

## WHAT WE KNOW ABOUT AIR LAYERING

by

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Air layering is one important method used to obtain vegetative propagules from desired stock. The desirability of using this method over others depends to some extent on the use to be made of the propagules. If they are to be used as clonal stock in a seed orchard, the method that gives the greatest number of "takes," or one that gives the earliest flowering would be selected. Where clonal stock is to be used as a means of testing certain characters of a parent tree, such as gum yield or growth, and the influence of the rootstock might cause complications, grafts cannot be used--only air layers or rooted cuttings are suitable. In trials thus far on older southern pines, air layering has been more successful than the rooting of cuttings.

Layering, or the growth of roots on a plant branch, occurs naturally on many plants, including many of the conifers. Layering in nature occurs when branches come in contact with the ground and are covered by soil, moist litter, or moss.

According to Cooper (1911), Mayr noted that members of the genera *Abies*, *Picea*, *Pinus*, *Larix*, *Pseudotsuga*, *Chamaecyparis*, and *Cryptomeria* had all been observed to reproduce by layering. In Scotland a specimen of *Picea excelsa* had many natural layers from the trunk and others from the primary substems so as to form a double series of young trees in two concentric circles around the parent trunk. Cooper also refers to Vogtherr, who speaks of the layering habit occurring frequently, though often overlooked, in moist habitats in northern latitudes and in mountain regions.

A method of layering whereby roots are induced to form on a part of the tree not in contact with the ground has been in use by the Chinese for some 20 centuries. It is known to the horticulturists as air layering, Chinese layering, marcottage, mossaing off, or vegetative propagation from gootes. In air layering, a handful of moist sphagnum moss or other moisture-holding material is placed around the stem where a wound or girdle has been made, and this in turn is covered by moisture proof wrappings. The branch or stem is usually completely girdled to inhibit the translocation of photosynthate material through the phloem tissue. The phloem and cambium should be removed, but all xylem tissue should be left intact.

During 1940-1941 Lasschuit (1950) induced root formation on branches of *Pinus merkusii* by air layering. This species of pine grows in the jungles of Indonesia. Lasschuit had noticed adventitious roots growing along the wounds of a split in a forked tree. This observation prompted him to attempt to induce rooting on branches with wound stimulation. He rubbed mechanical wounds with a mixture of leaf mold and soil from a pine









