GROWERTALKS

Cover Story

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The Challenges of Off-Shore Production

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This statement may be harsh, but it's true: For our consumer customers, ignorance is bliss. They have the luxury of buying geraniums at their favorite garden center, planting them up at home and enjoying their blooming beauty all summer long, never realizing what it took for that plant to get there.

Pictured: Geranium production at Vivero Internacional.

The journey of a geranium cutting is a long and fraught one. But it's necessary in order to continue production of one of the most popular garden plants that's also susceptible to Ralstonia, one of the most devastating bacterial diseases. Because almost all vegetative annuals are produced off-shore (see the sidebar), the system that's been put in place to produce unrooted geranium cuttings has been pretty well-established. But recent developments have started to put more strain on the breeding companies that spend a significant amount of resources to create proprietary genetics and the off-shore farms that supply the cuttings.

In the state of Morelos near the town of Cuernavaca just south of Mexico City is a cluster of production greenhouses that grow, harvest and ship ornamental unrooted cuttings (URCs) from stock plants. Most of the geraniums sold in North America are grown in this area of Mexico, so in early November, I made a trip down there to visit these farms to see how they handle all of their production challenges.

Under pressure

Having a geranium crop with Ralstonia is a grower's worst nightmare. Not just because it could wipe out whole swaths of your geranium crop, but also because this particular strain (*Ralstonia solanacearum* Race 3 Biovar 2, R3B2) is highly regulated by the USDA-APHIS for its potential threat to food crops like potatoes and tomatoes. It's capable of surviving in temperate soils and has the added classification as a potential bioterrorism "Select Agent" that requires mandatory destruction of plants, pots, soil, etc. that come in

contact with the pathogen.

Pictured: Solar panels at Vivero's Oacalco location. Dennis said that they provide about 60% of the farm's energy.

For those new to the industry, in 2003, workers at then-Goldsmith's production facility in Kenya unknowingly took cuttings from stock plants that were infected by Ralstonia solanacearum, resulting in almost 900 greenhouse operations around the country being issued quarantine orders by the USDA.

This outbreak had ramifications for years, with civil lawsuits filed, and our own Chris Beytes deposed by attorneys because he was a member of the media who covered the situation.

Since then, sanitation protocols at geranium production farms have become more stringent and each is visited by the USDA once a year to make sure that they're following all of the guidelines. Called REP, or Ralstonia Exclusion Program, USDA inspectors monitor for regulation compliance, including sanitation practices, irrigation water management, and scouting and testing.

"Basically, they come here to make sure we're following the rules," said Dennis Hitzigrath, owner and CEO of Vivero Internacional, who produces over 1,000 vegetative annuals and perennials, including geraniums, for seven different suppliers.

In a nutshell, the journey of a geranium cutting is thus: Elite stock plants are developed and produced in secure laboratories and greenhouse facilities in the Netherlands and Germany where they're tested and declared free of all major plant pathogens (including R3B2). From those few elite plants, the mother stock is built up to eventually supply thousands of cuttings that are harvested, bagged and placed in coolers waiting to be shipped. Then the bags are picked, boxed with ice packs and put on refrigerated trucks that head over the border into the U.S. (Most suppliers are switching or have already switched from air shipments to ground transportation; more on that below.)

Pictured: Syngenta's geranium production at Vivero's Oacalco location.

Production farms typically harvest from their mother stock geranium plants up to nine months to one year before disposal, greenhouse disinfection and planting with the next generation of clean plants. The pressure to maintain a disease-free environment with hundreds of employees and thousands of plants in one area, while also making sure every rule is followed, has forced the production farms to take extra steps in sanitation—well beyond what the USDA even requires. I found myself doing everything from wearing hairnets and removing jewelry to dipping both arms up to the elbows in sanitizing solution.

