Urban Agriculture and Innovative Production

A Guide to Local Policy

Center for Agriculture
& Food Systems
VERMONT LAW & GRADUATE SCHOOL

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Authors & Acknowledgments

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This fact sheet is part of a series of resources on legal topics related to urban agriculture and innovative production. It was produced with support from the Office of Urban Agriculture and Innovative Production at the U.S. Department of Agriculture.

Want to learn more?
View the whole project at **cafs.vermontlaw.edu/projects/urban-agriculture-and-innovative-production** or scan the QR code.

Stakeholder Participation

The following is a list of the more than 120 people we spoke with over nearly two years to ground our research in the real-world experience of the people navigating local urban agriculture policies. In each of the 17 cities we researched, we tried to interview at least one person in city government and at least one person who is a producer (unfortunately, this was not possible in every city due to capacity, scheduling, and response rate issues). In addition to these core stakeholders, we spoke to a broad range of representatives from various constituencies within local urban agriculture networks, including community organizers, academics, service providers, nonprofit leaders, attorneys, and consultants. We also spoke to many dedicated public servants in USDA's urban service centers about their work supporting urban food production in cities across the country. These conversations were invaluable in shaping our understanding of the nuances of local policy design, implementation, and impact, as well as filling in the local political and historical context shaping today's policy environment. We'd like to extend our immense gratitude for lending their time and expertise to the following interviewees:

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Minneapolis:

Kara Kamoto (Twin Cities Community Agricultural Land Trust), Grace Rude (Homegrown Minneapolis), Princess Titus (Appetite for Change)

New Orleans:

John Boatman (NRCS), Kelly Cahill (Yardbird Farms), Maggie Kaiser (Too Tall Farm & Nursery/SPROUT), Annie Moore (River Queen Greens), Jorge Penso (NRCS), Mina Seck (SPROUT), Craig Smith (NRCS), Grace Treffinger (New Orleans Office of Resilience & Sustainability), Abrina Williams (New Orleans Redevelopment Authority), Devin Wright (SPROUT/ Rude Becky Farm)

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Richmond:

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Heather Habinyak (FSA), Sarah Szachnieski (NRCS), Kylie Turner (FSA)

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Center for Agriculture & Food Systems
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About CAFS

The Center for Agriculture and Food Systems (CAFS) is a research-based center at Vermont Law and Graduate School that produces original scholarly research in the field of food and agricultural law and policy to serve the broadest range of food system stakeholders.

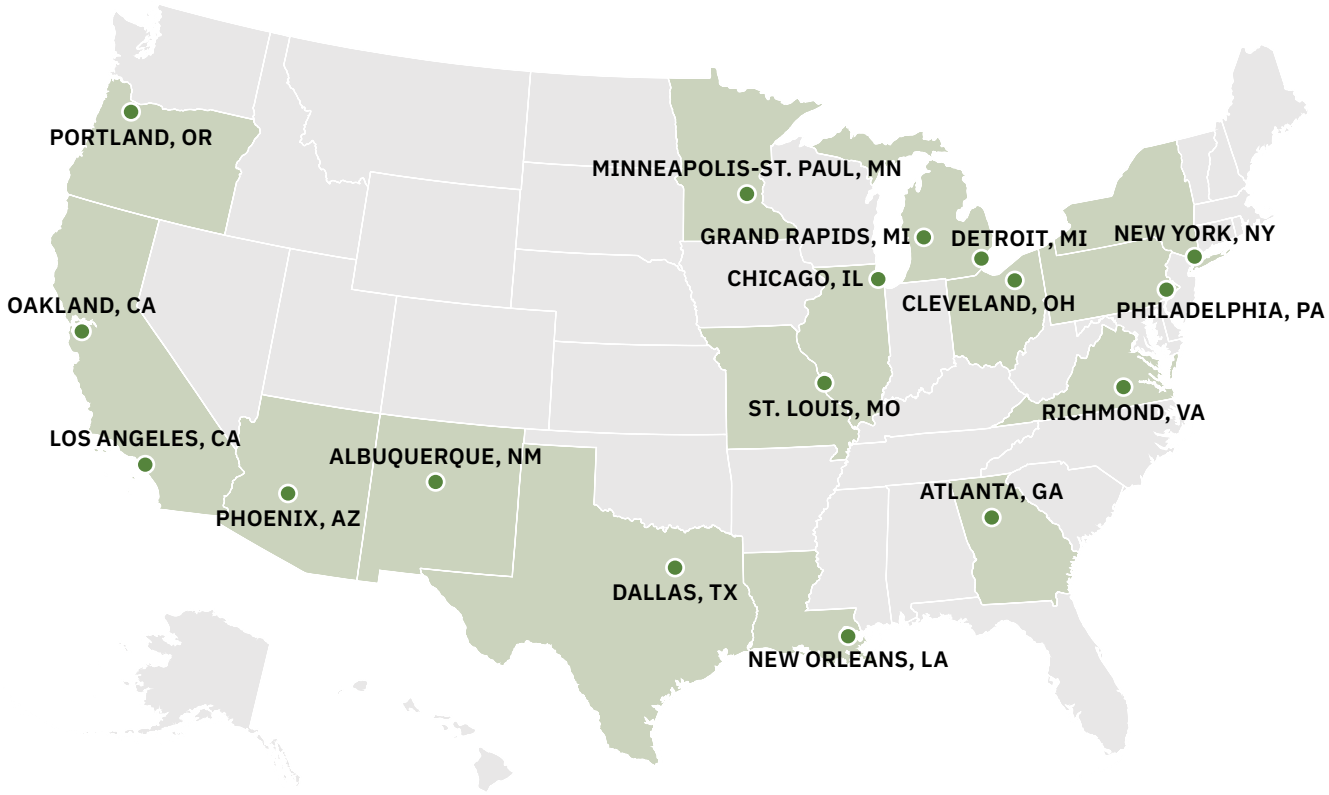
With local, regional, national, and international partners, CAFS addresses food system challenges related to food and nutrition security and affordability, farmland access, food system workers, farm viability, local economies, and public health, among others. CAFS works closely with its partners to provide legal services and develop resources that respond to their needs. Through CAFS's Food and Agriculture Clinic and Research Assistant program, Vermont Law and Graduate School students work directly on projects alongside partners nationwide, engaging in innovative work that spans the food system.

Learn more at **cafs.vermontlaw.edu**.

About the Project

Pursuant to a cooperative agreement with the Office of Urban Agriculture and Innovative Production (OUAIP) at the U.S. Department of Agriculture (USDA), CAFS has undertaken research to produce a suite of resources to help urban agriculture stakeholders navigate the local policy environment that shapes so much of their work. In the first phase of this project, CAFS conducted a policy scan of the 17 cities OUAIP designated as "urban agriculture hubs" in 2023[1] and identified key concepts that merited further research and analysis. This work was further informed by an advisory group consisting of urban agriculture, innovative production, and municipal policy practitioners from around the country, and by conducting interviews with multiple stakeholders in each of the 17 cities. This project builds on prior work by CAFS on related topics, including the **Healthy Food Policy Project** and the **Farmland Access Legal Toolkit**.

This urban agriculture and innovative production policy guide is intended to introduce the reader to key concepts in urban agriculture and innovative production policy, identify common barriers, and draw on real-world examples of policy in action from the 17 cities. While there are other American cities who have created noteworthy policy and devoted municipal resources to urban food production, we found that these 17 cities provide a useful sampling of cities of different sizes—both physical footprint and population size—that confront a wide range of preconditions to policymaking, including natural resource concerns, demographic and economic factors, and social and political dynamics that shape each city's history and present day. The guide was designed for urban producers, individuals and groups who provide technical assistance to urban and innovative producers, and policymakers hoping to better understand how to develop and implement policy to support urban agriculture and innovative food production in their communities.



