

Will 2025 Be Déjà Vu All Over Again for the Indoor Farming Sector



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Growing food outdoors shows no sign of getting easier, given the volatility of the weather, and the situation is predicted only to get worse due to the impact of climate change. One would expect the indoor farming sector would be poised to benefit, as its advantages would seem to be obvious. However, although the indoor farming sector made progress with increasing production, expanding into new retailers, and growing market share with consumers, 2024 will go down as potentially the worst year for indoor farming companies, particularly vertical farms, as most struggled to achieve profitability at the product, farm and/or corporate level. After having raised almost \$8 billion globally between 2018 – 2022, indoor farming companies have failed to raise even \$1 billion since 2022, and the financing environment for 2025 doesn't look much better.

Difficult Times for Vertical Farming Companies

Emblematic of the challenges in 2024 were the bankruptcy of vertical farming companies Bowery Farming and Smallhold, as well as Plenty's decision to close its Compton, CA farm, which produced leafy greens. The growing number of bankruptcies and companies shuttering farms and total operations is leading many people to ask whether the vertical farming sector is viable. Although this is a fair question, since no vertical farming companies have achieved sustained profitability yet and many have struggled even to achieve positive unit economics, I argue it is too early to give up on this sector. Vertical farming companies did have some wins in 2024: 80 Acres announced \$140 million worth of public bonds from Boone County, KY, to expand its facility near Florence, KY; Oishii announced a \$150 million Series B financing to build a new strawberry farm; and Plenty opened its Richmond, VA strawberry facility, which will be the largest vertical farm producer of strawberries globally.

Greenhouse Companies Showing Mixed Results

2024 was a better year for the U.S. greenhouse industry: BrightFarms opened 3 new large farms in the U.S. and its parent company, Cox Farms became the largest U.S. greenhouse operator, as it surpassed over 700 acres; Gotham Greens' annual production capacity reached ~100 million heads of lettuce per year and its products are available at retail locations across all 50 states; having completed an expansion to its McAdoo, PA facility, Little Leaf Farms claims to be the

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largest indoor producer of lettuce in the U.S.; and Local Bounti opened new farms in Texas and Washington state. However, it was not all positive, as Revol Greens reduced or closed facilities due to a more competitive economic environment, and it is not long since the 2023 bankruptcy of AppHarvest.

Furthermore, the greenhouse industry struggles with many of the same challenges faced by vertical farms, as few companies are profitable, and increased production is already leading to a price war in some regions that will make it even more difficult for companies to achieve profitability. Also, greenhouse providers have started closing older farms that were proving uneconomical.

Outdoor Farming Challenges Create Opportunities

There are many reasons for concern about the viability of indoor farming, but I remain optimistic that in the mid- to long-term, the positive factors outweigh the negative. The indoor farming sector is at a major disadvantage compared to the outdoor growers, due to its small scale and higher-cost capital expenditure on buildings and HVAC systems, as well as needing more electricity for heating and cooling. However, the traditional produce sector also is facing major headwinds.

Every year concerns increase about growing outdoors, including: destructive weather events, water availability, increasing resistance of pests and weeds to traditional crop chemicals, and soil degradation, as well as labor availability, costs, and turnover, which all put surety of supply at risk, and could spell catastrophe. Shifting consumer preferences to organic and more sustainably grown produce is a trend that seems to be gaining momentum, as more consumers learn about all the crop chemicals (fungicides, herbicides, and pesticides) applied to crops grown outdoors, and the impact on their health.

Additionally, there is now the real risk that the U.S. could enter a long and protracted trade war with Canada, Mexico and other major suppliers of produce to the U.S., as a result of tariffs implemented on goods being imported into the U.S. It is not out of the realm of possibilities that even if the U.S. and Mexico don't enter a trade war, the Trump administration could look to decrease the amount of produce imported into the U.S., under its America First policies. As it is unlikely that U.S. outdoor produce growers could make up for lost imported products, seeing there has been a growing trend of offshoring, particularly for produce that California is known for, it would create an opportunity for the indoor farming sector.

Security of Supply

Consequently, surety of supply is becoming a focus for retailers and a topic that continues to offer one of the biggest hopes for the indoor farming sector. Although today there is not a significant issue with U.S. produce availability, we have witnessed produce supply challenges in

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other countries, including the U.K., where some grocery retailers rationed how much produce consumers could buy. The U.S. is not immune from food rationing and product scarcity, as we currently are seeing this situation play out with eggs and a couple of years ago there were similar issues with baby formula. It doesn't take many disruptions in the supply chain to impact food security, especially when a growing percentage of the products need to be imported.

