BAILEY CIRCULAR MIST

RODNEY BAILEY
Bailey Nursery Company
St. Paul, Minnesota

In the past fifteen years there have been many types of mist propagation systems described at these meetings. The one that I have found to do the best job, most economically, employs many of the same techniques and principles with which you are familiar. As a point of reference this method shall be referred to as the Bailey Circular System. I have used this system only for the propagation of deciduous softwood cuttings in the summer.

I have selected an area that has a basic soil of loamy sand. Also, and I believe this is quite important, the area in which the beds are constructed is on a very gradual slope. Not steep but falling enough so that excess water may run off the surface rather than standing and then having to seep away.

The area is plowed and worked smooth with a disc and harrow. We are now ready to make the beds. With a dump-truck and a Melroe "Bobcat" loader, we apply three inches of sand over a 22 foot diameter circle. A metal garden edging forms the outside of the bed. With two men and the proper equipment, this bed is made ready to plant in about one half hour. Each bed will hold from 15-25,000 cuttings depending upon the variety.

For simplicity of operation, I have kept all the time clocks and solenoid valves in one central location. The water is conveyed from the solenoid valve to its respective bed by a 5/8" rubber hose. By having all of the controls in one unit, we are able to completely dismantle the system each fall, store it inside over winter, and reassemble it again in the spring with a minimum of plumbing and electrical connections to make. We merely connect the control system to our water supply and electric supply.

Each time clock controls one solenoid valve which in turn controls the water for four separate beds. Although most any rotary type lawn sprinkler will do an adequate job of misting, I prefer the Harford spike sprinkler because it is easy to move from one part of the bed to another when adjustments must be made for windy conditions.

With normal weather conditions and newly planted cuttings, the clocks will be on 5 times for about 6 seconds in each 12 minute cycle. This, of course, must be adjusted as the light, temperature, wind, and humidity conditions change. The 12 minute cycle clocks are controlled by a 24 hour clock that turns them on in the morning and off at night.

As in any system, an ample water supply is essential. The source of water is a deep well which also services the greenhouse and nursery storage buildings. Since regular line pressure of 40 pounds is not sufficient to do a good job of apply-

ing the water, we have added a booster pump and an additional pressure tank so that the pressure is maintained between 60 and 90 pounds.

As in any outside system, strong winds are somewhat of a problem. We erect snow fences around the entire area and between every second bed. In addition to the snow fence, we staple a 3 foot wide strip of burlap to it. Because our sprinklers are easily moved from the center of the bed in any direction, and because the larger droplets which have more wind resistance are thrown to the outside of the circle, we can have adequate coverage under most any weather conditions.

As soon as the cuttings are rooted, the frequency of watering is cut back gradually to the point where we water only often enough to keep the rooting and growing medium moist. This may be every two or three days depending upon the variety and weather conditions. The snow fence may also be taken down at this time.

By late July or early August, most varieties have rooted through the sand and into soil beneath. Most varieties, at this point, have a flush of growth and will grow to two to four times the size of the original cutting.

With the exception of a few items that are transplanted to the open field about August first, all are left in the beds to go dormant. At this point, with the snow fence, edging around the beds, hoses, time clocks and solenoid valves all removed, it is a comparatively small job to lift the cuttings. They are undercut and lifted from the bed with a set of tines on the front end of the Melroe loader. The dirt is shaken out and they are placed in wooden boxes and taken into cold storage. They are left in these boxes until time permits us to count and grade them. They are then rolled in polyethylene bags and left in cold storage until planting time the following spring.

In conclusion, I would like to point out some of the advantages and disadvantages of the system.

The disadvantages are:

1. This system requires very close personal attention from the time the cuttings are stuck until they are rooted. With full exposure, such as they have, it takes only a short time to lose a batch if something should go awry.
2. Three varieties, for some reason unknown to me, have been consistently poor in both stand and quality under these conditions, but have done very well under greenhouse conditions.

The advantages are:

1. Very small initial investment — about $160.00 per 100,000 cuttings for raw materials.
2. Saves labor — can utilize mechanical means for preparing the beds as well as digging beds.

3. No obstructions in working area such as pipes, framework or side boards. Six men can plant in one bed without interfering with one another.
4. Ease of observation — everything is in the open. No covers to lift or polyethylene to crawl under.
5. Low cost per cutting rooted — with labor figured at $2.65 per hour and all overhead included, we had a cost per cutting rooted of 2.3c each.
6. Superior liner — by rooting into the soil we get a large well developed liner that can go bare root directly to the field.