



# Betting the Farm

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*Is There an Urban Agriculture Bubble?*

Story by **DAVID LEPESKA**  
Illustration by **LAUREN ADOLFSEN**

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**On a bright, crisp October morning, Will Allen pulled into the headquarters of Growing Power and clambered out of his weathered white Ford pickup.** Slowed by hip and knee replacements, he walked over to the passenger side, opened the door and pulled out a brown clay mug. “I’m just finishing my breakfast,” said the 63-year-old, taking a swig before tipping the mug to reveal a green, seed-filled gruel. “Was in the field harvesting earlier this morning, threw some kale, collard greens, chard and raspberries together.”

This month marks 20 years since Allen first drove past a row of abandoned greenhouses on Milwaukee’s northwest rim and stopped to take a closer look. A bear of a man at six-foot-seven, he played pro basketball in Europe and carved out a successful sales career before purchasing the property and embracing urban farming full-time.

Today, the three-acre site is heavy with the smell of composting worms and swarming with tourists, scholars and shoppers at an in-house market. At last count, Growing Power employed 120 staffers and welcomed 5,600 volunteers every year. It produces more than \$500,000 worth of annual produce and fish at 20 farming sites spanning 200 acres in and around three cities.

Wearing his standard work outfit of faded jeans, sleeveless company hoodie and black baseball cap from the University of Miami, his alma mater, Allen lumbered toward the greenhouses, croaking “Good morning!” to passing workers. Inside he met with researchers from the University of Wisconsin-Milwaukee to discuss a joint aquaponics study expected to include weekend farming workshops for the public. “A lot of people will come,” a grinning Allen told his new colleagues, “because it’s a cool thing to do.”

These days, few endeavors are hipper than urban farming. Look at Brooklyn, that nexus of cool, where tomato plants sprout from window boxes and beehives colonize rooftops. Or Austin, Texas, where home listings often include chicken coops and vegetable gardens. Witness the efforts of London Mayor Boris Johnson, a renowned bike commuter, to add 2,012 new farming operations across his city by the end of this year.

A search on Amazon turns up hundreds of new titles, like *Farm City*, *Backyard Homestead*, *The Edible Front Yard*, *The Urban Food Revolution* and *American Grown*, a bestseller by First Lady Michelle Obama. Most of these works argue that urban farming builds communities, improves quality of life, revitalizes cities and feeds the hungry while spearheading a broader move away from federal aid and the agribusiness conglomerates that control our food system.

That anti-establishment, do-gooder aura has made Allen a civic rock star. He's won a MacArthur "genius" grant and been profiled in the *New York Times Magazine*. In 2009, Bill Clinton called him "my hero."

And much of his work is worthy of praise. Through a partnership with Sysco Foods, Growing Power provides fresh vegetables to some 50,000 students at more than a dozen Milwaukee public schools. The organization also runs a dozen food stands in low-income areas, provides educational programming for schoolchildren and trains other farmers to do the same. Graduates of its commercial urban agriculture training program — most of them people of color — have started farms and community centers in Cleveland, Detroit, Vancouver and New Orleans, among other cities.

But such heroism doesn't come cheap. Growing Power spends about \$3.2 million a year, according to tax filings from 2010, the most recent year for which reports are publicly available. That year, the organization took in \$1.2 million in revenue and \$2.4 million from grants and donor funding, which means that two-thirds of its annual budget came from philanthropy and public support.

In other words, the country's most prominent urban farm can't put the proverbial food on the table. It's a situation that doesn't bother the farmer-in-chief. "I'm not going to say we're ever going to walk away from trying to get grants and funding," Allen said in an interview later that morning in a Growing Power greenhouse. "Farmers get tax breaks, tax credits, subsidies. So when people say this isn't totally self-sustaining, what does that mean? No business is totally self-sustaining."

The federal government certainly isn't shy about helping Big Agriculture. The 2008 Farm Bill included \$75 billion in subsidies, and 2011 USDA subsidies to Illinois farms alone **totaled more than \$1 billion**. Further, a **recent *New York Times* study** found that U.S. cities, counties and states give businesses about \$80 billion in subsidies and incentives each year.

The problem is that revolutions are generally not bankrolled by the powers-that-be. "If we are going to foster a revolution in the methods of American agriculture, we must pioneer ways to make small-scale farming economically viable," Allen writes in his book, *The Good Food Revolution*, published in May. "The honest truth is that with urban agriculture, we are not there yet."