In 2023, the USDA Office of Urban Agriculture and Innovative Production designated 17 cities as "urban agriculture hubs." These cities are New York, NY; Philadelphia, PA; Richmond, VA; Atlanta, GA; Cleveland, OH; St. Louis, MO; New Orleans, LA; Detroit, MI; Grand Rapids, MI; Chicago, IL; Minneapolis-St. Paul, MN; Dallas, TX; Albuquerque, NM; Phoenix, AZ; Portland, OR; Oakland, CA; and Los Angeles, CA.

Contents

I. Introduction

What *is* "urban agriculture"? Definitions vary from city to city and even from individual to individual. Urban agriculture can mean for-profit farming or nonprofit community gardens, or both; it can be limited to agriculture within a city's limits, or it can expand to include peri-urban and exurban farms that serve urban markets; it can include rooftop farms, indoor farms, container farms, or indoor aquaculture; it can orient itself toward social justice and mutual aid or simply provide a farmer's livelihood. However urban agriculture is defined and whatever form it takes, individuals or groups who want to produce food in urban settings must navigate the complex landscape of municipal ordinances, zoning restrictions, and other local government-specific regulations inherent to any land-based activity.

Urban agriculture has a rich history in the United States. Well before Europeans reached this continent, Indigenous peoples of the Southwest, including Hohokam and Pueblo civilizations, cultivated crops within their densely populated settlements, irrigated by a sophisticated series of ditches and canals diverting water from nearby rivers.[2] After the founding of the United States, as cities grew and industrialized and most of American food production shifted to rural areas, urban agriculture persisted primarily as a response to economic hardship, national crisis, or as a community survival strategy practiced by immigrant and internal migrant populations. In the 1890s, a nation-wide economic downturn prompted city-dwellers across the U.S. to organize vacant lot cultivation associations to curb widespread food insecurity. Perhaps most famous among these efforts was Detroit mayor Hazen Pingree's "potato patch plan," under which 430 acres of Detroit's vacant lands were tilled up and divided into small vegetable plots tended by as many as 1,500 local families.[3]

Urban agriculture has a foothold in cities across the United States, ranging from small allotment gardens to multi-acre for-profit farms to high-tech indoor hydroponics operations.

Cities around the country emulated Pingree's success with vacant lot cultivation programs of their own.[4] The federal government and cooperating local governments encouraged small-scale agriculture in cities during both world wars and the Great Depression, labeled variously "war gardens," "victory gardens," or "relief gardens," as important strategies to bolster national food security.[5] Government support for urban agriculture reached its height during World War II, when more than 18.5 million "Victory Gardeners" supplied more than 40 percent of the country's fresh produce.[6] In the years following the end of the war, that support receded and urban food production declined. However, the practice of urban agriculture persisted through the remainder of the twentieth century in the form of school gardens, home gardens, community gardens, and self-organized "guerrilla" gardens in neighborhoods with high rates of vacant land and limited access to resources like full-service grocery stores.[7]

Since the early 2000s, local, state, and federal governments have taken a renewed interest in supporting and promoting urban agriculture and innovative production. Urban agriculture now has a foothold in cities across the United States, ranging from small allotment gardens to multi-acre for-profit farms to high-tech indoor hydroponics operations. These gardens, farms, and innovative production sites grow fresh food for city residents while providing many other benefits. They cool down areas that experience the urban heat island effect; divert and absorb stormwater runoff and improve air quality; and provide habitat for pollinators and beneficial biodiversity. They also offer green space for community connection, food education, and local economic development. To maximize these benefits, many cities have created urban agriculture offices and implemented urban agriculture ordinances. Some cities, like Detroit, have recognized urban agriculture as one strategy to

spur community and economic development in a post-industrial city. Other cities, like New York, have found an enduring public benefit to city-sponsored community gardens. State agriculture departments have developed programs to support their urban farming constituents. The U.S. Congress and President Trump recognized the national-scale importance of urban agriculture by creating the USDA's Office of Urban Agriculture and Innovative Production in the Agriculture Improvement Act of 2018, commonly referred to as the "farm bill."[8]

Coppell Community Garden, Coppell, TX

Local Government Law

Local governments retain control over most of the key policy levers that impact the daily operations of urban farmers and innovative producers. Cities derive their power to enact ordinances and regulations through delegations of authority from state governments. While this local authority cannot contradict state or federal laws—for example, a city cannot enact an ordinance that allows a local business to pollute a waterway in violation of the federal Clean Water Act—municipalities have a lot of power to influence the day-to-day lives and activities of their residents. Urban agriculture is one such activity. Local authorities oversee land use regulation, land access pathways, and public utilities like municipal water and power.[9] They serve as vital conduits of local, state, and federal funds to urban food production initiatives. They have broad authority to support or regulate local food production as they see fit. When farmers and gardeners operate an urban farm, they are subject to local zoning codes that may specify how high plants can grow on any given parcel and whether chickens or bees can be kept within city limits, and they are often required to file permit applications to sell produce from their farm site or build accessory structures like hoop houses.

Because of these powers common to local governments, successful urban producers need to know how to navigate local laws, regulations, and processes for accessing necessities like water, power, land, and, in some cases, material support for their work. However, urban producers often find it difficult to access information about those policies or understand their implications for urban farming and gardening, even in cities with a policy environment largely supportive of urban agriculture. On the other side of the coin, municipal policymakers may not be familiar with urban agriculture, understand its benefits to a city, or have a clear idea of what policies are needed to support urban food production.

How to Navigate This Guide

This guide intends to shed light on some of the ways that local policy impacts urban agriculture and innovative production, and to offer examples of strategies that some American cities have used to build policy around their own urban farms and gardens.

After completing a policy scan of the original 17 cities named by the USDA Office of Urban Agriculture and Innovative Production as "urban agriculture hubs," CAFS has identified several key policy areas that are most likely to impact urban producers:

- Land Access
- Zoning and Land Use
- City Governance and Public Funding
- Water Access
- Soil Health and Composting
- Innovative Production

Each section of the report provides an overview of the specific policy and regulatory barriers faced by urban and innovative producers, offers policy strategies that policymakers can use to help producers overcome those barriers, and highlights examples from cities and states that have laws and policies supporting urban agriculture and innovative production. Each of the sections follows this basic format:

- Key terms and important context
- Barriers facing urban and innovative producers
- Policy strategies to overcome these barriers
- Key takeaways for producers and policymakers

While we have tried to make most of the information in this guide pertinent to everyone with an interest in urban agriculture and innovative production, we have made a special attempt to highlight information that may help producers navigate their local policy environment, as well as information that may help municipal policymakers better respond to the needs of producers.

Feed'em Freedom Foundation, Portland, OR | Photo by Liz Turner

II. Land Access

Defining Land Access

Growing food in cities requires having the space to do so. Where open land is scarce, farmers and gardeners get creative when selecting sites for food production: vacant or abandoned lots, rooftops, warehouses, and schoolyards are just a few examples. Despite their adaptability, urban farmers and gardeners continue to struggle to access and ultimately secure tenure on land.[10]

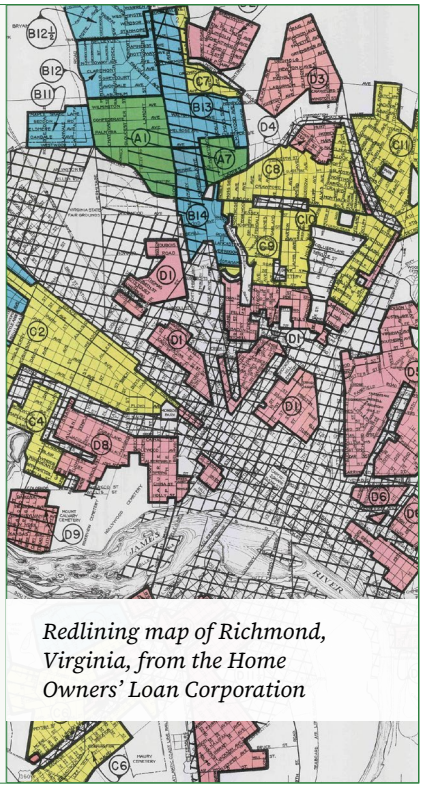
The term *land access* refers to the ability of groups, organizations, or individuals to obtain and use land for a specific purpose. Urban producers' access to land can depend on variables such as availability, affordability, competing uses, and socio-economic factors.[11] Access is just one piece of the puzzle; to establish an agricultural operation, a producer must ensure they also have sufficient land tenure. Tenure and land access are inextricably connected. For example, a community garden set up on an abandoned lot may experience challenges maintaining operations due to lack of stable tenure, such as a protective lease. Conversely, if a farmer or gardener buys land that is not properly zoned for agricultural uses, they are unable to use the land for their intended purpose even though they have secure ownership or tenure.

