

GROWERTALKS

Columns

2/28/2017

Propagation Fog System

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One of the most important considerations when attempting to successfully manage a propagation department is to provide just the right amount of water to keep the cuttings turgid. Too much water, or over-misting, leads to serious disease problems and rotting of the cuttings. Under-misting leads to stress, tissue damage and shrink due to lack of rooting.

We, like many other propagators, have experienced the bad and the good. In my early days at Pioneer, we were trying to propagate unrooted cuttings in conditions that were far from ideal. We had mist booms, VPD and shade, but in the large area that was our prop house, we were fighting a losing battle. We were still over-misting our cuttings. So how to fix the problem and start eliminating shrink? We installed new oscillating fans controlled by our Argus environmental computer to increase the overall zone humidity. These helped, but the moisture fallout from the fans still didn't produce ideal conditions.

As usually happens in spring when production is ramped up, we ran out of room. So when we had to expand our prop facilities into another house, we were back to square one. At this time, while discussing the extra humidity benefits the J-Bird fans were giving us, I told Jaap (my boss) of an experience we had while climbing in the Lake District when we lived in England.

My family and I were climbing a mountain in bright sunny weather, but as we neared the summit, conditions changed and we were soon surrounded by fog. As we leveled out at the top, visibility was just about zero. All of a sudden the breeze increased and a small lake appeared in front of our eyes. Magic! As quickly as the breeze came up, it dropped, and the lake disappeared again. The moral of that story was "we need a fog system for our prop." Jaap liked that idea and asked where we could get one and how much would it cost.

It just so happens that a friend of mine from England, Mark Stanley, works for MicroCool in Palm Springs. They specialize in all types of humidity applications. I reached out to him with a lot of questions and explained our situation. After several conversations, Mark agreed that they could help solve our problems. He produced a design, the price was right and we purchased a customized fog system for our second propagation area.

There were some initial operational difficulties with fog dispersal. To make installation easy, we had the fog lines supported near the pathway of our 7,000-sq. ft., two-bay prop area with the nozzles all pointed in the same direction in each bay. We used our HAFs to disperse the fog, but this caused some moisture fallout in

the first few feet from the nozzles, making cuttings in that area far too wet. Taking this into consideration and wanting to make facility adjustments, we eventually moved our prop department and fog system into two bays adjacent to our transplant line.



In the new area, we've located the nozzle line in the middle of each bay with alternating nozzles pointed in the opposite direction (Figure 1). We also turned off the HAFs and leave the rest to the Argus computer, where the humidity settings maintain the humidity level within a few percentage points of where we want it throughout a 24-hour period. The whole area can be totally enclosed in fog within three to four minutes, just like our Lake District experience (Figure 2).

Basically, cuttings are stuck into trays of Ellepots, placed onto our 100-sq. ft. ebb-and-flood tables, given an application of RSWP Plus, and moved by rail through a wall and gantry system into the required area in the propagation house. The fog system then takes over and the unrooted cutting hardly knows that its environment has been changed from its original parent plant location. The fog naturally dissipates, but the humidity setting on the computer controls the environment to our desired levels, providing plant happiness (Figure 3).

With minor propagation manager adjustments along the way to tend to individual crop requirements, shrink, in most cases, has almost been eliminated. One more added benefit is that on hot summer days, the fog system can lower the temperature inside by almost 10 degrees, so it's a win-win situation. Jaap says it's one of the best decisions we've ever made in the nursery! **GT**

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