And, still, sometimes that's not even enough. Off-shore producers are still vulnerable to potential false positives detected during mandatory testing at the farm or Plant Inspection Station (at point of arrival into the U.S.), or a faulty diagnosis during the growing time at the finished grower.

One silver lining that's come out of this increased scrutiny is that it's brought all of the breeders and producers together to make sure everyone is on the same page when it comes to USDA's regulations—that every producer is treated the same and to approach the USDA as a cohesive task force to rally for improvements to the process.

Carl Kroon, Regional Director of Supply Chain – Americas for Dümmen Orange and one of the members of the task force, said the systems approach to preventing disease has its benefits, but in the end no testing method is 100%

reliable and you have to be prepared for any scenario. But it helps when you're not going it alone.

Jim DeMaster, Syngenta's production manager for their off-shore farms in Mexico and Central America, agrees.

"Changes from USDA-APHIS in certification and testing protocols have inspired collaboration among geranium producers to address concerns," said Jim. "While many issues have been resolved, we continue to be concerned about the reliability of port-of-entry testing protocols."

Enrique Aragón, GM for YecaFlora, looks at that false positive as … well … a positive. Not only did it bring all of the farms together as a group, but it empowered them to lobby for changes to the process. Some of those include not shutting down an entire farm when you find a possible detection in only one greenhouse and conducting multiple testing on the same sample. It also served as a nudge for the other farms to review their own sanitation practices.

"Our sanitation protocols are very strong, so shutting down the farm immediately doesn't make sense," said Enrique. "But it serves as a reminder that the farms stay on top of their sanitation protocols, including regular employee training."

Labor … it's the same all over

Besides the perfect climate, one of the other reasons vegetative plants are produced in Mexico is the historically inexpensive and available labor. For larger farms like Floraplant—which is the longest-tenured farm in Cuernavaca and has two locations with a total of 1,290 employees—it's vital they have access to a stable workforce. And for years it was never a problem … until now.

During the last two years, the minimum wage in Mexico has gone up 20% each year and it will go up another 12% starting this month (January). Mexico's minimum wage is daily, not hourly like the U.S., and the increases will bring it to $278.80 pesos, which is about $13.82 USD per day. This is obviously great for the workers, but it requires the farms to account for a significant increase in payroll that wasn't in the plans.

Also, the farms in Mexico are competing with greenhouse growers in the U.S. and Canada who utilize seasonal guestworker programs that provide jobs to people in Mexico at much higher pay. So managers at the production farms in Mexico have been forced to come up with creative ways to attract and keep labor.

Pictured: Newly harvested cuttings placed in bags at YecaFlora.

Troy Lucht, who's a minority partner in one of the farms in Mexico—Plant Source International (PSI)—said that since they're one of the smaller producers, they don't have as much trouble with finding workers as some of the larger farms in the area. He said PSI was already paying above the Mexican minimum wage, but they've found they've had to provide other incentives and benefits to be competitive, as well.

A major perk they offer their employees is providing transportation to and from the farm. One of the barriers to finding labor is that many people just don't have the means to get to work, so PSI has buses that pick employees up from three surrounding towns. Other farms do this, as well.

Another way growers handle labor shortages is to introduce automation for some of the tasks previously done by multiple people. But geraniums are one of the most labor-intensive crops to produce because it takes a long time to

grow the stock and there are many steps that need to be followed in order to have the cuttings ready on time. Harvesting cuttings is a specific skill that takes time and practice (believe me, I took a stab at it and it's not easy), and requires a human to do it. Plus, the many rules and regulations imposed by the USDA require a system of traceability in case there's an issue.

"I wouldn't know what to automate," admitted Dennis. "We're looking at more automation for irrigation, but you just can't automate harvesting, sticking and grading."

"Until we figure out how to mechanize harvesting of geranium cuttings, there will always be a high labor requirement," said Jim. "But there are other efficiencies that are being found in improved forecasting, stock plant planning and labor activity planning."