Municipalities impact a producer's ability to access land for urban agriculture through the laws and regulations they enact.[12] When cities institute new zoning regulations or create land banks, they can dramatically lower—or raise—barriers for producers hoping to access or secure tenure to land.[13] To navigate high costs, limited land availability, competing uses, and other challenges, policymakers and producers can work together to increase opportunities for urban agriculture to take root within city limits.

HISTORICAL CONTEXT

Disenfranchisement's Impact on Urban Producers

Throughout the United States, decades of discriminatory real estate practices have left lasting scars on the urban fabric. Inequitable lending policies, redlining, and racially restrictive covenants have all systematically excluded Black, Indigenous, and other people of color from owning land.[14] In addition to residential and commercial properties, cities have also actively challenged and closed urban farms and community gardens in neighborhoods with high percentages of racial and ethnic minority groups and those marked by low incomes. In many cases, these efforts to shut down urban agriculture have paved the way for gentrification and the displacement of people of color from neighborhoods where they have lived and built community for generations.[15]



Redlining map of Richmond, Virginia, from the Home Owners' Loan Corporation

Key Terms

Adverse possession:
A legal term that means getting title to land by occupying it without permission for an uninterrupted period of time, generally several years. Adverse possession laws vary from state to state, but most require that adverse possessors exclusively use or occupy land, without permission, in an open manner, for an uninterrupted term of years defined by law, to give the actual owner the opportunity to remove them from the land. Once this period has expired, the adverse possessor can get clear title to the property through a court action.

Clawback provision:
A legal term for a provision in a contract that allows one party to repossess/take back the contracted-for purchase or exchange if a certain condition of the contract is not met. In the context of urban land access, this often means that the land-granting party (like a municipal land bank) can take back the parcel of land it leased or sold to an urban producer if the producer breaks a provision of the contract—for instance, by using the land for something other than farming or gardening.

Gentrification:
A process in which low-income urban neighborhoods are changed by wealthier residents and new businesses to such an extent that the original residents are displaced. Pressure to redevelop lots in gentrifying neighborhoods to meet the demand for high-end residential units can eliminate any opportunity for agricultural activities.[16]

Land access:
The ability of groups, organizations, or individuals to obtain and use land for a specific purpose. Access to land can be temporary or permanent.

Land disposition:
The process through which cities and other governments transfer or sell land they own. Most city governments use land disposition policies to determine how and for what purpose they can sell or lease city-owned land to private citizens or business entities.

Land tenure:
An entity's ability to access traditional property rights, including the right to control, access, and transfer land.[17] When tenure is secure, a property holder is assured that these rights will be recognized by their community and the legal system, and that challenges to their property rights will be denied.[18] Usually secure land tenure for urban producers comes in the form of ownership or a long-term lease.

Restrictive covenants, deed restrictions, and easements:
Private law mechanisms that control the use of land, even when it is transferred from one owner to another. In most cases, these restrictions are found in a deed to a property and require the property owner (or a tenant leasing from a property owner) to adhere to a specific rule about how they use their property.[19] These agreements can be enforced by a lawsuit in civil court and result in a specific consequence laid out in the language of the restriction. For example, a parcel can be protected under a deed restriction that prohibits development of housing or commercial or industrial uses but permits agriculture and other open space uses. An owner who violates this restriction may be forced to pay damages or even tear down the offending structure.[20]

Land Access Barriers to Urban Agriculture and Innovative Production

Although each city and unique parcel of land present their own set of challenges and opportunities, urban producers across the country confront similar barriers that prevent them from accessing suitable land. Key concerns for producers include cost, limited land availability, competing uses, historical disenfranchisement and discrimination, and restricting sale to certain entities.[21]

▸ Land is increasingly unaffordable.

For many small-scale producers it is challenging to afford the market price of urban parcels, especially when competing against developers of residential or commercial projects.[22] This challenge is further exacerbated by the rising cost of land in many cities across the country.[23]

▸ Cities have limited availability of land suitable for agriculture.

Typically, vacant urban lots have complicated histories, which may include factors that make them unsuitable for urban agriculture like contamination from heavy industry, poor soil quality, or limited access due to their location.[24] Even in cities with plenty of vacant land, parcels that are larger or otherwise well-suited to urban agriculture may be held by public or private landowners for commercial or residential development. In cities that are growing or gentrifying, there may not be much vacant land available for cultivation.

▸ Urban agriculture is not prioritized compared to other land uses.

Municipalities sometimes limit agriculture or related activities through zoning laws, and deprioritize agriculture as a desirable—or even acceptable—use for vacant land through municipal land disposition policies. Urban producers often lack the resources and political influence held by commercial and residential developers and may miss opportunities to access publicly-owned land that is made available through a competitive bidding process or that a city has earmarked for a certain kind of development.

NAYA Community Garden, Portland, OR | Photo by Liz Turner

CITY HIGHLIGHT

New York City's Garden Protection Program

During the 1990s and early 2000s New York City razed gardens to make way for storefronts and eliminated farms in favor of high-rise apartments. In response, producers came together to challenge these decisions, creating coalitions to protect their growing spaces.[25] Private entities, such as the Trust for Public Land and the New York Restoration Project, stepped in to purchase over 100 gardens that were slated for auction. After years of community outcry, New York City leadership initiated the Community Gardens Agreement in 2002, which limited development and extended protections for 198 gardens.[26] Today, more than 550 community gardens are now enrolled in NYC Parks' GreenThumb program and protected under the program's Garden Review Process.[27]

▸ Land access programs are often restricted to certain entities.

Cities often limit eligibility for city-owned land access programs to community gardens and other nonprofit entities. Established nonprofit organizations may have alternative funding options, connections, and experience that allow them to navigate the complexities of land access with relative ease.[28] Comparatively, for-profit urban agriculture operations can face high entry costs and generally cannot access resources like grants reserved for local governments or nonprofits. These restrictions can force informal community gardening groups to formally establish themselves as nonprofits to be eligible for these opportunities, adding a layer of complexity to gardens' operations.[29]

Policy Strategies to Improve Land Access for Urban Agriculture

Municipal policymakers can employ a variety of strategies to increase agricultural opportunities in their cities. In addition to making publicly owned land available for urban agriculture, cities can incentivize the use of private land for urban and innovative production. Land access opportunities may be facilitated by a number of departments, including school districts or parks departments that make land available for lease, community development agencies that provide incentives and support for urban producers, and land banks or other surplus land-holding bodies who sell lots to producers. On both public and private land, city officials have implemented a variety of policies to increase land access for urban producers.

Public Land

Municipal policymakers can make more public land available for urban agriculture by creating programs that identify suitable land and establish pathways for community members to access that land.[30] Policy strategies to connect urban producers with public land include:

▸ Inventorying and protecting public land suitable for agriculture.

