

MODERATOR MAHLSTEDE: Last in the sequence of discussions of propagation techniques under mist I have asked Mr. A. R. Buckley, of the Dominion Arboretum, Ottawa, Canada to speak on some of his observations regarding the rooting of cuttings under mist and under polyethylene tents.

Mr. Buckley presented a discussion "Mist and Polyethylene Tents for the Rooting of Softwood Cuttings." (Applause.)

## MIST AND POLYETHYLENE TENTS FOR ROOTING SOFTWOOD CUTTINGS

MR. A. R. BUCKLEY

*Curator, Dominion Arboretum, Ottawa, Canada*

Ladies and Gentlemen: First of all, I would like to take this opportunity to express my pleasure at being here at this meeting.

We at the Arboretum have quite a different problem from most of you, in that we are primarily concerned with rooting cuttings of woody plants in small numbers. After they have been rooted they are either placed on the grounds or occasionally disseminated to interested personnel. We had this past year the intermittent mist unit operated both with the minute timer and Electronic Leaf, as well as polyethylene tents, which were without mist. We had only minor difficulties with the Electronic Leaf control unit itself, although a malfunction of the solenoid valve necessitated replacement.

We started out with the idea of trying to determine what one of the particular methods of propagation was best. Unfortunately we had an excellent summer from the propagating standpoint and consequently it would be really impossible to say that one method was any better than the other, unless we interpret it in other terms.

We had less difficulty this year with plant survival after rooting. Although rooted cuttings transplanted from a mist bed gave us particular trouble last year, the difficulty was minimized this year. We never have had a problem transplanting from polyethylene tents.

The polyethylene tent was constructed of ordinary one-inch lumber in the form of a tent. The wood form was covered with half-inch chicken wire which in turn was covered with 1½ mil. polyethylene and factory cotton. Each frame is an individual unit and therefore portable. These frames were watered regularly three times a week. During the summer just past, the temperatures were extreme. Under these polyethylene tents the maximum temperature of 124° F. was not uncommon. If we haven't discovered anything about propagating we discovered that some plants can withstand extremely high temperatures without burning. There were some types which did burn severely. This was experienced generally when we took very soft cuttings, i.e., *Ulmus carpinifolia* which within two days from the date of placement were completely brown. This was also true of *Taxus* and juniper cuttings as well as *Fagus sylvatica aspenifolia*, the Fern-leaved Beech.

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

MR. A. B. FERGUSON

*Linn County Nurseries, Center Point, Iowa*

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