Whereas surety of supply is still a longer-term concern for U.S. retailers, it is already an issue for Canada, which imports over 90% of its leafy greens from the U.S., most traveling thousands of miles from California and Arizona. Canada is taking a more aggressive posture toward food security, especially with a looming trade war with the U.S., where grocery retailers are in active discussion with indoor farming companies, and local and federal governments are providing economic support for the indoor farming sector, evident by Farm Credit Canada's recent investment in GoodLeaf Farms. In fact, government support, whether coming from the federal, state/provincial, or local level, is increasing, as indoor farming is seen as a means of job creation in local communities, as well as hedge against food insecurity.

Make America Healthy Again

The confirmation of Robert F. Kennedy Jr. as U.S. Health and Human Services Secretary, expected in the near future, could provide the indoor farming sector with a boost. Average life expectancy in the U.S. has plateaued and U.S. healthcare spending reached over \$3 trillion in 2023, underlying the urgency to focus on the types and quality of food we consume. Today, there is a health crisis in the U.S. due to obesity, which needs to be addressed. 40% of all adult Americans are obese (30-40 BMI), and 9% are severely obese (40+ BMI), according to the U.S. Centers for Disease Control, which equates to almost 125 million Americans. Consequently, it will be interesting to see what policies are implemented by RFK, Jr., who has strongly advocated for his idea to Make America Healthy Again (MAHA) by reducing processed foods and eliminating added fats, starches, and sugars, as well as food dyes and additives banned in other countries, and pushing for increased consumption of healthier, more nutrient dense foods.

Furthermore, RFK, Jr. has also called for the reduction or elimination of crop chemicals used to grow agricultural products, especially specialty produce, which is typically eaten raw, rather than being processed. There is a growing movement among U.S. states, including California, Maryland, Oregon and Washington, to pass legislation banning the use of certain crop chemicals. It is likely that these and other states will continue pushing forward with banning more crop chemicals this year. As the biologicals already on the market, the current replacement for crop chemicals, are less effective, there likely will be a yield reduction necessitating the need for additional production locations to meet consumer demand.

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New Product Offerings

Although indoor farming companies initially focused production on cannabis, cucumbers, leafy greens, and tomatoes, now, thanks to technology innovation in automation & robotics, HVAC systems, LEDs, and seed genetics, the sector is beginning to expand into a broader product portfolio of higher-margin crops, including berries, coffee, microgreens, forestry products, specialty ingredients and pharmaceuticals. Product diversification, especially for vertical farms, is key, as this ability to fully control the climate provides a huge advantage in a world where weather volatility significantly hampers outdoor growers.

Despite my optimism for the future of this sector, I expect 2025 to bring further bankruptcies and farm closures, especially for companies unable to achieve positive cash flow and profitability that are running out of funding, since the equity capital markets are likely to be closed for unprofitable companies. The year ahead brings tremendous uncertainty for the indoor farming sector, as there are a variety of external factors that could either increase demand or create further problems. Those indoor farming companies that do survive in the short term will find themselves well positioned to benefit from the challenges facing outdoor produce growers, both domestically and internationally. Furthermore, the sector should benefit from the three mega-trends of food security, sustainability, and health & nutrition, as well as demands from consumers looking for fresher, healthier, more nutritious foods, which is a hallmark of the indoor farming sector.

ABOUT THE AUTHOR:

Adam Bergman is a Managing Director at [EcoTech Capital](#) where he works at the intersection of technology innovation and climate change. Adam is a sustainability executive leader with over 25 years' investment banking experience raising capital and executing M&A transactions. He also provides strategic advice and financial guidance to senior executives and boards on partnerships and growth strategies. As one of the first investment bankers to focus exclusively on the CleanTech sector, starting in 2005, Adam is recognized as a leading subject matter expert and is a frequent speaker at industry events and publisher of articles on sustainability.

Adam has built industry leading AgTech investment banking practices at Citi and Wells Fargo by creating a broad ecosystem to help drive adoption of technology and innovation throughout the food & ag value chain. Adam established the AgTech cohort for Wells Fargo's innovation incubator (IN2), which was launched at the Donald Danforth Plant

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Science Center in St. Louis, Missouri, in 2018. He is a technology advisor to Western Growers Association, which represents local and regional family farmers who grow over half the nation's fresh fruits, vegetables and tree nuts. Adam also is a technology advisor for farmer-owned Landus Cooperative, headquartered in Ames, Iowa and SeaAhead, a bluetech startup platform in Boston, Massachusetts, whose mission is to support new, innovative ventures, with a focus on sustainability and the oceans.