As a first step, local governments at the city and county level can inventory and map their public land and protect or flag certain parcels deemed to be a good fit for urban agriculture.[31] "Suitability" for urban agriculture depends on a variety of factors, including clean soil with sufficient access to sunlight and utilities. A mapping program's success depends on public engagement throughout the process and ensuring that the resulting database is accessible to users with a range of technological literacy.[32]

Once suitable land is identified, municipalities can create programs to ensure community members can access the land. For example, a local government can create long-term leasing programs or options to purchase the land at a low cost, with clawback provisions that ensure that the city can re-take the land if it is no longer used for food production.[33]

CITY HIGHLIGHT

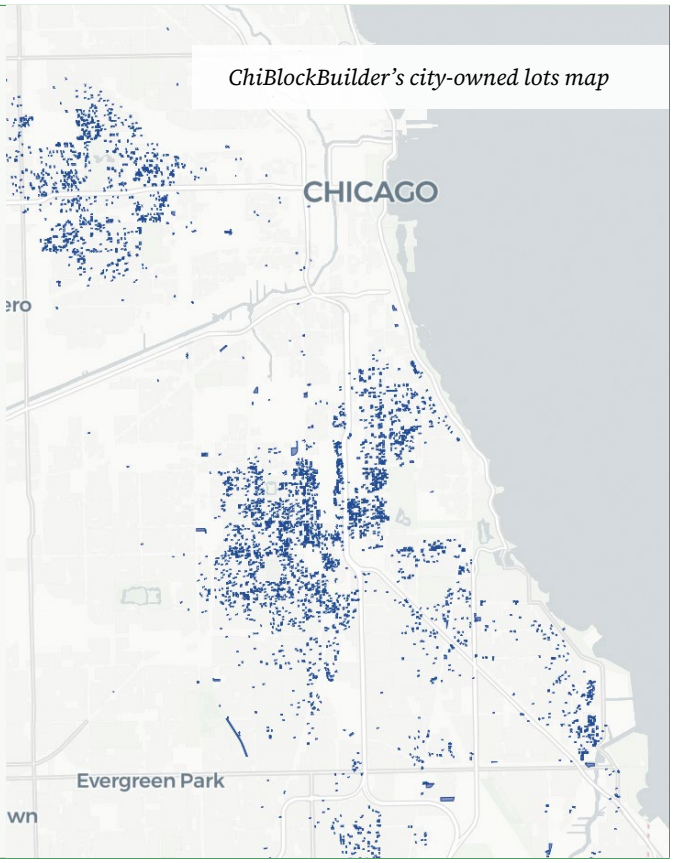
Richmond's Urban Land Mapping Initiative

Richmond, Virginia, is carrying out a mapping initiative to identify tracts for agriculture through comprehensive surveys and assessment. Following this inventory, the city will prioritize parcels for protection as urban agriculture sites based on a variety of criteria, including suitability for cultivation and socio-economic factors in the surrounding neighborhood.[34]

CITY HIGHLIGHT

Chicago's Land Sales Platform

Chicago, Illinois, makes vacant city-owned land available for urban agriculture through its ChiBlockBuilder city land sales platform.[35] The ChiBlockBuilder interactive map allows interested parties to clearly identify which lots are available for sale and displays a small photograph of the parcel that allows users to get an idea of its current use.[36] The city runs a special urban agriculture land access purchasing program twice a year that allows interested buyers to purchase suitable city-owned lots for $1, so long as they fulfill the basic application requirements and agree to use the lot for urban agriculture for ten years.



ChiBlockBuilder's city-owned lots map

▸ Leasing municipal land to urban producers.

Additionally, municipalities can integrate agricultural opportunities with other uses by establishing leasing programs for sites on municipally owned land such as schools, recreational centers, or land owned by public entities like transit or power authorities. These land-sharing opportunities maximize the number of uses of a public space and help promote agriculture as a tool for community engagement and education.[37] Longer-term leases with the option to renew are more likely to support farmer success, as year-to-year leases are often too short and unstable to justify significant investment in a farm site.

▸ Transferring public land to urban producers through a land bank.

Some producers may want to own their farms or gardens. To help make this a reality, some municipalities provide permanent access through a land bank, which holds an inventory of vacant or abandoned land for future development opportunities.[38] These land banks take title to tax-delinquent or abandoned land and secure the property to transfer it back to a private owner that will productively use the land.[39] Many land banks are authorized to sell properties at discounted rates for uses that benefit the public, making it a viable option for those municipalities to offer land directly to producers at an affordable rate. To most effectively facilitate land access for producers, land banks can amend their policies to identify urban agriculture as an acceptable end use for their properties (often described as the "highest and best use") on par with housing and commercial development.

CITY HIGHLIGHT

Detroit's Farmland Access Initiatives

In Detroit, Michigan, the Detroit Land Bank Authority offers vacant land at a low cost (generally $100-$250 per lot) to Detroit residents through side lot and neighborhood lot programs, and even bundles parcels together to sell specifically to urban farmers through the city's Land Based Projects initiative.[40] The city offers further support to urban farmers hoping to access city-owned land by offering guidance documents and technical assistance through the city's Urban Agriculture (housed in the Office of Sustainability) and Land Based Projects (housed in the Planning and Development Department) initiatives.[41]

Private Land

Even though a city has limited control over privately held land, municipalities can implement a variety of incentives and reforms to encourage agricultural use by individual landowners. Those strategies include:

▸ Encouraging food production through tax incentives for private landowners.

Tax exemptions, reductions, or other incentive programs encourage the creation of gardens and farms on private land. These policies may encourage developers to implement garden plots or greenhouse spaces in common areas of a private development and may be effective at enhancing community access.[42] For example, Chicago offers incentives for including green space, including gardens and green roofs, into new development by providing exemptions from certain development fees.[43] Cities in California can opt into a program called "Urban Agriculture Incentive Zones," which allow private lands used for urban agriculture to be taxed at an agricultural rate far lower than the residential property tax rate as long as it is dedicated to agriculture for at least five years.[44]

▸ Providing education and technical assistance for producers leasing or purchasing land.

Local governments can also support producers looking to access private land by providing easily accessible guidance and technical assistance about navigating land transactions. Producers often enter leases or purchase land from private entities. Local leaders can help ensure that producers understand the legal and financial implications of such agreements. For example, a city could publish guidance documents that caution producers about common hazards associated with entering informal agreements. Although these "handshake" agreements allow producers to quickly access land through personal relationships, the lack of a formalized agreement may create challenges when conflicts arise.[45] These agreements have the potential for sudden loss of access to farm or garden sites with limited legal options for recourse and can leave farmers in the difficult position of needing to scramble to secure alternative growing space.

▸ Reducing risks for guerrilla gardeners and adverse possessors.

Cities and states can also make it easier for producers to access and use neglected private land by reducing penalties, such as fines or criminal penalties, associated with using land for agricultural use through trespass or adverse possession. "Guerrilla" gardeners in Philadelphia changed the legal landscape by transforming neglected lots that they did not own into flourishing community gardens. Although potential punishments exist for this form of trespass, the City of Philadelphia has not made a substantial effort to prosecute these gardeners.[46] After years of advocacy on behalf of these beloved community spaces, Pennsylvania passed a law in 2024 that allows community gardens in Philadelphia to acquire title to their land after 10 years of occupation, a reduction from the previous threshold of 21 years.[47]

KEY TAKEAWAYS

For policymakers:

- Consider instituting a reduced property tax rate or a development incentive for the use of privately owned land for food production. Provide safeguards that allow urban farmers to securely access land, such as long-term, enforceable contracts.

- Establish urban food production as a "highest and best use" in your city's land disposition policy.[48] This allows urban farms and community gardens to compete for land on equal footing with other types of development.

For producers:

- Research tax incentives and other programs at the local and state level that may benefit private landowners if they lease or sell land to you for use as a farm or garden.

