sunlight conditions in the greenhouse. Sunburning was not evident during late fall, winter or early spring, but slight burning was experienced during the hot summer months. The roof of the greenhouse was whitewashed lightly to reduce light intensity during the period of high temperature.

Use Growth Regulators

Concentrated growth regulators were used as a three to five second dip for the cuttings used in the experiment. These included a combination of Indolebutyric and Naphthaleneacetic acid in strength ranging from 4,000 ppm to 15,000 ppm in solution form.

Stem cuttings of Eucalyptus were made from young, succulent tip growth, four to five weeks old, also from firmwood and hardwood material. The leaves on each cutting were reduced to two full leaves to prevent excessive loss of moisture. Each cutting was approximately four inches long and the bottom inch was dipped in the growth regulator solutions for a three to five second dip. After dipping, the cuttings were placed in flats containing No. 2 perlite and then placed under the misting system.

There was considerable variation in the rooting between the six species of Eucalyptus, which included *rostrata*, *stuartiana*, *polyanthemos*, *leucosylon*, *microtheca* and *oleosa*. The cuttings made from hardwood and greenwood did not root as well as those made from firm-

wood. At the end of eight weeks the cuttings were removed from the rooting media and evaluated for rooting behavior.

Eucalyptus *rostrata* and *stuartiana* had the highest percentage of rooted cuttings with 40% rooting. The solution containing 4000 ppm of indolebutyric and indoleacetic acid gave the best rooting response with all types of wood and all six species. Practically all of the cuttings showed evidence of callusing, but many failed to initiate roots even when they were allowed to remain in the rooting media for an extended period of time.

Study Continuing

The rooted cuttings of all six species have been potted and will be planted outdoors this spring for observation. These trees will be checked for uniformity of leaf characteristics, shape and leaf color.

Intensive tests have been initiated for rooting Eucalyptus, including evaluation of the season of the year in which cuttings were obtained. Cuttings of Eucalyptus are being obtained once each six weeks from specific trees throughout the year. Wounding techniques will be used on the basal end of the cuttings to encourage a greater area for rooting, and media with different pH will be used in future tests.

Obtaining superior strains of Eucalyptus through selection and vegetative propagation is inevitable. Eucalyptus resistant to iron chlorosis is entirely possible since our present species grown from seed may produce such a tree. If one is found, it may be possible to propagate it vegetatively to maintain this desirable characteristic.

BELOW, at left a Eucalyptus cutting successfully rooted; smaller cuttings at right are typical of type used in this work.



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