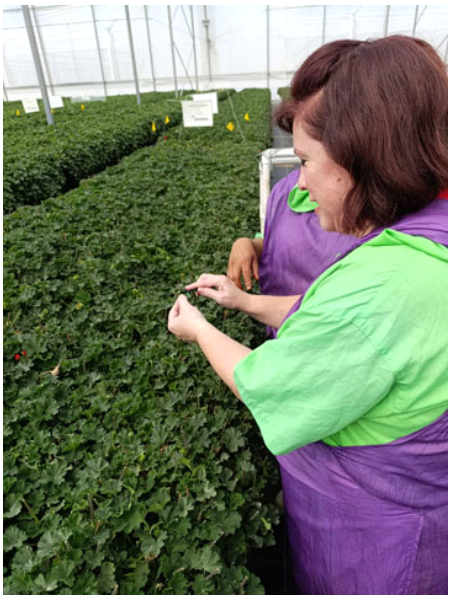
"This is not just an isolated situation for Mexico and Central America; we are challenged with the same topics on a global scale—the rise of labor costs, the struggle with availability of labor, the complexity of regulations and logistics, as well as the increase in phytosanitary pressure in vegetative production," said Mark Schermer, Head of Flowers for Syngenta.

Getting creative to keep costs down

So the long and short of it is these production farms are under additional scrutiny and producing off-shore is costing more in money and resources. But all of them are exploring other ways to off-set some of those production costs.

Since the area around Cuernavaca is pretty much sunny all the time, all of the farms are utilizing solar energy in some form to power everything from lighting to irrigation pumps to cold storage facilities. Vivero is even using solar power to freeze the gel for the ice packs that ship alongside their bags of cuttings.

Logistics is another area where the farms have worked to save on cost. With the construction of YecaFlora, Ball FloraPlant moved all of their geranium production from another farm in Guatemala. And this year, Selecta will be offering an assortment of geraniums from YecaFlora starting in 2026. Now, all of the geranium production is in one place and can be reasonably trucked over the border into the States via FedEx or UPS instead of being flown in.



Carl said that Dümmen will also start trucking their cuttings over the border exclusively this year. They'd been shipping using air freight, but there are just too many risks at the airport. Using refrigerated trucks allows producers to keep a continuous cold chain, and it's cheaper, too.

"It's better because it goes from farm to truck to grower," said Carl.

The future of off-shore

Geraniums were one of the first crops to be produced vegetatively when this form gained momentum in the 1990s. They were easily in the top three plants for home gardeners. But in the years since, breeders have been hard at work introducing new proprietary crops that consumers find more exciting (i.e. angelonia, dahlia, mandevilla, patterned calibrachoa and petunias). And it can be argued that those new crops have taken some market share away from geraniums.

Pictured: Me trying to harvest a geranium cutting. I was terrible at it.

PSI is the only farm in the area that doesn't grow interspecific or zonal geraniums—they only produce regal and scented types. Troy said that they used to produce interspecific and zonal geraniums, but stopped a number of

years ago. There was not enough volume on producing such a high-risk crop to justify continuing.

“If you get disease on just 5% of the crop that’s a big hit,” said Troy. “It’s still a significant crop in the mix, but all the discussion I’ve had across the country point to most growers planning to reduce or keep flat their geranium production. Geraniums are poor producers when considering the number of URCs per stock bag/pot. All the while, the price doesn’t fully capture the risk/return equation as well as it should.”

To be sure, geraniums are one of the most high-maintenance crops to produce (besides poinsettias), but because geraniums are still a go-to for consumers and continue to be a top seller for breeders, they feel the risks and challenges are worth all of the effort. Even now, there are new geranium varieties introduced each year.

Westhoff will be introducing its first interspecific geranium series at California Spring Trials in March in a market that’s extremely well-established and very competitive. But Christian Westhoff, second-generation owner of his family’s breeding company based in Germany, said that this new series was bred to target what they feel are gaps in the marketplace with regard to specific colors, habit and heat tolerance. Having an interspecific geranium series in their lineup also allows them to provide a more comprehensive assortment for their North American customers.

