

There definitely is a difference in the type of root system produced by cuttings under mist and under polyethylene tents. Cuttings of *Forsythia ovata* under polyethylene tents, for example, produced a more fibrous root system than those under mist. Cuttings under mist produced a long, unbranched water type root, which later branched. At this later stage a cutting of this type is easier to transplant.

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MODERATOR MAHLSTEDDE: For the second part of our discussion this afternoon we turn from rooting techniques to a subject that I think is near and dear to all of us who have used mist, namely methods of carrying cuttings overwinter once they have initiated and developed roots. For all practical purposes there are four ways this can be accomplished, i.e., (1) place them in transplant beds or in the field immediately after rooting, (2) leave the cuttings in the mist bed overwinter, providing a mulch and shade, (3) root them in plastic squares or in plant bands, with subsequent placement in deep frames overwinter, (4) roll wrap the cuttings in polyethylene and store overwinter in a refrigerator.

Therefore without further discussion, I would like to read a paper prepared by Mr. Albert Ferguson, which describes his procedure for handling rooted cuttings from mist bed to field.

Mr. Ferguson's paper entitled "Our Experiences in Transplanting from the Mist Bed" was read by the moderator.

## OUR EXPERIENCES IN TRANSPLANTING FROM THE MIST BED

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In our operation we have attempted to develop a system that would take as little labor as possible in hardening-off cuttings propagated under mist and in getting them established in field beds where they can develop. Our efforts up to this point have been experimental, but our results have been so gratifying that we intend expanding the operation next year.

Cuttings of *Lonicera clavayi*, *Spiraea bumalda crispa*, *Hydrangea p.g.*, and *Ribes sp. Red Lake*, placed under mist on May 18th to May 20th were transplanted on June 20th. Cuttings were made generally from the terminal portion of shoots and ranged between six and ten inches in length. In preparing the bed for transplanting the first operation involved cultivation and leveling. As soon as this has been accomplished the soil was watered thoroughly with an overhead sprinkling system in order to have the soil in a moist workable condition. This was done two or three days before planting.

When we were ready to plant, the first step was to make the furrows for planting. For this purpose we so arranged five shoes on a lightweight

garden tractor so that five trenches, 12 inches apart were made in a single operation. In order to prevent the furrow or trench from becoming too dry before it could be planted we only opened-up about 100 feet at a time. While this was being done several men were taking-up cuttings from the mist bed. The cuttings were then planted in the furrows by hand at a spacing of 3 inches apart in the row. The soil was firmed around the cutting at the time it was planted.

After an area had been planted that section was soaked-down with a garden hose, covered with lath shade which in turn was covered with a roll of burlap wide enough to drop almost to the ground on the sides. We found that if we did not water the area immediately after planting with a hose it was quite difficult to get enough water through the lath and burlap if we used a sprinkler.

About a week later we removed the burlap, and fourteen days later we planted another strip moving all the shade over to the adjacent new planting. This second planting consisted of *Cornus mas* var. *elegatissima*, *Cornus stolonifera* Kelsey, *Forsythia* "Spring Glory" "Lynwood Gold" and *farrand*, *Viburnum dentatum*, *opulus xanthocarpum*, *lentago*, *pubescens*, *rhytidophyllum*, and *trilobum*.

Our plantings this year were made June 28, July 11, July 23, August 6, August 20, and September 12. This coming year we hope that we will be able to make our plantings at 10-day intervals. If the beds are kept watered every two to three days after the shades have been removed, we believe that one week of shade should harden the cuttings off sufficiently so that they will be able to take full sun.

Evergreens were also rooted under our mist facilities. These were planted in a manner similar to that which has been described for the softwood cuttings. Cuttings which had been taken the first 15 days in July were planted out as heavily rooted cuttings about September 15. After planting these cuttings were mulched with straw, but were not shaded.

Next year we plan to space our rows so that they can be tractor cultivated and dug. Five rows, spaced 12 inches apart with a 24 inch space for the tractor wheels between beds will be used. Using this spacing the second and fourth row can be dug and the three remaining rows can be left in place to grow another year. A portion of the softwood cuttings planted early this summer were dug this fall.

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MODERATOR MAHLSTEDDE: Still another method of handling rooted cuttings is to leave them in the bed overwinter. To describe this sequence we have asked Mr. Merton Congdon to develop the subject.

Mr. Congdon presented his paper entitled: "Hardening and Overwintering Cuttings in Beds." (Applause.)