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COVER STORY

Culinary connection

By using technology to tweak flavor profiles and please the palates of top-tier chefs, Fresh Impact Farms is focused on changing our nation's food system.

Jolene Hansen | Photography by Eli Turner



From the street, the old strip mall in Arlington, Virginia, gives few clues that something fresh is going on inside. But around back and tucked underneath, the city's only urban farm has hydroponic agriculture going full swing. Fresh Impact Farms Founder and Owner Ryan Pierce and his team are serving up premium edible flowers, specialty herbs and select greens for the Washington, D.C. area's most discerning customers—its leading chefs—with an eye toward bigger goals.

From cloud computing to controlled environment farming

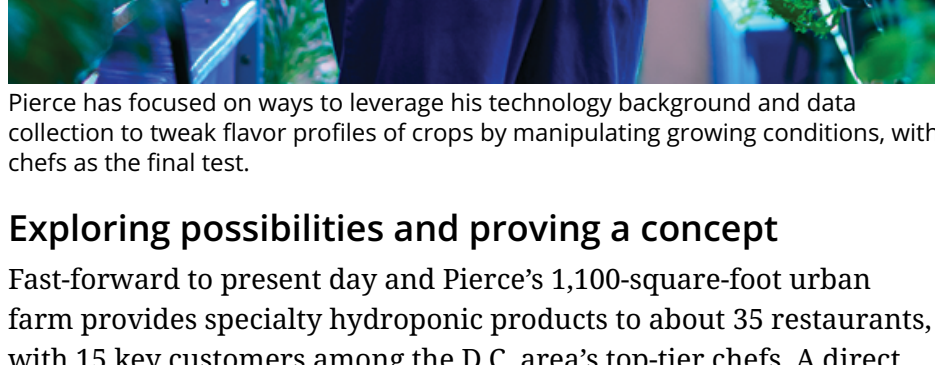
Before he found his urban-ag calling in 2016, Pierce had a successful career with a firm that built complex private cloud computing systems for the government. A self-described "geek who loves science and technology, but happens to have a business degree," he bridged the gap between engineers' designs and business practicality.

But the time came when cloud computing wasn't enough. "I know it's a little cliché," he says, "but at some point, you have to step back and say what am I doing this for? Ultimately, I wanted to do something bigger that made an impact on more than my bank account."

Without much direction, Pierce started searching. Issues with the food system, including its geopolitical and environmental impacts, kept drawing him in. "I saw how antiquated it was and how we hadn't had seeds of change in our food system for a long, long time," he says.

Eventually, an article on vertical farming surfaced. Though he'd always been interested in growing—and had a little countertop hydro herb garden—he'd never heard of vertical farms. "I was fascinated, and I spent the time when I was out of the office if we invested enough time and energy and, frankly, money into it," he says.

In controlled environment vertical farming, Pierce saw a tech-filled industry ripe for people who understand how technology works—and for those passionate about impacting society and sustainability. He'd found the industry he wanted to be in, but that was the easy part. With no commercial growing experience and no connections to the agricultural world, figuring out how to be in it was the challenge.



Pierce has focused on ways to leverage his technology background and data collection to tweak flavor profiles of crops by manipulating growing conditions, with chefs as the final test.

Exploring possibilities and proving a concept

Fast-forward to present day and Pierce's 1,100-square-foot urban farm provides specialty hydroponic products to about 35 restaurants, with 15 key customers among the D.C. area's top-tier chefs. A direct connection to those discerning palates was essential to his original plan.

Early on, Pierce recognized the influence top chefs have in driving food trends that filter down to consumer markets. "I wanted to find a way to work with what I saw as influencers in our food system, while at the same time working in this new technological field that had so much promise," he says.

Was that even possible, without raising millions in funding? He wasn't sure, so he drew on a family-and-friends connection to highly acclaimed D.C.-area chef and restaurateur Robert Wiedmaier, and asked his thoughts on high-quality, hypocaloric, hydroponic food. To Wiedmaier, hydroponic often meant flavorless. He'd need to taste it before he'd say more.

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Pierce thrives on chef feedback — not only on varieties to grow, but also on specifics of how those varieties should taste and feel.

"Through the research I'd done, I knew it was possible to make it taste just as good as in the healthiest soils in the world with the right management," Pierce says. So, he built a small proof-of-concept system in his home's guest room, with fully controlled humidity and air and water temperatures, and produced more food than he thought possible in a space that size.

The "light bulb moment" came in December 2016, when Pierce took his first samples to Wiedmaier's flagship restaurant, Marcel's. "The reception just blew me away," he says. "That was the moment I knew we were onto something. There's something that's possible, and it can be done right here in an urban center." Figuring out how to scale that "something" came next.