- All cities own property, some of which may be available for lease or purchase for urban farming or gardening. Some cities hold this property through a central authority, like a land bank. In other cities, individual departments, like the transit or water authority, may hold land. Check in with your local government to see if there are ways to access these publicly held lands.

III. Zoning and Land Use

Defining Zoning and Land Use

What is *land use* law? Broadly speaking, land use law is the set of laws and regulations—federal, state, local, and even international—that govern the ways public and private actors can use land. While broad standards for certain types of land use—e.g., industrial activities that pollute water and air—are set at the federal level, most land use law is developed and enforced at the local level. Because agriculture is a way of using land, many of the significant policy barriers facing urban producers are found in local land use laws and regulations.

Zoning is the primary form of local land use regulation. Despite a few prominent exceptions, almost every municipality in the United States uses zoning, authorized under state law, to control how land is used within its borders. Zoning is a system of land use regulation through which local authorities divide up the entire land area of a municipality (or sometimes a county) into districts—usually residential, commercial, and industrial—and assign a set of allowable uses to each of those districts.[57]

HISTORICAL CONTEXT

The Origins of Zoning

Zoning was introduced to the country during the Progressive Era of the early twentieth century in response to increasing concern among policymakers about the health and safety hazards caused by the intermingling of "incompatible" uses—whether that be a slaughterhouse in a residential area or an apartment building in a neighborhood of single-family homes.[58] After New York City enacted the first comprehensive zoning ordinance in 1916, zoning spread to cities throughout the country. In 1922, the U.S. Department of Commerce promulgated the Standard State Zoning Enabling Act (SZEA), model legislation to encourage state governments to grant municipalities the authority to enact zoning codes.[59] Zoning's legitimacy was further enshrined by the foundational 1926 Supreme Court case *Village of Euclid v. Ambler Realty Co.*, which upheld an Ohio city's right to restrict private property owners' land use rights through a comprehensive zoning scheme.[60]

There are two main systems of zoning. Traditional, separation-of-use zoning is called *Euclidean zoning* because of the Supreme Court case *Village of Euclid v. Ambler Realty Co.* (see "History of Zoning"). Euclidean zoning, which makes up most zoning in the United States, is often "cumulative," with single-family residential zoning districts permitting the fewest uses, and each less restrictive zoning district adding additional uses through the most permissive districts, usually labeled as "industrial."[61]

In recent years, alternative models of land use control have emerged, most prominently *form-based zoning*. Form-based zoning codes emphasize the physical form of buildings and neighborhoods over specific use restrictions, and are meant to minimize urban sprawl and foster dense, walkable neighborhoods; they explicitly mix commercial, residential, and other uses in the interest of creating a "high-quality public realm."[62] Both of these zoning systems can be used to incorporate urban agriculture into city neighborhoods.

Key Terms

Accessory structure:
A structure that supports or is incidental to the primary structure on a given parcel (e.g., a shed or greenhouse behind a house).[49]

Comprehensive plan:
A document, created by a local government, that considers potentially competing development needs within the local government's boundaries and lays out a long-term plan for the locality's "physical development."[50]

Conditional vs. permissive use:
A conditional use (sometimes called a "special use") is an activity (e.g., keeping chickens) that is allowed only with express permission from the municipal zoning authority, usually in the form of a conditional or special use permit.[51] A permissive use, sometimes called a "by-right" or "as-of-right" use, is allowed without seeking express permission.

Nuisance:
A legal term that designates activity that "substantially interferes" with the "use and enjoyment" of private property. Generally, this refers to things like smell and noise that cross property lines but do not rise to the level of a physical invasion (which the law would call "trespass").[52]

Overlay district:
A type of zoning that permits a parcel to be located within two zoning districts: a "base" zoning district that allows a particular set of uses (e.g., single-family residential) and an "overlay" zoning district that addresses a special public interest (e.g., special building restrictions around sensitive wetlands, or "viewsheds" that restrict building heights to permit all buildings in a neighborhood to allow owners to equally take advantage of a view).[53]

Primary vs. accessory use:
Most traditional zoning codes establish "primary" (or "principle") and "accessory" uses allowed by right in each zoning district. Primary uses, such as a house in a single-family residential zoning district, can exist as the only use of the property. Accessory uses, which might be something like chicken- or beekeeping in that same residential zoning district, can take place only once the primary use, in this case a house, is established. The accessory use is then "incidental" to or in conjunction with that use.[54]

Setback:
Usually, the distance between the street right-of-way line and the front of a building. Sometimes also used to delineate distance from side or rear property lines to a building, fence, or enclosure.[55]

Variance:
Express permission, usually granted by a municipal zoning authority, to deviate from the otherwise applicable requirements of a zoning ordinance.[56] For instance, someone might seek a variance to build a structure slightly closer to the property line than otherwise permitted, or to keep bees in a zoning district where that use is generally not permitted.

Euclidean vs. Form-Based Zoning Codes

A table from the Philadelphia Euclidean zoning code identifying permitted uses within residential neighborhoods. **City of Philadelphia, The Philadelphia Code, Table 14-602-1 (2025)**

ZONING AND PLANNING

Table 14-602-1: Uses Allowed in Residential Districts [648]

Previous District Name	R1	R1A	R2	R3	R4	R5	R6/7	R9A/10A/R20	New	RSA	New	R8/9/10/10B/18/19	R11/11A/12/13	R14	R15/16	RC-6	WRD/ITD	RC-4	
District Name	**RSD-1**	**RSD-2**	**RSD-3**	**RSA-1**	**RSA-2**	**RSA-3**	**RSA-4**	**RSA-5**	**RSA-6**	**RTA-1**	**RTA-2**	**RM-1**	**RM-2**	**RM-3**	**RM-4**	**RMX-1**	**RMX-2**	**RMX-3**	**Use-Specific Standards**
Y = Yes permitted as of right | **S** = Special exception approval required **N** = Not allowed (expressly prohibited) | Uses not listed in this table are prohibited See § 14-602(3)(a) (Notes for Table 14-602-1) for information pertaining to bracketed numbers (e.g., "[2]") in table cells.																			
Residential Use Category																			
Household Living (as noted below)																			
Single-Family	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Two-Family	N	N	N	N	N	N	N	N	N	Y	Y	Y[1]	Y	Y	Y	Y	Y	Y	
Multi-Family	N	N	N	N	N	N	N	N	N	N	N	Y[1]	Y	Y	Y	Y	Y	Y	
Group Living (except as noted below)	N	N	N	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
Personal Care Home	N	N	N	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	§ 14-603(11)
Single-Room Residence	N	N	N	N	N	N	N	N	N	N	S	S	S	S	S	S	S	S	
Parks and Open Space Use Category																			
Passive Recreation	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Active Recreation	N	N	N	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
Public, Civic, and Institutional Use Category																			
Adult Care	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Child Care (as noted below)																			
Family Child Care	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	§ 14-603(5)
Group Child Care	N	N	N	N	N	N	N	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	Y	Y	Y	§ 14-603(5)
Child Care Center	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	§ 14-603(5)
Community Center	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	
Educational Facilities	N	N	N	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S	S	S	
Fraternal Organization	N	N	N	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S	S	S	
Hospital	N	N	N	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S	S	S	
Libraries and Cultural Exhibits	N	N	N	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S	S	S	
Religious Assembly	N	N	N	Y[2]	Y[2]	Y[2]	Y[2]	Y[2]	Y[2]	Y[2]	Y[2]	Y[2]	Y[2]	Y[2]	Y[2]	Y	Y	Y	
Safety Services	N	N	N	Y[2]	Y[2]	Y[2]	Y[2]	Y[2]	Y[2]	Y[2]	Y[2]	Y[2]	Y[2]	Y[2]	Y[2]	Y	Y	Y	
Transit Station	N	N	N	Y[2]	Y[2]	Y[2]	Y[2]	Y[2]	Y[2]	Y[2]	Y[2]	Y[2]	Y[2]	Y[2]	Y[2]	Y	Y	Y	
Utilities and Services, Basic	N	N	N	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S[2]	S	S	S	
Wireless Service Facility	N	N	N	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	§ 14-603(16); § 14-603(17)
Office Use Category																			
Business and Professional	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y[3]	Y[4]	Y	
Medical, Dental, Health Practitioner (as noted below)																			
Sole Practitioner	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y[3]	Y[4]	Y	
Group Practitioner	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	S[3]	S[4]	Y	

[648] Amended, Bill No. 120774-A (approved January 14, 2013); amended, Bill No. 130804 (approved December 18, 2013); amended, Bill No. 140802-A (approved December 3, 2014); amended, Bill No. 170402 (approved June 27, 2017); amended, Bill No. 190253 (approved July 24, 2019); amended, Bill No. 210075 (approved March 29, 2021); amended, Bill No. 210078-A (approved April 28, 2021); amended, Bill No. 250523 (approved June 13, 2025); amended, Bill No. 250525 (approved June 13, 2025).

