Micronutrients in the propagation medium provided substantial benefit to plant growth and quality at an extremely low cost. However, plants must be kept clearly labeled during the entire growing season to observe the differences since no visually detectable difference exists between rooted cuttings with or without micronutrients at planting time.

PROPAGATION WITHOUT MIST

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INTRODUCTION

Motherhood, apple pie, and mist propagation — guess which isn't sacred? Since misting revolutionized the propagation of softwood and semi-hardwood cuttings, innovators have devised many types of control systems trying to perfect misting cycles to fit virtually every situation. Seldom do we see any two propagators using exactly the same system, nor should they, because water sources, media differences, geographic location, plant species and many, many other variables dictate unique systems.

After many years of trying to help growers perfect their misting systems, we finally decided that mist wasn't sacred. As a result we stumbled onto a system without mist that you may want to try. It eliminates the major problem propagators encounter when using many misting systems; i.e., too much water. Also, concerns about power failure, clogged nozzles, iron and/or other solids deposits on leaves, nutrient leaching, and variable weather are eliminated.

Preventing moisture loss from the plant material is the primary objective of any system used when propagation is by cuttings. Misting prevents moisture loss by maintaining a film of water on leaf and stem surfaces. High humidity systems as described by Milbocker (1) use foggers to create 100% relative humidity and thus prevent or minimize transpiration losses. In this paper we are describing a very simple system of providing 100% relative humidity without the use of foggers or misting systems. Time and method of taking cuttings, rooting media, hormones, and fertilization are not discussed here because it is not necessary to change any of these to use the system described below

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[1] Consulting Horticulturist

METHODS AND MATERIALS

Place the rooting medium in beds or in pots and water several days before sticking cuttings to insure that the medium is thoroughly wet. As soon as cuttings are stuck, water thoroughly again. Drench and/or spray with a good fungicide then cover with white (not clear) plastic film supported by wire mesh. Completely seal all edges of the plastic by burying or securing with lath strips.

In addition to the white plastic film, a minimum of 50% shade should be provided with lath, with shade cloth or by a naturally wooded area. This is to further reduce direct sunlight, which could cause excessive heat buildup. Best results are obtained if the shading material does not contact the plastic film. A few feet of air space between film and shading material is desirable.

Check the structure daily for droplets of condensation on the inner surface of the plastic film. If condensation remains on the film during the hottest part of the day, 100% relative humidity is assured. The plastic seal should not be broken until cuttings start to root, usually 4 to 6 weeks. At this time, lift the plastic covering in order to fertilize and water lightly. Replace the plastic covering but do not seal completely. Gradually provide more aeration by raising the edges of the plastic or by cutting increasingly larger slits in the film. During the hardening-off process light watering will be required. Leave the plastic over the top of the beds to protect from rainfall but leave the sides open once the cuttings are well rooted.

The greatest hazard with this system is excessive heat build-up, so choosing the best white plastic film and shading material is important. Monsanto 602 white plastic film has been the best in our experiences. Table 1 shows why. We suggest that shading to achieve light intensities of 4% or less of full sunlight is desirable for mid-summer propagation in the south.

Table 1. Comparative light intensities measured under various films and shade materials with sunlight at 1100 foot candles [1]

	Ft Candles	Percent Full Sunlight
Sunlight	1100	100
Monsanto 602 White	90	8
Dayton Co-polymer	220	20
Poly-dress Yellow	520	47
Monsanto 602 White plus 47% shade	42	4
Dayton Co-polymer plus 47% shade	130	12
Poly-dress Yellow plus 47% shade	220	20
Monsanto 602 White plus 72% shade	28	2 5

[1] Data courtesy T J Lipton Research Farm, Wadamalaw Island, S C

LITERATURE CITED

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PROPAGATION WITH AN AUTOMATIC TRAVELING BOOM

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I would like to describe a traveling boom propagation system used for misting, watering, pesticide spraying, fertilization, and photoperiod control.

Gilbert's Nursery is located in northwestern South Carolina in USDA Hardiness Zone 7. We propagate and grow about 275,000 1-, 2-, 3-, and 5-gallon plants annually. Forty-five percent are conifers and 55% are broadleaved evergreens. All cuttings are stuck directly in Lerio SR325 plastic pots in flats in a medium of 70% pine bark (½" or less) and 30% coarse perlite. All cultivars are treated with Hormodin #2 or #3 and placed in greenhouses under intermittent mist. After rooting the liners remain in place until canning in April.

Our first two mist houses were equipped with stationary ¾ inch pipes with Flora-mist nozzles placed every 3 ft. This system has worked well in the past, but there were a few problems. These houses were not level, so when the pipes were leveled to prevent excessive dripping, they were closer to the ground on one end of the house. These pipes were supported by wires attached to the bows. Workers often bumped into the pipes and wires. While the old system had 160 nozzles per house to keep clean, the new one has just 16. The old system worked well for several years, but we wanted something better and more versatile.

In 1979 we purchased our first automatic traveling mist system from the Jaderloon Company, Box 685, Irmo, South Carolina 29063. We believe it has solved many of the problems associated with the old system, and offers many opportunities for improved liner production.

The boom travels from one end of the house to the other and returns (Figure 1). Spraying Systems Company nozzle body assemblies are located at about 1-ft intervals along the boom. Interchangeable nozzles and check valve strainers can be removed for cleaning. Many nozzle tip types and capacities are available, but we have had the best results from a hollow cone 5x tip and a