Allen's next grand vision is already at risk. In December 2010, the city of Milwaukee approved the design for a Growing Power vertical farm, a five-story building with a pyramid-like, slanted glass façade. Allen planned to begin construction the following year. But with 2013 already here, Growing Power has raised only a sliver of the necessary \$10 million. Organization officials declined to give exact figures, but said the capital campaign is ongoing and that they hope to start work by the end of 2014.

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It brings to mind those latter days of the dot-com boom, when investors turned up their noses at once-promising IPOs. Or the more recent end of the housing rush, when new condos that had sprung up seemingly overnight sat empty and dark. As community groups, entrepreneurs, officials and neighbors everywhere embrace urban agriculture despite little evidence of its viability, it’s time to ask: Could we be facing an urban farm bubble?

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## “YOUR VICTORY GARDEN COUNTS MORE THAN EVER”

It’s easy to forget amid subways and skyscrapers, but cities and farms are fraternal twins, born around the same time and closely related. After hunting wildlife, scrounging grubs and berries and following their food for centuries, humans first cultivated grain some 10,000-12,000 years ago in the Fertile Crescent, providing a steady stream of food that helped enable the development of civilization.

Agriculture played a key role in cities until the 19th century, when industrialization pushed large-scale farming to rural areas. But in 1894, Detroit Mayor Hazen Pingree responded to economic decline and high unemployment with an idea familiar to any shrinking-city leader today: A citywide program to start gardens on vacant land. Within two years, nearly half of Detroit’s welfare families were growing their own food in Pingree’s “potato patches.”

Around this time, planners began to reincorporate agriculture into the city. English planner Ebenezer Howard proposed his Garden Cities of Tomorrow, integrating town and country into a single fabric. Frank Lloyd Wright later presented a similar vision, Broadacre City. Meanwhile, Pingree’s program inspired copycat initiatives in New York and Philadelphia.

The U.S. government promoted victory gardens to address food shortages during World War I and again during World War II. Americans tended some 20 million

backyard and community gardens by 1943, when their total fruit and vegetable production nearly matched that year's commercial output. After the war, the gardens withered along with patriotic fervor.

Over the past decade, a confluence of factors — a food movement calling for healthful, local produce over the troubling output of industrial farms; a vogue for DIY and back-to-the-land-ism, as well as for green, progressive urbanism; and a desperate search for new job-creation tools — has reanimated the green thumbs of urbanites.

And right on time: About 50 million Americans face food insecurity and another 23.5 million live in designated food desert neighborhoods with higher incidences of obesity and dietary diseases. Moreover, we are losing the very foundation of our food security. Over a third of the world's fisheries are exploited and a quarter of the world's agricultural land has been degraded, according to the United Nations Environment Programme.

Population experts estimate that global food output needs to double by 2050. Yet humanity loses 3 million acres of farmland each year (2 million to degradation and a million to development, according to Peter Ladner, author of *The Urban Food Revolution*) — a loss equivalent to a farm the size of New York State every decade. Climate change compounds the problem: Scientists estimate that world food production falls about 10 percent for every 1 degree-Celsius rise in average global temperature.

“The era of cheap and abundant food appears to be drawing to a close,” food author Michael Pollan wrote in the *New York Times Magazine* in October 2008. All this as the American economy experiences its longest period of slow or no growth in 80 years and cities across the country face high unemployment, mountains of debt and expanding areas of blight. Little surprise that so many are suddenly asking so much of urban farming.

## STRIVING TO SCALE

In October, the Community Innovators' Lab at the Massachusetts Institute of Technology held a **Twitter brainstorming session** focused on financing today's urban farms, most of which are non-profit. In a steady stream of 140-character survival stories, commenters tweeted about relying on crowdsourcing sites like Kickstarter, grants, public funds and free labor from volunteers and Americorps workers.

“All these great orgs doing such cool stuff: educating, feeding, building resilience in communities in self-sustaining ways, but struggle to pay a single full-time employee



a livable wage to manage all the programs and partnerships,” wrote Ann Beman, a Washington, D.C.-based urban farming advocate, in a two-tweet comment.

So what *can* urban farms do? Proponents say they improve local health and cut dietary diseases. But analyzing the local health outcomes of an urban farm is practically impossible. Others say urban farms reduce pollution. Harvard economist Edward Glaeser, author of *Triumph of the City*, disagrees. “Farm land within a metropolitan area decreases density levels and pushes us apart,” Glaeser *wrote in the Boston Globe* in 2011, “and carbon emissions rise dramatically as density falls.”