Section of Buffalo, NY's form-based "Green Code" describing a mixed-use zone and the permissible forms within it. **City of Buffalo, Unified Dev. Ordinance, Ch. 496, Sec. 3.1.5 (2016)**

DECEMBER 2016

3.1.5 N-2E MIXED-USE EDGE

A. Purpose

The N-2E zone addresses transitional areas, typically at the edges of more intense mixed-use centers, in Buffalo's most compact neighborhoods. These areas are defined by a mix of homes and stores.

B. Building Types

The form requirements of the neighborhood zones are tailored to each building type in accordance with Section 3.2. The following building types are permitted in the N-2E zone:

- Attached House
- Carriage House
- Civic Building
- Commercial Block
- Detached House
- Flex Building
- Loft Building
- Shopfront
- Shopfront House
- Stacked Units
- Tower

C. General

All development in the N-2E zone must comply with the form standards of Section 3.2, as well as any applicable standards in other sections, including the following:

Frontage Elements	Section 3.3
Principal Uses	Section 6.1
Accessory Uses	Section 6.2
Temporary Uses	Section 6.3
Landscape	Section 7.1
Fences and Walls	Section 7.2
Stormwater	Section 7.3
Outdoor Lighting	Section 7.4
Corner Visibility	Section 7.5
Site Impacts	Section 7.6
Pedestrian Access	Section 8.1
Bicycle Access and Parking	Section 8.2
Vehicle Access and Parking	Section 8.3
Transportation Demand Management	Section 8.4
On-Premise Signs	Section 9.2
Blocks	Section 10.1
Rights-of-Way	Section 10.2
Nonconformities	Section 12.1

Unity Farm, Portland, OR | Photo by Liz Turner

How are Zoning Codes Created?

The original Standard State Zoning Enabling Act (SZEA) called for zoning regulations to "be made in accordance with a comprehensive plan," and many states require that local governments engage in a comprehensive planning process, which includes significant opportunity for public engagement, prior to enacting zoning regulations.[63] Regardless of the state-level mandate, most major cities invest in periodic comprehensive planning processes and develop their zoning codes based on those plans. Comprehensive plans, while critical components of a city's land use regulation scheme, are prospective, aspirational policy documents that lay out a city's vision for its future, rather than binding law. Comprehensive plans are a city's opportunity to do a periodic survey of its primary land-use needs and map out how to address them. Most comprehensive plans are renewed on a regular, if infrequent, basis, generally every 10-20 years.

Comprehensive plans are typically created by a city's planning commission or planning department and are flexible tools that can accommodate a city's shifting priorities. For example, many cities have recently added climate or disaster resilience—or, most relevant for this report, food systems—components to their plans.[64] Other cities have further expanded the scope of their planning to create urban agriculture-specific plans, following the same kind of comprehensive policy review, public engagement, and policy recommendation process as they would for a general plan.[65] These plans can make recommendations for all types of policy changes but usually have a section that specifically focuses on recommended updates to the zoning code.

LOCAL APPROACHES

Urban Agriculture Plans

A few cities have dedicated municipal resources to creating urban agriculture plans designed to help guide the city's policy development related to urban agriculture. Of the cities that were part of the research process for this report, Philadelphia and Dallas have both created urban agriculture plans. Philadelphia's plan, "Growing from the Root," grounds its recommendations in Philadelphia's long history of urban agriculture and the city's historical reluctance to protect and support its urban producers. The Dallas plan focuses on present-day conditions and primarily considers urban agriculture as a climate resilience strategy.

City of Dallas: Office of Environmental Quality and Sustainability, Comprehensive Urban Agriculture Plan (2023).

Philadelphia Parks and Recreation, "Growing from the Root: Philadelphia's Urban Agriculture Plan" (2023).

Once a comprehensive plan is created, it falls to the city's policymaking authority—usually a city council—to act on its recommendations by turning them into legally enforceable ordinances through the municipal legislative process. Some cities issue regular updates on their progress toward the goals outlined in their most recent plan; other cities merely wait for the next planning cycle to take stock of the current policy landscape and make renewed recommendations. In some states, if a local government wants to implement an ordinance that is not "in accordance with the comprehensive plan," the plan must be amended before the ordinance can be enacted. Other states take a more flexible approach to the relationship between the recommendations outlined in the comprehensive plan and the ordinances in the zoning code.[66]

Zoning and Land Use Barriers to Urban Agriculture and Innovative Production

As a city's primary tool for regulating land use, zoning is often the source of urban producers' policy-related challenges, especially when starting or expanding an agricultural operation. Innovative producers, like indoor and rooftop growers, face unique challenges in navigating zoning and land use ordinances. We have highlighted some of those challenges in greater depth in the Innovative Production section of this report on page **66**. Here are a few primary ways zoning may hinder the efforts of urban producers.

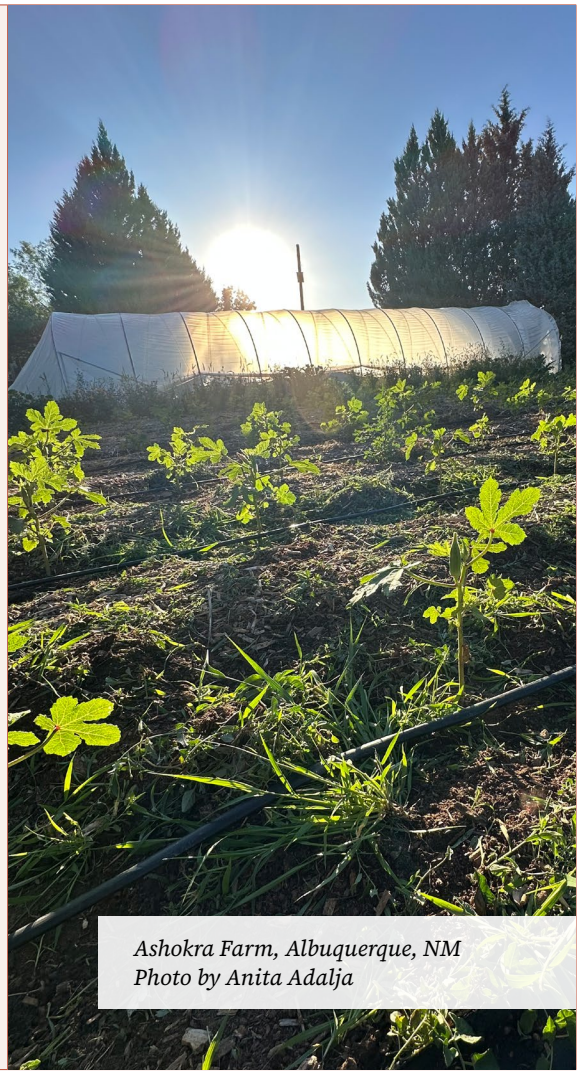
▸ The zoning code does not explicitly incorporate urban agriculture and/or innovative production.

