

# Neighborhood Fare



Tools for Connecting  
Local Food Systems

## AUTHORS

- Ellen Abraham
- Kiffa Brathwaite
- Charmaine Browne
- Timothy Duschenes
- Olivia Flynn
- Genea Foster
- Rae Gomes
- April Hurley
- Nausher Khan
- Cristina Lee
- Alexis Luna
- Diana Malone
- Ezra Moser
- Chit Yee Ng
- Fernando Ortiz-Baez
- Catherine Ponte
- Joy Resor
- Ciara Sidell
- Kelvin Taitt
- Despo Thoma
- Will Thomson
- Kimberly J. Vallejo
- Alejandro Vazquez

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## DESIGN

Partner & Partners

## ILLUSTRATION GRAPHIC DIRECTION

Olivia Flynn  
Despo Thoma

## Photos by Forefront Fellows, Urban Design Forum, and Sam Lahoz

Urban Design Forum  
114 Bowery, Suite 301  
New York, NY 10013  
[urbandesignforum.org](http://urbandesignforum.org)



# Commercial Urban Agriculture

## PRODUCTION

**In a food-forward neighborhood, commercial urban agriculture provides accessible, local produce and strengthens the food economy.**

Commercial urban agriculture is a small but growing sector of for-profit food growing operations that primarily serve urban residents. In New York City, the three main types of commercial farms are soil-based farms, rooftop farms, and controlled environment agriculture.



## OBSERVATIONS

### Commercial urban agriculture is a promising emerging sector in New York City.

In New York City, commercial agriculture takes place in open spaces, building rooftops, and controlled indoor environments. While the sector is small, with 36 urban farms operating 18 acres of farmland according to Cornell University data, it has grown rapidly over the past decade.

Three main types of commercial farms exist in New York:

- **Soil-based farms** use conventional farming, growing a wide variety of crops in normal soil in open spaces with irrigation and sunlight. These “low-tech” farms may use raised bed systems, greenhouses, or hoop houses to grow their crops.
- **Rooftop farms** can grow a select variety of crops applying soil-based farming on building rooftops.



- **Controlled environment agriculture (CEA)** uses technical systems to manage and stabilize plant growing conditions. These “high-tech” systems include vertical farming, which cultivates plants in stacked, indoors layers; hydroponics, which uses soilless media and water enriched with nutrients to grow plants; aquaponics, an integrated system that uses the organic matter from fish culture as natural fertilizers to grow plants; and aeroponics, which relies on a nutrient-rich solution mist applied to plant roots. CEA farms mainly grow leafy greens, herbs, and edible flowers, though new efforts aim to expand to berries and other crops.

Commercial urban farms can increase access to fresh foods, reduce the environmental impact of food production, develop local economies, and foster community cohesion. Urban farms can provide educational sessions, farm tours, and community gathering spaces. They can play an important role in mitigating the effects of climate change by reducing the urban heat island effect, expanding stormwater drainage, filtering air pollution, and creating habitats for pollinators. A decentralized network of commercial urban farms can also reduce food transportation compared to air-freight produce and imported foods.

### Soil-based, rooftop, and controlled environment farms have distinct spatial considerations.

Commercial farms have varied infrastructural requirements for appropriate building spaces.

Soil-based farms have simpler needs, and correspondingly lower start-up costs. These include soil testing and possible remediation, as well as raised beds or enclosed greenhouses. However, challenges in finding a suitable outdoor space may constrain growth in the sector, given land use competition, limitations on using community gardens on NYC Parks property for commercial purposes, and no incentivization for developers to include food-

producing open spaces in their mixed use programming of buildings and land.

Rooftop farms require buildings with appropriate structure, waterproofing, and weight-bearing pillars, limiting the types of buildings on which rooftop farms can be viable.

Eagle Street Rooftop Farm's 6,000 square foot facility in Greenpoint, Brooklyn cost approximately \$10 per square foot to install over a decade ago, which was "significantly lower" than typical due to site factors. As with land, there is competition for rooftop space among solar panels, private leisure or amenity uses, and mechanical system use.

CEA farms need specialized mechanical, ventilation, and lighting equipment. CEA operations require high floor load capacity, robust drainage, and air systems that manufacturing building floors may not need. CEA farms can be located within buildings or in rooftop greenhouses. CEA farms also have higher energy usage, which increases operational costs and can mitigate the farm's positive environmental impact if the building does not use clean energy.

## **Commercial farms require access to financing for start-up costs and ongoing operations.**

As the sector grows, establishing viable business models and securing stable financing will be key; in a national survey, urban farmers ranked profitability and financing as the major challenges they faced.

Urban agriculture businesses face high insurance premiums, limited availability of trained workers, and especially in the case of CEA, high infrastructural costs. Key start-up and operational expenses include renting or purchasing space, building necessary infrastructure, acquiring equipment, paying for utilities, providing wages to employees, and purchasing seeds. For CEA, electricity costs can be particularly high.

With low profit margins for soil-based and rooftop farms, and higher margins but also higher start-up costs for CEA, entrepreneurs need access to early and ongoing funding sources. Nationally, agricultural tech companies, which include indoor farms, are seeing increased venture capital funding.

