

shipping, supervision of a crew, etc. while 20 hours of lecture are presented by supervisors and management. I would like you to strongly urge any students you know who are interested in the wholesale nursery industry to attend this ten-week summer course.

PRESIDENT KRAUSE: Thank you, Bruce. Continuous misting is our next topic, by Rudy Wagner. Rudy:

CONTINUOUS MISTING

GOTTLOB (RUDY) WAGNER
C & O Nursery
Wenatchee, Washington

Propagating under continuous mist has limited use and depends upon the plants and type of cutting to be propagated. The location is also very important to consider as it is most useful in outdoor propagation.

We are using continuous mist for summer propagation of ornamental broadleaf evergreen and deciduous stock. We also propagate some fruit rootstocks by softwood cuttings under continuous mist: *Prunus besseyi*, *P. tomentosa* and some other plum rootstocks. One must be selective as there are a few species that do not tolerate continuous mist. Since our mother stock block is near our lathhouse, we moved our propagating benches right into the lathhouse to avoid drifting mist and to provide some shade from the hot sun. The benches are 30 inches off the ground, four feet wide with eight inch sides. The water is brought in through a one-inch line that runs along the base of the bench's front side with a $\frac{3}{4}$ inch outlet every four feet. This gives every four square feet of bench space an individually operated line using a 100 Mister nozzle that sprays approximately nine gallons of water per hour at 25 lbs. pressure. The nozzle is manually turned on and off by a $\frac{3}{4}$ inch gate valve. After the benches were constructed and the pipes laid, $\frac{1}{2}$ inch holes were drilled in the bottom, then they were filled with 2 inches of gravel and 5 inches of sharp sand. This gives good drainage and the sand is an excellent medium for continuous mist.

When making the cuttings it is very important to avoid wilting. Once they wilt it is almost impossible to revive them. I am referring to very soft cuttings. The best time to bring in the material is early in the morning before sun-up. The cuttings are at once rinsed in cold water and dipped in a weak solution of Morten's Soil Drench, $\frac{1}{2}$ oz. to 20 gallons of water.

In preparing the cuttings, we remove the bottom leaves and pinch out the center. This helps keep the cuttings from wilting and saves later pinching, especially in shrubs. The cutting is then cut below a node and dipped in a 1-20 Jiffy Grow solution as a 5-second dip. When sticking the cuttings we always try to complete a 4-foot square with one nozzle so that the

water can be turned on to stay on without interruption during the entire callusing and rooting period. This usually takes 12 to 18 days depending on the weather. As soon as there is a slight showing of roots, the water is turned off for the night. When fully rooted, the water is turned off completely and only a light hand-watering is required once in awhile.

As sand produces very brittle roots, the cuttings should be left sitting in the benches to mature some before potting. The cuttings are then potted in 2½-inch black, whale-hide pots and set in cold frames to be lined out the following spring. Most of these liners make the 18-24" size the first year. For larger plants they are grown for one more year.

Producing plants by this method is undoubtedly one of the least expensive and most trouble-free ways of propagating.

PRESIDENT KRAUSE: Thank you, Rudy. Next on the program is Ron Klupenger who will talk on misting in storage, Ron:

MISTING IN COLD STORAGE

RON KLUPENGER

*Klupenger Nursery & Greenhouse, Inc.
Aurora, Oregon*

There have been many problems in cold storage of nursery material in the past, such as plants drying out, plants left in the cooler too long without lights, etc.

I think that misting has helped in solving some of these problems. It eliminates dehydration and drying-out of plants. With misting you don't have to be "Johnny on the Spot" with watering. There has been a great deal of loss without humidity control. We have experienced this over a number of years in precooling azaleas. It was all due to lack of knowledge of misting in cold storage.

Our first experience with misting came a few years ago when we had to rent cooler space and there were humidifiers in them. We were using the coolers for summer chilling, giving the azaleas six weeks of cold storage to produce late September and early October bloom. After the plants were in these coolers for six weeks, we could tell the difference in forcing. They came ou with more lush foliage and dseemed to react better to forcing. Also, we didn't have to watch the watering as closely while they were in the coolers. It does not work to put plants in coolers with mist that are showing colored buds, or in bloom. We tried this also. The flowers bleach out, fungi develop, and very few, if any, of these plants are saleable. So it is very important to pick off all colored buds and flowers before putting the plants into cold storage.

We have now narrowed down the time for summer precooling to a minimum of four weeks at 42° to 44° F. with mist plus 12 hours of daylight (about 18 to 20 foot candles). If the