While many cities have zoning regulations that include common urban agricultural uses like growing vegetables or keeping chickens, other zoning codes only include a couple of urban agriculture-related uses or fail to address urban agriculture completely. This is a particular problem for innovative producers, whose operations are often a poor fit for zoning codes.[67] For instance, is an indoor hydroponic lettuce farm an agricultural or an industrial use? It shares characteristics of both, which can make selecting a suitably zoned location for a hydroponic operation difficult. This kind of silence or lack of explicit permission in the law can discourage producers from engaging in certain agricultural activities or invite uneven zoning code enforcement from city officials.

DIGGING DEEPER

Accessory Structures: Temporary or Permanent?

Agricultural accessory structures, like greenhouses, hoop houses, farmstands, and sheds, can be overlooked or poorly defined in urban zoning and building codes. For example, one common issue is whether a high tunnel—a widely-used season extension structure made from translucent plastic stretched over a support structure made of metal or PVC piping—is a temporary structure (which often is less heavily regulated) or a permanent structure (which often requires more extensive permitting and inspection). Minneapolis has defined and identified different types of agricultural structures with care, noting that greenhouses are permanent structures that primarily use glass as the translucent material and separately defining hoop houses as "temporary or permanent" structures that are subject to a different set of size and height requirements.[68] These specific guidelines allow farmers to operate with more confidence and more effectively apply for the required permits from the city.



Ashokra Farm, Albuquerque, NM
Photo by Anita Adalja

▸ The zoning code unreasonably restricts common urban agricultural activities.

Zoning codes are a city's primary way of limiting the possibility of conflict between neighbors based on potential "nuisances." Most often, these include disagreements over odors or noises that cross property lines, or an aesthetic concern based on the way an urban agriculture operation looks. For example, an aesthetic concern might be an "ugly" hoop house or a messy, mid-season vegetable patch in need of weeding. Many cities have not updated their zoning codes to carve out exceptions for urban farms to address common issues like plant overgrowth or compost piles, which can render urban producers vulnerable to code enforcement tickets or other legal actions from the city. Where cities have enacted zoning ordinances related to urban agriculture, they often take care to regulate uses with the potential to create conflict. These uses include on-farm sales, animal-keeping, or the erection of "permanent" accessory structures like sheds and greenhouses.

DIGGING DEEPER

Variation in City Zoning Policies

Each of the cities falling within the scope of this research takes a unique approach to incorporating urban agriculture uses into their zoning codes. Urban agriculture operations may include multiple uses on the same parcel, for instance: season extension structures, soil-based vegetable growing, animal husbandry, beekeeping, on-farm sales, residential dwellings, parking, and signage. There is dramatic variability across municipalities in how they approach each of these uses—even in cities neighboring each other. For example, Minneapolis allows urban farms or market gardens in residential districts to sell produce onsite up to 75 days per year while neighboring St. Paul allows only three days of on-farm sales per year for residentially-zoned farms.[69]

▸ The zoning code reinscribes exclusionary policies.

In many cities, zoning codes were originally implemented to separate not only incompatible uses, but what city leaders deemed incompatible people. Many of the communities relegated to less economically wealthy neighborhoods turned to—and continue to turn to—urban agriculture to access fresh and nutritious food, build community, and beautify and make good use of otherwise neglected property. The original exclusionary motives behind these zoning codes continue to have outsized impacts on producers in those neighborhoods. For example, zoning may concentrate industrial uses next to neighborhoods where historically, residents had lower incomes, leading to outsized risk of soil and water contamination for those hoping to grow food near their homes.

LOCAL CHALLENGE

Atlanta Code Enforcement

Despite the city of Atlanta's many pro-urban agriculture policies, urban farmers are still vulnerable to fines and tickets under the city's Housing Code, which requires that "[a]ll items utilized in connection with a permitted use of the property, but which are stored outside, shall be placed in the rear yard of the primary structure and shall not be visible on the premises from a front view."[70] Urban farmers report they may get ticketed for common on-farm practices like storing tools outside of a shed, or leaving piles of paving stones or other materials uncovered.

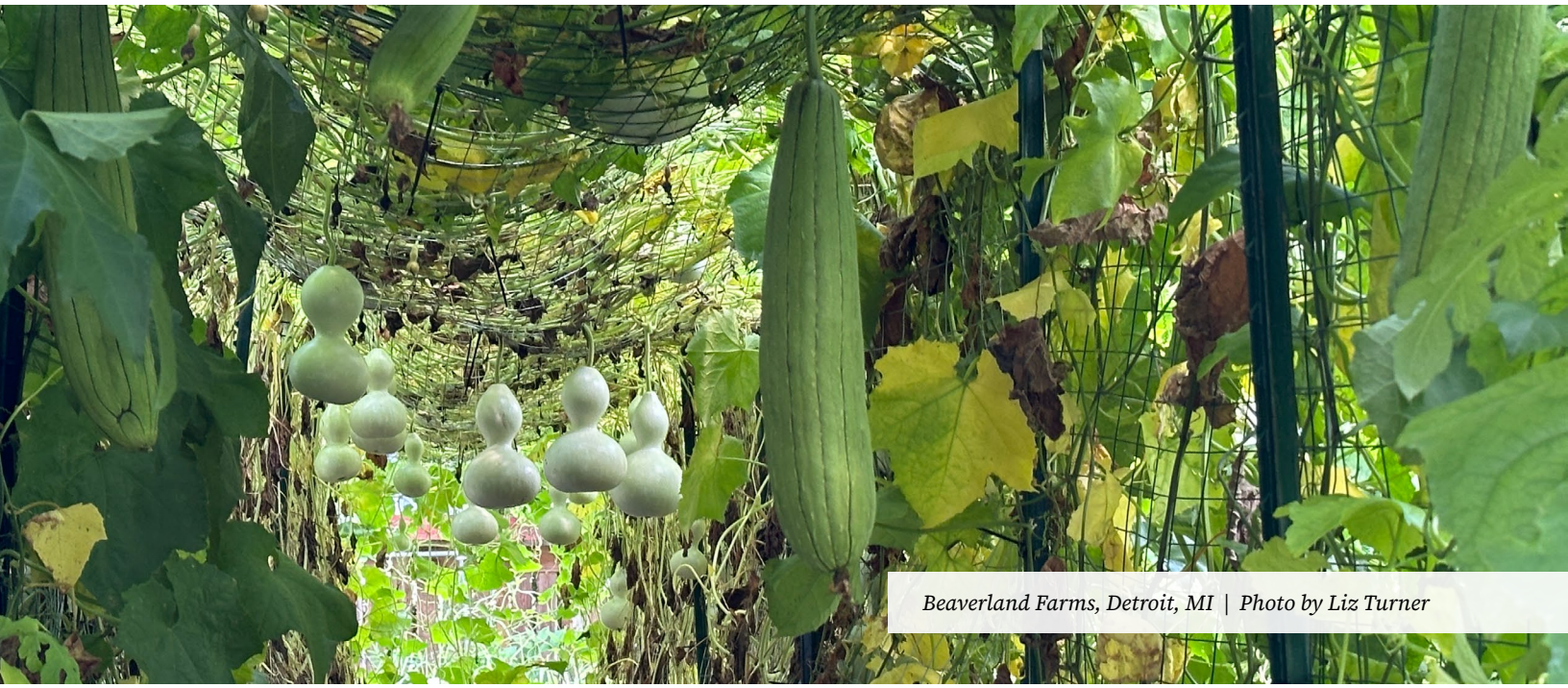
▶ **Discretionary policies leave room for uneven or unfair application of zoning rules.**

In many cities, uncoordinated legislation allows for enforcement actions against urban producers, even when the city has affirmatively passed legislation supporting urban agriculture activities. For example, ordinances meant to curb weed overgrowth or litter may lead to municipal code enforcement actions against urban farmers who have planted cover crops or pinned tarps down to kill weeds in beds they are planning to cultivate.

