

Building a high-tech indoor farm in the steel town of Braddock

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By Stephanie Ritenbaugh / Pittsburgh Post-Gazette

In the shadow of one of Pittsburgh's long-standing steel mills, a startup is hoping to cultivate a farm out of the grit of Braddock.

Next door to U.S. Steel's Mon Valley Works, Fifth Season is building an indoor vertical farm that will integrate high-tech elements like artificial intelligence, data analysis and robotics to seed, harvest and package leafy greens to ship to local grocery stores and restaurants.

Fifth Season, which was founded in 2016 as RoBotany Ltd. and incubated at Carnegie Mellon University, developed its technology with two research and development vertical farms on the South Side.

The company's leafy greens, grown without pesticides, have been sold at Giant Eagle and Whole Foods Market grocery stores in the South Hills, as well at restaurants such as Superior Motors, honeygrow and Kahuna.

Now, the 60,000-square-foot facility is a hive of construction as crews prepare the building for its first seeds in December.

The Braddock farm is expected to produce more than 500,000 pounds of lettuce, spinach, kale, arugula and herbs from a 25,000-square-foot grow room during the first full year of operation.

That's quite a jump from the few thousand pounds a year produced at the South Side facility, said CEO Austin Webb, who co-founded the company with Brac Webb and Austin Lawrence. Mr. Lawrence is also chief technology officer.

On 30-foot-tall racks arrayed like bookshelves, trays of lettuce, spinach, kale, arugula and herbs will be stacked on to shelves.

Along the aisles, a robot can be directed to, say, harvest seven trays of spinach when the time comes, rather than have a human use a ladder or scissor lift to remove trays by hand, Mr. Webb said.

The environment can be controlled around the clock in each area of the facility. In the grow room, the temperature, humidity, nutrients, light spectrum and even how long the day will be, will be closely monitored.

One driver behind Fifth Season's strategy is to increase access to fresh food and to reduce waste.

Growing food in a neighborhood, with the end users accessible within 24 hours of harvest, is much better than shipping produce over a long distance that means eight to 10 days until it's on the store shelf, Mr. Webb said. "It has a much longer shelf life."

The hydroponic facility also uses 95% less water than traditional techniques, and by reusing water that has been treated, runoff doesn't go into waterways, Mr. Webb noted.

At full build-out, the Braddock facility plans to employ 40 to 60 people.

"We want to hire local as much as we can," Mr. Webb said.

While vertical, indoor farming has been around for some time, the practice has gained traction in recent years as urban farming has become more popular amid concerns about food access and available farmland.

Allied Market Research expects the global vertical farming market to grow. In a September report, the Portland, Ore.-based firm said the industry accounted for \$2.23 billion in 2018 and is expected to garner \$12.77 billion in revenues by 2026.

But efficiency and profitability is a challenge for the sector.

Those are issues that Fifth Season hopes to address, using the technology it's developed to control the growing process, costs and "optimize key factors such as energy, labor usage and crop output," Mr. Webb said.

“We are trying to create a new standard for our industry,” he said.

The company has raised more than \$35 million to date, led by Drive Capital and other private investors with close ties to CMU.

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