Ball FloraPlant just introduced a brand new interspecific geranium series last year because they also still see potential in the market.

“I think geraniums cater toward the independents, which have a little bit older clientele that go in there looking for the traditional geranium that will perform in their containers all summer long,” said Mike Klopmeyer, President of Ball FloraPlant.

“With the demand and competition for retail space, it’s always important for breeders to produce the complete package of good genetics and reliable supply that will perform for the grower and the consumer,” explained Leland Toering, Sales Manager for Ball FloraPlant and Selecta.

So breeders and the farms that produce geranium stock will continue with their strict sanitation protocols and follow the USDA’s guidelines. Costs all around are going up, especially in labor and transportation, and the suppliers understand the pressure of not passing these costs down to their grower customers in a market with already razor-thin margins. But, eventually, they may not have a choice.

“Breeder suppliers will continue to produce geranium cuttings. We have been discussing with the USDA to certify this part of Mexico as Ralstonia-free, which could ease some of the regulatory anxiety,” said Jim. “But there could come a time where the price point reduces the demand from grower customers.”

Why are geraniums produced off-shore anyway?

Dr. Mike Klopmeyer, president of Ball FloraPlant, has been in horticulture for over 36 years, so I asked him to provide a quick background on why geranium cuttings are produced off-shore:

Through the end of the 1980s, most finished growers either had their own mother stock or bought liners from other growers who grew stock. Many of the varieties were non-patented, or the growers had a license to produce and sell a patented vegetative variety. However, the cost of growing their own mother stock in northern climates skyrocketed with heating and labor costs and lack of good light conditions for optimal stock growth.

Breeders/producers came heavy into the market in the late ’80s and the market grew like crazy in the ’90s by building and expanding their off-shore production because of a better climate that provided better growing conditions (like good sunlight during peak), not having to heat the greenhouses for their mother stock and lower labor rates. (The town of Cuernavaca is known as “the city of eternal spring” because the weather has

consistent temperatures in the 80sF during the day and 60sF at night all year round.)

Also during this time many breeders worked diligently to improve their genetics, with proprietary hybrids that were patented, so they were able to see an increase in profitability with royalties and production margins.

Today, nearly all vegetative annuals are produced off-shore. The only exceptions are chrysanthemums, ipomoea and URCs of roses (the USDA requires that they be produced domestically because of phytosanitary regulations).
—JZ

Will we ever see a Ralstonia-resistant geranium?

After the introduction of resistant impatiens and vinca for other plant diseases, I asked if this was even a possibility for geraniums. The problem is geraniums and Ralstonia are way more complicated.

“In theory, I would say yes. But what are the costs to get that into the market and how much would you need to invest?” said Mark Schermer. “And if I need to invest so much money into that, can I then sell my geranium cutting for double the price or triple the price?”

Mike Klopmeyer agreed. “Technically, it’s extremely difficult to breed for resistance in geraniums due to their complex genetic background as tetraploids that provide vigor and semi-double flowers, but difficulty in incorporating resistance. The industry has demonstrated success in breeding for resistance to Impatiens Downy Mildew in impatiens due to a less-complex genetic background.

“We would rather just focus our R&D efforts on other things and have a very good sanitation program to prevent disease. It's more cost effective to do a sanitation program than it is to breed for resistance.”

The answers to disease challenges aren’t simple, but there are ways. With seed breeding getting more sophisticated, said Mark, there may be a point where improved proprietary seed geraniums overtake market share from vegetative varieties. He’s also seen instances when growers in the supplier network take over production of certain varieties because of cost. But these would be major changes to the current business model.

“It's very risky to be the one to make the first step because what if you're wrong or tried it too early?” said Mark. “Then you could be off the market before you know it.”
—JZ