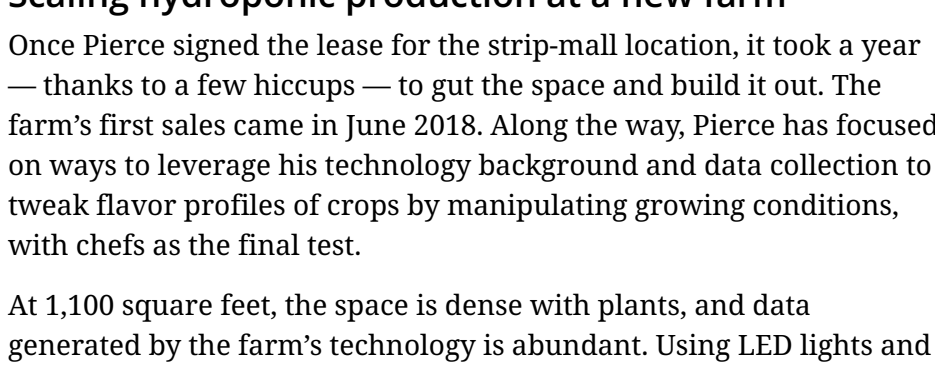
Fresh Impact Farms provides specialty hydroponic products to about 35 restaurants, with 15 key customers among the D.C. area's top-tier chefs.

Scaling hydroponic production at a new farm

Once Pierce signed the lease for the strip-mall location, it took a year—thanks to a few hiccups—to gut the space and build it out. The farm's first sales came in June 2018. Along the way, Pierce has focused on ways to leverage his technology background and data collection to tweak flavor profiles of crops by manipulating growing conditions, with chefs as the final test.

At 1,100 square feet, the space is dense with plants, and data generated by the farm's technology is abundant. Using LED lights and some rockwool substrate, the farm has 15 different hydroponic systems—some floating raft, some flood and drain—with each system optimized for the crops it grows.

"We've segregated our systems so we can hone-in on the best nutrient mixes, light spectrum and temperature for the specific crops that are growing in those systems," Pierce says. The farm has 25 to 40 varieties in production at any one time, and selections rotate with demand. (Their catalog offers numerous varieties of marigolds, mustards and carnations, plus more than 30 basil varieties.)



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Every delivery is a chef feedback session. Hearing "good" isn't good enough. "We can't build off that. We want the details," Pierce says.

Only two systems house single varieties. Most marry four to six varieties that share similar environmental needs. About 80-85% of Fresh Impact produce grows from seed, with the balance propagated via cloning on site—whatever gets the crop to revenue generation fastest. Some crops can take three months to reach that point.

Edible flower assortments are top sellers, as are baby greens just barely past the microgreen stage. Next in line are nasturtiums—flowers, as well as leaves in three sizes—and four popular sorrel varieties.

Inputs are not 100% organic. Pierce balances organic inputs with non-organics that offer greater control for their chef-centered flavor profiles. "But we breed microbes that help maintain essentially a healthy rhizosphere within our hydroponic systems and keep bad bacteria and bad fungi at bay, while making our nutrients more readily available to our crops," he explains. Beneficial insects manage pest control.

Pierce and his team constantly reconfigure the farm to optimize production and meet new customer demands. He estimates the farm, at optimal production, can handle another 10 to 12 key customers. A phase of expansion and growth is ahead, in preparation for when the current farm maxes out. "We know that if we could produce more, the market demand is there," he says.

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A chef's perspective

Fresh Impact Farms can thank social media for their connection to Johnny Spero, head chef and owner of Reverie, located in Washington, D.C.'s Georgetown neighborhood. Shortly before the restaurant opened last year, Spero was developing new dishes and looking for innovative local growers. A social post from another restaurant tagged Fresh Impact. Spero followed the trail, checked out their Instagram and reached out. A tasting and a relationship soon followed. Here's what he finds important in a grower-chef relationship.

On chef-farmer collaborations: "That is probably one of the coolest things. [Fresh Impact] has figured out how to dial things in, like the kind of lights to use or what to feed the plants or how to make the leaf a bit more firm. They've figured out ways to adjust the growing so it works well for us.

"Not to say we're perfectionists, but if we want something to have a little more life to it, a little more texture, or if it was too peppery, if we want to dial that back, they've been able to take our conversations and dial in what to do to the growing cycle for these plants to make them work with what we do, which is wildly exciting."

On essential produce qualities: "Texture is always a huge thing for me. That's how we develop our dishes. An herb can be flavor, but it can just be so much more. We love using the entire plant. If it's a chervil, it's also chervil stems. Each part of that plant is used in our dishes. Having ingredients that add flavor but also add another dimension of texture is important to us.

"When we get vegetables from farmers, it's 'What does this taste like raw, in its most pure state?' If it's good enough then, we can have it evolve into a dish. Not that texture and flavor are the only things that should matter to a cook, but without those, you're not left with much."

On important grower qualities: "The biggest thing is finding people that want to build a relationship, because hopefully these relationships with farmers will last the length of the restaurant. Being able to communicate — face to face, not just emails — is always very important to us. Also, being able to just pick up the phone and say, 'Hey, I totally forgot to order this,' or 'Random idea, do you think you could ever grow this thing?'"

