

AN EFFICIENT METHOD OF PROPAGATING WITH GROUND BEDS AND INTERMITTENT MIST

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We propagate in ground beds, 4 by 48 ft, bordered by crossties or treated 6 in. wooden poles. The rooting medium is a fine sandy loam soil which has been amended over the years with sand and organic matter. The clay colloidal material improves the cation exchange capacity and contains nutrients not available in artificial soils. We fumigate with methyl bromide at a rate of 1 to 1½ lbs. per 100 sq. ft.

We use 6 guage, 6 in. concrete reinforcing wire, 6 ft wide, which is nailed to the wooden poles or crossties, to cover the beds and support the polyethylene. We use either a 2 ml clear polyethylene, which we cover with a 48% shade cloth, or a 2 ml white polyethylene, which has been manufactured to our specification so as to transmit approximately 50% light. We have constant water pressure to a solenoid valve, which is connected to a wiring system controlled by time clocks. We use ¾ in. 100 psi black poly-pipe with spaghetti tubes leading to nozzles. These lines are easy to work and afford flexibility in nozzle placement. We use a Spraying System's nozzle with a D-1 orifice, which we have modified with a 1/8 in. stainless steel welding rod to deflect the spray.

We take our cuttings from our stock blocks. We consider the care of stock blocks to be of utmost importance. We take the cuttings in the mornings, when moisture stress is not a problem. We take our cuttings to length and strip and bundle them in the field. We keep the cuttings turgid by keeping them moist and cool at all times until they are stuck in the beds. We take 24-quart ice chests to the field and pack the bundled cuttings in ice. Once every couple of hours the foreman takes the prepared cuttings to our moisture chamber, which is a small cold storage room with a fogging system. We leave three or four leaves on each cutting and do not cut the leaves except on very large-leaved species. We bundle in the field in groups of 25 so we can count production for our piece-rate system.

We finish taking cuttings by lunch time and stick each morning's production in the afternoon of the same day. We dip the cuttings in a solution of 3,000 to 10,000 p.p.m. IBA or IBA plus NAA, depending on the species. We use a portable shade structure to keep the plants from wilting until we get the frames in place and the bed covered with polyethylene. At this stage the plants are misted as needed to provide as close to 100% humidity as possible on

the leaf surface while maintaining a well-drained soil condition.

As rooting commences, the misting schedule is reduced gradually and more ventilation is cut in the polyethylene until the plants are hardened off. At this point all the polyethylene is removed and we shade the plants for a few days, weaning them from the intermittent mist and watering less frequently. The entire process from an unrooted cutting takes from four to ten weeks, depending on the species and the time of year.

We test our soil and from the results choose our fertilizer, paying particular attention to imbalances that may cause problems. During the growing season we monitor the soluble salt level closely, and fertilize so as to keep the soluble salt level high yet below toxic levels.

The plants are completely exposed to the elements of weather until after normal leaf drop. This indicates that the plants have built up their carbohydrate reserves in the root system naturally and are becoming dormant for the winter. We then cover the beds with microfoam over the wire frames and cover the microfoam with polyethylene. We nail the polyethylene with wooden strips to the crossties and seal with soil. Prior to covering for winter we water the plants well and spray with a fungicide. The purpose of winter protection is not to keep the plants warm, but to protect them from rapid temperature fluctuations.

We dig the plants before they break dormancy but as late as we think is safe, so as to keep the plants as fresh as possible. We pack in polyethylene-lined and wax-lined boxes, with the roots wrapped in sphagnum moss and the tops separated with excelsior. We hold the plants in cold storage in these boxes at 34°F until the customer is ready for them.