Urban farms can improve food access locally, but their ability to boost the food security of a metropolitan region is unproven. R. Ford Denison, a professor of ecology and plant biology at the University of Minnesota and author of *Darwinian Agriculture*, calculates that growing enough food for the residents of greater New York City would require a farm almost the size of the state of Connecticut. “Rooftop gardens or skyscrapers full of hydroponics are not going to make a significant contribution to food security,” he said.

Cutting stormwater runoff, slightly reducing violent crime and providing youth recreation and health education, meanwhile, are all good things. But municipal officials might just as easily achieve them with green infrastructure and a new park or arts center. That leaves job creation and local revitalization.

“Economic development outcomes are the ‘least documented aspect of urban agriculture,’” University of Pennsylvania professors Laura Wolf-Powers and Domenic Vitiello write in their forthcoming study of urban farms’ potential as job creation engines. “Skeptics doubt the sector’s potential to reach scale or create family-supporting jobs.”

That didn’t keep Chicago Mayor Rahm Emanuel from praising urban farming as a “job creator and a revenue creator” when his city **passed an ordinance supporting food production businesses** in 2011. Many Chicagoans, including Ken Dunn, hope to prove the mayor right. Dunn has been running **City Farm** since the early 1990s and believes he has built a model for revitalizing ailing communities.

“One thing about sustainability is that you have to sustain it,” said Dunn, the founding director of the Resource Center, a Chicago-based environmental organization that oversees City Farm. “You ought to be able to run independently without government or other help. I started doing this a couple decades ago, and we’re pretty much there.”

Relying on volunteers, interns and compost collected from area restaurants, City Farm generates about \$140,000 worth of annual produce — enough for four full-time jobs — from its one-acre site on Chicago’s North Side. Right now, City Farm receives close to 15 percent of its budget from private donors, but Dunn says that more acreage would tilt the numbers in his favor. Chicago has high unemployment and tens of thousands of vacant plots of land.

This spring, City Farm began building out a 1.5-acre, city-owned space in Washington Park, a poor South Side neighborhood. Perry Street Farm, as it’s called, is a partnership with the Department of Housing and Economic Development and the Washington Park Consortium, a community organization. By the time it’s fully operational next spring, Dunn expects six locals to be working there full-time.

But this model has its limits. Dunn admits there aren’t enough high-end restaurants or CSA customers willing to pay a premium for the produce generated by 10 or 20 one-acre farms, much less 10,000. He’s looking for alternative buyers, such as hospitals or schools, but has yet to hit on a scalable option.

A few miles away from Perry Street Farm, a non-profit called **Growing Home** runs a 14-week urban agriculture training program for the hard-to-employ with a 70 percent success rate. Yet it receives 90 percent of its budget from the city, the state and donors like Boeing and the Chicago Community Trust. Despite very real accomplishments in Chicago’s rough Englewood neighborhood, Growing Home would fail without considerable external support. It more closely resembles a publicly funded job-creation program than a thriving urban farm.



Meanwhile in Milwaukee, Growing Power is running a three-year program to create 150 full-time jobs for low-income city residents, funded by \$425,000 from the city. In the program's first year, the non-profit created more than 40 full-time positions, training men to erect and maintain hoopouses across the city. Yet Allen has found that one hoopouse cannot generate enough income for a living-wage position, and the program may be unable to create all those jobs without additional funding.

These scenarios match the findings of Wolf-Powers and Vitiello, who write that urban farming in low-income communities works not as a tool for job creation and economic revitalization, but “as a strategy for supplemental income generation and workforce development, and as a tool for community building, poverty alleviation and improvements in health and nutrition.”

Still, officials and entrepreneurs continue to search for the key to unlock the economic potential of urban farms. “You go a hundred miles outside of Chicago, we have some of the richest soil on the planet,” said Peter Strazzabosco, deputy commissioner at the city's Department of Housing and Economic Development. “How do you compete with that in the inner city, where the land needs significant investment to be made ready for farming, where there's a lack of capable farmers who can just jump right in, and somehow produce enough product to make it a viable commercial operation? I don't think there is a formula yet. Hopefully, the commercial sector can step in and find their niche to make it profitable.”

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## ROOFTOP PROFITS

A couple floors above a racy lingerie shop, on the roof of a squat brick office building on Montreal's *Rue Antonio Barbeau*, sits the antithesis of Growing Power. Upon its opening in early 2011, **Lufa Farms'** 31,000-square-foot indoor growing facility became the world's first large-scale commercial rooftop greenhouse. Gone are the smell of worms, the buzz of flies and the bitter cold of a Milwaukee winter, as well as the baling wire and duct tape that hold together those ancient Growing Power greenhouses. Replacing these are climate-controlled growing areas, expensive hydroponic systems and perfectly straight rows of greens watered by computerized sprinklers.