"It's having a farmer know and recognize that they're probably one of the biggest parts of what makes our restaurant a success. So, being friendly and wanting to be a part of that just as much as we want them to be a partner of our restaurant is important."

On advice to growers: "For a lot of chefs, we're so stuck in the restaurant day-to-day, that we don't always know what's going on out there. We have our set farms that we've all used for years... I think the biggest thing for those smaller producers is just to go out there and reach out, whether it's via Instagram or whatever.

"Go out and be proactive. Just ask if they'd be interested, and show them what you have... I think that's a big issue that you have a presence and that you have a story you can tell when you come in, but it's also the willingness to go out to talk to people and let us know that you've got something really great that you want to share with us."



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Building relationships on food and feedback

Most Fresh Impact customers came via recommendations passed from chef to chef. Pierce purposefully focuses on the area's finest restaurants—a choice he says isn't related to money, but to the chefs and the influence they exert.

"I'm a firm believer that if we can make them into evangelists for this type of technology, we can move it forward that much faster," Pierce says. To that end, he strives on chef feedback—not only on varieties to grow, but also on specifics of how those varieties should taste and feel. A request to intensify a petal's flavor or increase a leaf's firmness results in chef-and-grower collaborations to yield desired results.

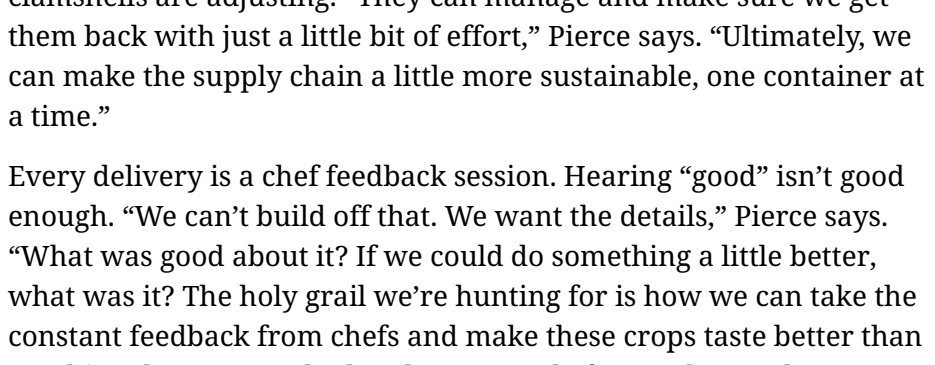
If a chef requests it, Fresh Impact tries to grow it. "It ultimately leads to greater success for our business, but also allows our customers to deliver a better experience for their clientele," Pierce says. Not every experiment succeeds. In the end, the crop must be economically viable for Fresh Impact, and chefs must be willing to pay the price point it demands.

Fresh Impact delivers twice a week and asks chefs to only order what they'll use in four days. Everything is delivered plate-ready, at the peak of freshness, so chefs don't waste labor or food. "We don't want to see a single thing that leaves our farm get thrown away," Pierce says.

The farm also delivers in reusable plastic containers—not the simplest or cheapest choice. Chefs accustomed to throw-away clamshells are adjusting. "They can manage and make sure we get them back with just a little bit of effort," Pierce says. "Ultimately, we can make the supply chain a little more sustainable, one container at a time."

Every delivery is a chef feedback session. Hearing "good" isn't good enough. "We can't build off that. We want the details," Pierce says. "What was good about it? If we could do something a little better, what was it? The holy grail we're hunting for is how we can take the constant feedback from chefs and make these crops taste better than anything they've ever had and never settle for good enough."

It goes back to the chef-farmer connection. "We're continuing to improve and add more value into what they buy from us. We're not the cheapest farm; our stuff is priced at a premium price point. It's adding to the ultimate value and the understanding of really high-quality product and the price it should drive," Pierce says.



In the future, Pierce hopes to have similar, larger farms in major cities.

Looking to a farming future

While Pierce is focused on the current farm, he also has bigger dreams. In the future, he hopes to have similar, larger farms in major cities, to eliminate the need for chefs to have products, like those Fresh Impact grows, shipped in. He also hopes to impact the disparities between ultra-high-end restaurants and urban food deserts a few miles down the road. It's a task he knows takes more than edible flowers and custom-grown specialty herbs.

"That's something for me personally that I would like to tackle down the road," he says. "Working with the best of the best to turn them into evangelists for this kind of technology, then ultimately partnering with them to help improve the overall food system and make sure we're not leaving behind entire sectors of society by just focusing on the upper echelon."

Pierce acknowledges his outsider perspective but offers growers this advice: "Know your value. If you're putting more time and effort into growing a much better product and you're doing things in a better and more sustainable way, know the value of that product... We have to understand there's incredible value in high-quality food grown in sustainable ways. Our job as farmers is to communicate that value to the end customers, whether that's a restaurant or consumers in a grocery store."

The author is a freelance writer specializing in the horticulture industry and a frequent contributor to GIE Media publications. Reach her at jolene@lovesgarden.com (mailto:jolene@lovesgarden.com).



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