USE OF MIST FOR THE PROPAGATION OF EVERGREENS

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It was in 1954 that we started our first work with mist propagation. At that time we used constant mist which was applied to two parallel beds about five feet wide. We used the Florida nozzles spaced about 50 inches apart. I believe they should have been spaced closer together. Sand was used as a medium and it had a four-inch drain tile underneath it for dramage. Thirty-inch boards were used for framing the beds.

The following year we liked the system so well that we increased the facility to measure four lines wide, without dividers. Burlap was placed around the sides which let through a little too much air, thus giving us poor coverage along the edge. These were five foot beds with about a ten-inch walkway in between them.

The following year we changed over to the electronic leaf control. We had quite a little trouble with this system at times, so we changed over to the interval timer in 1957. We used Florida mist nozzles primarily, although we had to use a few John Rust nozzles. These latter nozzles shoot out to the side at about a 20 degree angle and were spaced alternately down the pipe. We liked this system so well, that we changed over and put our line along one side with the pipe and nozzles crosswise. They overlapped some in the spray pattern but this gave a nice even coverage. I wasn't altogether satisfied, however, with the timing. On cloudy days we got more water than we should have If we had used the Florida nozzles and spaced them closer together I think that we would have been just as well off.

Cuttings were stuck early in June occasionally during the last few days in May. We want to get through by the latter part of June or at least by early July. Junipers gave us around 90 per cent rooting by early October, at which time they were transferred out of the propagation bed into outside beds or placed in rows about a foot apart.

With arborvitae we got roughly the same results. We generally stick them after we get the junipers in, which would be in late June.

The *Taxus* were put in generally after the arborvitae We didn't get quite as good results with this plant since they were subject to heavy bleaching. It didn't seem to affect the cuttings much since they rooted well by late October. However, we weren't too successful in carrving them over the first winter

With the junipers and arborvitae, if we didn't run into too severe a weather at the time of transplanting we had quite satisfactory results. In 1958 our results were not quite as good as we had the year preceding, perhaps because we did not change to sand.

In 1959 we did most of our evergreen propagation in a polyethylene greenhouse. Our results with this unit have been quit satisfactory. However, to increase our production I think we will go back to the outside mist beds next year in order to propagate our junipers and arbor-

vitae. For the yews I think we will depend on winter propagation primarily.

MODERATOR FILLMORE: We thank Mr. Ferguson, and we will go on to the concluding speaker on this section, Mr. Donald Wedge, Wedge Nurseries, Albert Lea, Minnesota.

Mr. Donald Wedge presented his paper entitled, "Summer Propagation of Evergreens Under Mist." (Applause)

SUMMER PROPAGATION OF EVERGREENS UNDER MIST

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An article on propagation under mist by Edward J. Gardner, in the May 1st, 1941 issue of the American Nurseryman, was responsible for our starting mist propagation. From that date on, until the 1950's, when many articles on the subject started to appear, we were on our own, isolated you might say, as to what others were doing. The evolution of this idea with us resulted in a mist system which differs in some respects from any other system with which I am familiar.

In 1941 and 1942 we experimented on a small scale in a covered cold frame, using a constant spray from Hudson type spray nozzles. The results were just encouraging enough to continue experimentation.

In 1943 and 1944 we experimented with a small, head-high structure, completely covered with lath shade fencing, using a continuous spray from short throw greenhouse nozzles, fitted on two stationary pipes hung along the upper two sides. This time the results were more satisfactory and warranted the added expense of setting up for increased production the next year. Today we are still using the same basic set-up used in 1945. In describing it to you remember that it was devised 14 years ago when we had to make our own controls, and adopt available mist nozzles. This system has given us good results over the years and consequently we have continued to use it.

We now have two identical propagation houses, side by side, 220 feet long and 26 feet wide, with a ¾ inch pipe line running the length of each house. This pipe, powered by an electric motor, oscillates a 150 degree turn every second, covering four, 4 foot wide beds. This line has Skinner, 70 degree deflector greenhouse nozzles every 4 feet, which makes a 50 degree fan of mist which settles down on the cuttings like a fog. Each nozzle takes care of 64 square feet of bed area.

The interval timer, which controls both the pipe oscillator and the solenoid valve in the water line, was made out of Fairbanks Morse stoker timers, on which we can change timing discs. We exclusively use a disc which is notched to give us one minute of mist out of every five. Hooked in ahead of this in the system is a day-night clock set to come on at 6 A.M. and to go off at 9 P.M. until about August 1st, when the mist is withdrawn gradually until by September 15th it is only operating a few hours during the middle of the day.