## **Commercial farms can strengthen their neighborhood connections to provide fresh food and support local food economies.**

Research suggests that purposeful planning and policy are needed to connect the health and economic benefits of urban agriculture to lower-income residents and communities of color.

Urban farms typically sell products either to retailers and distributor networks or directly to restaurants and individual consumers, such as through a membership model. Various studies have indicated commercial urban agriculture efforts often do not supply food to communities where they are located. Standard-priced items are often out of reach for lower-income residents.

However, models for local distribution do exist: Brooklyn Grange, for example, operates an Equitable Distribution Program to distribute around 30% of their harvest to community members at no cost. The program distributed over 60,000 pounds of fresh produce in 2021.

Neighborhood-based commercial farms can also strengthen local economies by providing entrepreneurship opportunities and sources of employment. For example, in 2021, Farm.One had a staff of 20 with a focus on creating good jobs, with full-time employment and living wages.

But more work is needed to ensure economic opportunities benefit BIPOC New Yorkers. There is no comprehensive data on the demographics of commercial agriculture business owners or employees. Yet recent literature has noted an increasing proportion of young, white urban agriculture practitioners, even though most community gardeners in New York City identify as BIPOC. Given the vast knowledge community gardeners have about urban growing, and some gardeners' interest in commercial models, there may be room to strengthen connections between community gardeners and commercial agriculture to grow local food economies.



## Site & History

Farm.One is a vertical hydroponics farm established in 2016. They began operations at a small location at the Institute of Culinary Education in downtown Manhattan, then built a larger farm in Tribeca in 2018 and expanded to a second location in Prospect Heights, Brooklyn in 2021.

## Operation

Farm.One operates as a for-profit business with a staff of about 20 people engaged in farming, operations, delivery, marketing, and membership. The farm in Tribeca, an underground space, had reached profitability by January 2020. Their Brooklyn location, a single-story warehouse building, is approximately 25% built out. In February 2022, the company announced they would need to halt operations due to cashflow issues and launched a crowdfunding campaign.

## Activities

Farm.One's initial business model was to sell high-quality and specialty leafy greens, herbs, and edible flowers to baristas and fine dining restaurants like Atera, Eleven Madison Park, and Marea. During the COVID-19 pandemic, due to the restaurant industry downturn, they pivoted to a subscription model where residents of certain New York City zip codes could receive a weekly curated boxes of greens, herbs, and flowers for \$30/week.

The greens are harvested in the morning, packed, and delivered in the afternoon. Delivery happens primarily by cargo bike. The Prospect Heights farm serves approximately 300 members, with capacity to serve 2,000 when fully built out. The company has partnered with local businesses such as a mushroom grower and a smoothie producer to offer additional value-added products. The farm provided tours and education to children on a regular basis before pandemic conditions precluded these activities.

## Loading Requirements

Two garage roller doors at Prospect Heights location

## Cold Storage

The business has a small refrigerator case to store value-added products. They do not currently have cold storage infrastructure for their own produce since the plants are harvested and delivered on the same day.

## Funding Sources

In 2018, Farm.One raised ~\$1 million to build their Tribeca Farm through crowdfunding on StartEngine and other investors. In 2020, they raised \$2 million from two individuals to build a larger farm. In February 2022, they launched an additional crowdfunding campaign with a goal of \$3 million to complete the Prospect Heights farm build-out and provide working capital.

## Products

Over 700 varieties of greens, microgreens, herbs, edible flowers in rotation

## Produce Grown

Customers receive ~10 oz of greens per week



Case Study  
**Farm.One**

Site Size  
1,200 sq ft in Tribeca  
10,000 sq ft in Prospect Heights



## RECOMMENDATIONS

### → Expand access to suitable space.

The City should provide tax incentives to landowners who make land and building space available for farming similar to [bill H2995 proposed in Massachusetts](#), which would enable cities to adopt a tax break on land used for urban agriculture. The City can build on [Local Laws 92 and 94](#), which require solar or green roofs on all new or majorly renovated roofs, to incentivize space that meets rooftop farm and CEA structural requirements. The City should offer tax incentives or density bonuses for structurally optimizing rooftops for rooftop farming and integrating floor(s) designated for controlled environment farming in retrofits or new commercial developments. These buildings should supply:

- High-capacity floor slabs
- Fresh air ventilation system
- Robust drainage system
- Clean water access
- Renewable energy source

### → Explore business models that expand produce access for local communities.

The City should provide incentives and subsidies for farms to sell a designated portion of their fresh products at affordable prices to low-income communities and residents in food deserts and in neighborhoods where they are based. Companies could apply a tiered pricing model to subsidize prices for low-income customers, like Corbin Hill Food Project's [flexible farm share model](#).

### → Connect commercial agriculture to local growers, distributors, and farmers markets to deepen community connections.

The City should act as a convener to connect commercial agriculture businesses to partnerships with community gardens, farmers markets, retailers and local food distributors. These partnerships could seed aggregate buying, foster knowledge-sharing and workforce development pathways, and build hyper-local economies.





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