In a profitable first year, Lufa, which sells direct to consumers rather than grocers or middlemen, grew 100 tons of produce and signed up nearly 1,000 CSA-style subscribers. In October, the company received \$4.5 million in venture capital to finance two new Montreal farms and an expansion into the U.S. market. “We believe this is the evolution of the Green Revolution, or agriculture 2.0: Putting the farm in

# Hunger Games

Every year, the world's population increases by 74 million while its supply of farmland decreases by 3 million acres. To continue to feed ourselves, we must find ways to grow more food on less land.



**26 cities** in the world are expected to have a population of **10 million** or more by 2015



To feed a city of this size at least **6,600 tons** of food must be imported each day



**800 million** people are involved in urban agriculture worldwide and contribute to feeding urban residents



Low-income urban dwellers spend between **40% and 60%** of their income on food each year

the city and making it the center of the community by having a direct connection to consumers,” said Mohamed Hage, Lufa CEO and co-founder.

The Green Revolution, which involved the proliferation of modern farming techniques and materials to Africa and India in the mid-20th century, helped provide food to a billion of the world’s poorest people. Lufa and similar outfits seek profit rather than global good. For this ambition, rooftop greenhouses have many advantages over outdoor farms. They receive unimpeded light from the sun and free heat from the building below, can be farmed year-round and significantly reduce or eliminate land access concerns.

They are far more productive, yielding 10-20 times more food per square foot, and less exposed to the ravages of Mother Nature. (Superstorm Sandy swept away the apiary at Brooklyn Grange, which had been New York City’s largest beekeeping operation, and flooded Red Hook’s Added Value, destroying its crops.)

But they also require a certain clientele. Lufa’s flagship greenhouse sits just outside Mont Royal, a Montreal neighborhood that is one of Canada’s wealthiest, and its soon-to-open 44,000-square-foot greenhouse is in the well-to-do suburb of Laval. All Lufa subscribers live or work within 10 kilometers of the flagship farm, and 60 percent are within two kilometers, paying from \$22 to \$42 for weekly produce baskets.

Lufa was among the leading contenders for a project in the Bronx slated to become the world’s largest rooftop farm. Hunts Point, an industrial area considered New York’s food distribution hub, seemed a fine location. But Lufa stepped out of the running in October, citing the cost of reinforcing the structure.

It’s possible the roof needed too much reinforcement. It’s also possible that Hunts Point didn’t fit Lufa’s hyper-local model. Neighborhood residents — more than half of whom live below the poverty line — would seem unlikely buyers of \$30 baskets of organic produce. “Boston seems to have the right mentality and the right type of consumers,” said Hage, of Lufa’s next target city. “New York seems to be more challenging to find the right kind of building.”

Lufa has 27 employees today. When its first U.S. farm and two new Montreal farms open later this year, the company expects to have around 40 employees, or about one worker for every 5,000 square feet of growing space. The lean staffing is crucial. Unlike non-profit farms, which are often focused on civic good, Lufa’s focus is on efficiency and the bottom line.

Its greenhouses are outfitted with control systems that monitor and control feeding, temperature and “rainfall” from miles away. “Once we open our farm in Boston it will be run from our offices here in Montreal,” said Hage. “We’ve approached this with the

Starbucks-type franchise model, to manage our farms from a centralized place. Even our current farm is operated remotely. Our manager uses an iPad application.”

All that newfangled technology may increase production, but Lufa — and competitors like Gotham Greens, FarmedHere and others — still has the same problem as City Farm: A dearth of price-unconscious customers. Operations that rely on premium pricing may be able to sustain a facility or two in certain well-off neighborhoods, but inevitably the numbers are not in their favor.

Louis Albright, a professor emeritus of biological and environmental engineering at Cornell University, doubts the traditional outdoor farm can ever work in the city. “They should give up the idea of growing food at the local corner that’s been vacant for years,” he said of efforts like City Farm. “There may be community-related reasons to do it, but it’s not going to be economically successful.”

