GROWERTALKS

Features

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Support & Collaboration

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The Las Limas facility produces unrooted cuttings of hundreds of different taxa in a uniform hydroponic-based system.

In years past, ornamental horticulture had a strong presence in academia. It was common to find several scientists and teachers working to innovate and train the next generation of horticulturists. However, as progress comes and takes its toll, fewer positions are dedicated to ornamental horticulture. And fewer yet focus on applied sciences and improving production strategies.

Instead, positions are slowly shifting to food production and molecular sciences. While these are critical topics that help support the continued growth of society, one might start to question who's going to support your production operations in the future. Particularly as the wheel turns and many well-trusted faculty move toward retirement.

When industry leaders gathered to consider the future, the writing was on the wall, as they say. One group had an idea to culture the next generation of scientists to support the floriculture industry. Drs. John Dole (North Carolina State University) and John Erwin (University of Maryland) joined Ken Altman (Altman Plants) and the American Floral Endowment to implement their vision for the future and establish the Altman Fellows program to build collaborations and community between early career scientists to ensure the continued support of the floriculture industry. The Altman Fellows program brings five early career scientists together to establish a cohort with a diverse background and skills tailored to innovate and problem-solve.

This cohort sought to align faculty with expertise in production horticulture, environmental conditions, genetics, marketing and problem-solving. Currently the group consists of five faculty members: Jeb Fields (University of Florida), Ryan Dickson (University of Arkansas), Melinda Knuth (North Carolina State University), Leynar Leyton (University of Florida) and Eric Stallknecht (Virginia Tech University), who were hand-selected to participate based on their goals, experience, interests and capabilities. We've been working together for a year now—not only defining identity, but refining our mission.



The Altman Fellows group visited Ball FloraPlant's Las Limas facility to support collaborations and continue spreading horticultural knowledge.



Each bench is labeled with taxa information and precise representations of cutting expectations and how final cuttings should look to maintain high quality control.

Our trip

We just returned from one of our biggest projects to date to the Las Limas cutting operation in Estelí, Nicaragua. This Ball FloraPlant facility is one of the most efficient and effective propagation operations in the world. If you order unrooted cuttings from Ball FloraPlant, chances are they come from Las Limas, which ships a staggering 13.5 million cuttings every week to growers throughout North America.

More than that, the cuttings arrive less than 48 hours after they're removed from the plant. The logistics needed to ensure a delivery schedule like that requires major detail and oversight, especially to maintain more than 99% order fill rate. Perhaps best described as a symphony, the state-of-the-art facility uses cutting-edge technology as needed to optimize worker feedback and communication tools. However, the production strategies are streamlined and simplified—something that can be overlooked these days, as many seek to innovate in areas already optimized.

Every day, more than 2,500 employees come to the farm, some traveling for two hours to get there. The workers are very skilled and thorough in their duties, each with very specific tasks. This allows the team leaders and supervisors to implement changes and trust they'll be done well. The facility is huge and the hallways are long. Runners use bikes to move cuttings between coolers throughout the houses and the cooling chambers, which automate a five-minute cooling process where cuttings are brought down to desired temperature (41 to 50F/5 or 10C) prior to boxing. The entire process takes 20 to 30 minutes from harvest to cold storage.

They clearly prioritize sanitation in the facility. Sanitation isn't just a task, but a core philosophy integrated into the facility's design. To enter the greenhouse structure, everyone has to thoroughly wash their hands and arms, remove any jewelry, sunglasses, or unnecessary items and don a white lab coat. As you enter any growing compartment, you put a smock over your coat and pick up a bottle of disinfectant. When you exit, you take the smock off and put it in a barrel with disinfectant. Every 10 minutes a chime sounds throughout the entire facility and everyone seamlessly sanitizes their hands and continues back with their work. Tools are changed every bench and workers maintain a coordinated flow so that if issues do arise, they'll only spread in a known direction. While most operations take sanitation seriously, this is one of the highest levels you might find.

Beyond the sheer scale of production, the dedication to quality control was apparent. Every cutting has an exact standard based on species, cultivar and customer best practices. Workers are well trained to quickly cut between 200 to 350 cuttings per hour, with some able to produce many more. The length, node number and stem diameter are all considered in a matter of moments as workers move through their benches. Every week, trays of every cultivar in the facility are planted for quality control, so they'll know of any production issues and are able to quickly rectify any problems. This isn't a cheap commitment, but an important standard to guarantee customers are getting

the best quality material.

Sustainability was also a prominent goal. The water recapture systems ensure that almost all water used was collected, cleaned through a slow sand filtration system and re-applied. The facility sits in an agricultural area with likely good water, but their commitment to minimizing environmental impact was impressive—especially considering the area may not have the strict requirements that are mandated in the U.S. Instead, their environmental outlook was a result of company priority.

Very few production operations can boast that their growing media is locally sourced. All production in Las Limas utilized volcanic rock mined from nearby volcanoes. Best guess, the rocks used are scoria, small volcanic rocks formed in minor eruptions that have significant internal porosity. This material is durable and can be reused, which is why they've used the same material for over 10 years! After each production, the remaining plant material is removed and sent for composting on site. The growing media is then steamed in place using a portable steam system, which brings the substrate to 176F (80C) for 30 minutes. After cooling it's sanitized and ready to be planted again. The media is topped off as needed, but overall more than 85% is retained year to year.

Insights & opportunities

On a visit like this, there isn't a horticulturist in the world that wouldn't walk away with some added knowledge or ideas. Their seamless integration of technical precision, innovation and rigorous quality standards were well apparent. As we digested our trip, one key insight was not over-complicating procedures. They've done an incredible job innovating where needed and simplifying in other areas. Sometimes processes don't need to be over-engineered or wrought with excessive complexity, and the most simplistic answer is the best.

We also found it interesting how their challenges were similar to familiar operations. It might be easy to assume a massive greenhouse complex in Nicaragua would face different challenges than a small operation in the U.S., and while that might be somewhat true, plant physiology doesn't change. Plants have basic needs, cultural practices need refining and we continually adjust as new varieties or technologies are introduced into the industry. It was amazing to see how they positively leveraged expertise to support the overall objective. Engineers were recruited to coordinate logistics and programming. These operations specialists then supported the horticulturists to produce the highest quality plants.

The take-home message is simply: visit, network and collaborate. There's a vast, global network of production systems and knowledge that you can tap into. We're part of one of the most innovative and open industries, and most are open to sharing. Many are proud of their accomplishments and creations, and would be happy to see them adopted. The old adage, "Rising tides lift all ships," definitely comes to mind when we think about how the ornamental industry supports each other.

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