As director of Cornell’s decade-old Controlled Environment Agricultural program, Albright researches the most productive and efficient methods of commercial-scale indoor crop production. Of Lufa and other commercial urban operations, he said the main challenge is the cost of high levels of energy usage, intra-city distribution and adapting greenhouses to each building. He doubts their viability, due to the necessarily high price of their produce. “It’s going to depend on how much of a premium people are going to be willing to pay for very local produce,” he said.

Wolf-Powers echoes that sentiment, pointing out that commercial urban farms do best in cities with a surfeit of fine restaurants and affluent households. “The key thing about those places is that there’s a very large consumer market with the tastes and resources that align with that,” she said. “It’s much harder to do in Detroit and Cleveland where, ironically enough, the land is there.”

## HYBRID SITUATIONS

Empty lots and the hulking remains of former manufacturing and meatpacking plants stretch for blocks in Chicago’s Back of the Yards neighborhood. All that available space called out to John Edel, an industrial designer turned developer, who made his name transforming an abandoned paint warehouse into a sustainable manufacturing collective.

Today, Bubbly Dynamics, as it’s called, houses 16 tenants, including bike makers, screen printers and metal fabricators. It also generates a profit, which serves as a calling card for Edel’s much larger, current project: The conversion of a former pork packing facility into a 93,500-square-foot, zero-waste vertical farm and food business incubator called [The Plant](#).

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When Edel bought the empty pork plant in mid-2010, it was already up to USDA code for food production, enabling him to immediately add tenants. Today, two aquaponics businesses, a kombucha tea brewer, two bakeries and a rooftop farm work in cavernous rooms where pig parts were once made into ham and bacon. In the basement, Edel does his own farming. “In some ways we’ve come much farther than we’ve expected to,” said the 43-year-old, resting his booted feet on a lunch table in The Plant’s breakroom.

He wore dark blue coveralls with “Bubbly Dynamics” stitched in white lettering over the heart. With his scraggly beard, high forehead and incorrigible hair, the tall and

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wiry Edel evokes a half-cocked, hard-at-work visionary, a la Willy Wonka or *Back to the Future*’s Doc Brown. But his manner is measured and calm. “In other ways, we haven’t gone anywhere,” he added. “This is all pretty uncharted territory here.”

The centerpiece of the operation is a closed-loop energy plan that turns the waste of tenant businesses into a power source. Last year, Edel received a \$1.5 million state grant to help build an anaerobic digester and combined heat and power system capable of turning 12,000 tons of food waste into about 380 kilowatts hours of electricity and enough heat for the entire building. About 10 percent of the digester’s waste is expected to come from spent grains spit out by a brewery, The Plant’s still-unsigned anchor tenant.

Construction on the digester began in November, along with fundraising for a four-unit, \$350,000 shared kitchen. Edel hopes to sign a brewery in the next few months and be fully operational by 2016, creating 125 jobs. He said he’s met with a neighborhood council about connecting unemployed locals with Plant tenants.

Back of the Yards may be slowly reawakening after decades of decline, but for Edel, stability is years away. The Plant sits behind a new strip mall anchored by the world’s biggest retailer. “We’ve got this Walmart coming in,” Edel said. “I’m a little nervous about that. It’s the first time we’re doing this, but we’ll have to figure out ways to get our prices to drop.”

There it is again, the problem faced by Lufa, City Farm and others. Edel's hope is that The Plant can marry farming and food processing and bring the commercial and the civic-minded together in a single space to foster collaboration and reduce costs. "We all talk to each other, share what we're doing and how we're doing it," he said.

"We're not competing against each other but against the larger food business and agribusiness world, and large corporations. The only way to do that is to create these group economies of scale. Once the efficiencies are fully fleshed out I expect that we'll be able to bring prices down considerably, and as we see more urban and vertical farming I expect prices to come down further."

Joe Nasr, a lecturer on urban food security at Toronto's Ryerson University and co-author of *Carrot City: Creating Places for Urban Agriculture*, sees The Plant pointing the way toward next-generation urban farms. "I think we will see more and more hybrid situations like these," he wrote in an email. "This complexity is why the urban farming movement in North America is so exciting these days."

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## SURVIVAL OF THE FITTEST

Despite the excitement, and the coolness of it all, urban farmers remain thin on the ground. The United Nations says some 800 million people are involved in urban agriculture in one way or another, but only a tiny percentage toils in developed countries. Strazzabosco, of Chicago's Housing and Economic Development department, says a dearth of experienced farmers is the factor that most restricts the expansion of urban farming in his city.

In the heyday of victory gardens, millions of homeowners tended small backyard patches in their spare time. In today's Cuba, which is also cited by urban agriculture advocates as a potential model, hundreds of thousands of people manage small, private or community farms on state-owned land. It's clear that urban farming utopias generally require mass participation, which springs only from the most extreme circumstances.

Our economy remains worrisome and climate change is a looming boogeyman, particularly after Sandy. But neither represent as clear and present a danger as an attack on Pearl Harbor while Adolf Hitler storms Europe, or a post-Soviet fuel crisis that nearly starves a small island nation, forcing its citizens to rebuild their food system.

In the U.S., victory gardens were abandoned after the war ended. And reports of Cuba's urban farming revolution may have been exaggerated. Domestic food prices have increased considerably of late and, despite President Raul Castro's goal of food sovereignty, food imports are up more than 20 percent since 2006, according to a [University of Havana study](#).



Regardless, in 21st-century America mass participation in urban farming is going to require either a crisis or a persuasive economic model. City Farm, Lufa and The Plant hold promise, but it may be telling that the First Lady appears to have shifted her focus away from gardens and local food to childhood exercise, with her “Let’s Move” campaign. Or that Allen has repeatedly called for 50 million more urban farmers, perhaps hoping the greater numbers will produce real solutions.

That many urban farmers is probably an impossible dream, but some answers may be on the horizon. Carolyn Dimitri, a food systems economist at New York University, recently began a 15-city study on the viability of commercial urban farming funded by \$450,000 from the USDA. “Our goal is to see under what conditions these farms might be profitable,” said Dimitri. “Is urban farming a way for farmers to make a living? And if so, what are the optimal conditions for profitability?” A project called Five Borough Farm is tracking a handful of key indicators at hundreds of farms in New York City to measure the social and economic impact of urban agriculture. Both reports are expected late next year.

Meanwhile, Detroit has approved a Michigan State University plan to build a \$3 million urban agriculture research center. Mayor Dave Bing hopes the 10-acre center can turn his city into an engine for urban food innovation. For ideas, MSU researchers might look to the 12-story vertical farm in Sweden, or the Tokyo entrepreneur who launched a rooftop farm rental operation, or Sky Greens, a vertical farm partnership between the Singapore government and an engineering firm.

This sort of experimentation and creativity is crucial to the development of a more advanced economy. As Jane Jacobs writes in *The Economy of Cities*:

“Our remote ancestors did not expand their economies much by simply doing more of what they had already been doing: piling up more wild seeds and nuts, slaughtering more wild cattle and geese, making more spear-heads, necklaces, burins and fires. They expanded their economies by adding new kinds of work. So do we. Innovating economies expand and develop. Economies that do not add new kinds of goods and services, but continue only to repeat old work, do not expand much nor do they, by definition, develop.”

Economies also develop via trade. The early civilizations of the Fertile Crescent thrived in part because they learned to sell their goods to outsiders. Wolf-Powers said her research indicates that urban agriculture is unlikely to emerge as an economic force until it climbs the value chain to specialty products that appeal to a broad clientele, like tomato sauce and jam.

“The production of food and food products linked to the agricultural activity — that’s where we’ll start seeing economic development, where it’s generating jobs and exports and generating revenue for the city,” she said.

As Allen writes, we’re not there yet. But with the total acreage of cities doubling over the next decade and a half, the opportunity to experiment and significantly expand urban farming is real, as is the need for food and jobs. Removing the rose-colored glasses is a good first step. Some experiments will fail, and that’s precisely the point. A dozen years ago, the Internet bubble burst, erasing dozens of companies, thousands of jobs and billions of dollars. Yet today, behemoths like Amazon, Facebook and Google are successful enough to merit antitrust scrutiny.

A similar moment for urban farms will not mark their end, only the end of the beginning. “Competition is good for killing off bad ideas, innovations that don’t work or businesses that aren’t viable,” said Denison, the University of Minnesota professor. “Things that might be propped up by subsidies, if they actually have to compete they may go under, and the survivors are the ones that work best.” >





## ABOUT THE AUTHOR

**David Lepaska** is a freelance journalist based in Chicago. His reporting on cities and sustainability has appeared in the *New York Times*, *The Guardian*, the *Christian Science Monitor*, *Monocle*, *The Atlantic Cities*, *Metropolis* and other outlets.



## ABOUT THE ILLUSTRATOR

**Lauren Adolfsen** is a graphic designer and illustrator based in Los Angeles. Born and raised in New York City, Lauren's passion for food started at a young age with the children's book *Cloudy with a Chance of Meatballs* and a collection of McDonald's Happy Meal toys.

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