DIGGING DEEPER

Right to Farm Laws and Urban Agriculture

All 50 states have enacted some form of "right to farm" law.[71] These laws are intended to limit local control over farm activities and preclude nuisance lawsuits filed against farmers, usually by a neighbor with a complaint about noise or smell.[72] The scope of these laws vary by state, but generally provide protections from certain lawsuits for farmers engaging in "normal" agricultural practices as determined by the state legislature.[73] Right to farm laws largely do not consider the needs of urban farmers and do not offer meaningful protection from lawsuits or municipal enforcement. Many right to farm laws, for example, exempt farms in municipalities over a certain size from right to farm protections, limit protections to operations on legislatively-defined "farmland" (usually not urban land), or only protect farms in designated agricultural districts (whereas most urban farms or gardens are likely to be in residential or commercial zones).[74] As a result, most urban farms are subject to municipal land controls and private law suits their rural counterparts do not have to face.



Beaverland Farms, Detroit, MI | Photo by Liz Turner

Zoning and Land Use Policy Strategies to Support Urban Agriculture

Despite their potential to frustrate urban agriculture and innovative production, zoning and land use reform can also be one of the most powerful policy tools to support urban producers. For this reason, zoning reform has been a primary focus of local policymaking intended to foster urban food production. Strategies for supporting urban agriculture through zoning and land use policy include:

▸ Writing explicit, clear rules about urban agriculture and innovative production.

If urban agriculture uses are not clearly identified as permitted or conditional uses in a land use code, or it is unclear which uses are allowed in which zoning districts, urban producers may not feel like they can start or expand an urban agriculture operation. Specific inclusion of urban agriculture and/or innovative production as a use category and clarifying how that use category is regulated throughout a municipality allows for a local policy environment where urban producers can operate with confidence.

CITY HIGHLIGHT

Detroit's Urban Agriculture Ordinance

In keeping with its reputation as a hub of urban agriculture, Detroit's municipal code includes an extensive, comprehensive urban agriculture section in its zoning code.[75] Within this section, the city provides clear rules for urban growers related to prohibited practices, necessary setbacks, special considerations for compost piles, etc. These rules are included in one concentrated section with clear references to other relevant parts of the code where appropriate (e.g., accessory structure regulations). Additionally, through its Land Based Projects initiative, the city published a guide to zoning for those hoping to initiate projects including urban farms and gardens, which explains zoning provisions in plain language and guides interested parties through the process of identifying which zoning provisions apply to them.[76]

▸ Permitting common agricultural uses such as on-site sales and animal keeping.

Land uses that may cause conflict between neighbors, such as on-site sales (which can increase car traffic), animal keeping (which can be noisy or smelly), and beekeeping (which can be perceived as dangerous) should be explicitly permitted and regulated to help reduce conflicts and set expectations. By explicitly permitting these uses, local governments can help urban producers plan how they will manage their farm operation and access market opportunities while avoiding conflicts.

DIGGING DEEPER

Food Safety Concerns and Land Use

One potential consequence of zoning regulation is an increased barrier to food safety practices for urban producers. For example, limitations on accessory structures can prevent producers from building a covered structure to wash produce or a walk-in cooler to safely store temperature-sensitive farm products. In addition to baseline food safety considerations, these restrictions can hamper a producer's ability to acquire certifications like the USDA's Good Agricultural Practices (GAP) certification, which can allow producers to access larger markets like institutional buyers and produce distributors.[77]

▸ Including clear definitions of key terms and uses in the zoning code.

Local governments can support urban producers by paying careful attention to how they draft their legal and regulatory definitions. For example, the way a city defines "community garden" may allow for on-site sales, compost piles, beehives—or none of those things. In many jurisdictions, conflicts arise over whether hoop houses, a common season extension tool for urban and rural producers alike, are permitted as accessory structures. To address any confusion, hoop houses or other season extension structures should be included in a city's definition of accessory structures.

▸ Exempting urban farms and gardens from certain code enforcement actions.

In many cities, urban producers are frustrated by code enforcement policies that lead to citations for common urban agriculture practices like cover cropping or overwintering of crops. To avoid unnecessary hassle for these producers, cities can either create formal exemptions for urban agriculture in their code enforcement policies or create systems through which urban farms and gardens can register the city to preclude the code enforcement department from issuing citations to those parcels for certain agricultural practices.

Beaverland Farms, Detroit, MI | Photo by Liz Turner

KEY TAKEAWAYS

For policymakers:

- Providing clear definitions and regulations in a city's zoning code can help producers understand how the rules apply to them and how they are permitted to grow food.
- Reforming code enforcement policies can help urban producers avoid citations and reduce the burden on code enforcement administrators.
- Allowing common urban agricultural uses in a city's zoning code can empower urban producers to confidently build their farm business or community garden.

For producers:

- It is critical to have a clear understanding of your city's zoning code and how it applies to your operation. Seek guidance from the city's planning department (or in smaller cities, a permit administrator or city manager) when written policies are unclear or confusing.
- Look for key terms, like accessory structure or animal husbandry, in the zoning code's definitions section to better understand which practices are allowed under your city's zoning code.
- Look for ways to address zoning restrictions, including rezoning procedures, special use permits, and variances, to get permission to implement practices that might otherwise be forbidden in your zoning district.

IV. City Governance and Public Funding

Defining City Governance and Public Funding

Along with enacting and implementing policies that support urban agriculture, cities can create staff positions within city government and implement funding programs dedicated to supporting urban food production.

What Do We Mean by "City Governance"?

Governance refers to the way a government or organization organizes itself to accomplish its goals and directives. The basic structure of most city governments is outlined by the city's charter, but city legislators and executives generally have flexibility to create new city departments, appoint new officials, and implement new city programs and initiatives.

Cities also have some amount of independent authority (specific authority varies by state) in how they can raise and spend money to promote certain activities like urban agriculture and innovative production. To raise money, cities can generally levy local taxes on property or excise taxes on sales of specific goods, or issue municipal bonds.[78] Cities can spend these funds to support operations or programs through an annual budgeting and appropriations process. Under state law, city expenditures generally must serve a "public purpose." However, in most states, these public purposes can include assistance to private companies and individuals for goals like economic and community development.[79] Even in states with restrictions on the use of city expenditures to prevent private benefit, the private use is typically allowed if the primary purpose is public. In practice, this means that cities have the authority to allocate financial resources to both nonprofit and for-profit urban farms and innovative production facilities.

HISTORICAL CONTEXT

Where Do Local Governments' Powers Come From? Home Rule vs. Dillon's Rule

Municipalities derive their local authority from state law. The broadest kind of authority, called *home rule*, allows municipalities (often cities over a certain size) to legislate freely in a range of policy areas without specific state authorization. Home rule protects local rulemaking from undue state intervention.[80] Alternatively, *Dillon's Rule* permits cities to exercise only "expressly granted" powers and take actions that are "essential" to carry out those powers.[81] In practice, most cities over a certain size have some degree of home rule authority and smaller cities or cities in certain states may be subject to the limitations of Dillon's Rule. How a state approaches the authority of its local governments is typically laid out in the state's constitution.

Additional public funding for urban agriculture can come from state and federal agencies, usually in the form of grants. States can also offer tax incentives to support urban agriculture, as in the case of California's Urban Agriculture Incentive Zone program, which allows private landowners using or leasing land for urban agriculture to pay a lower tax rate on that land, similar to "current use" programs offered in many states for agricultural land in rural areas.[82] These programs generally require the land receiving the lower tax rate to be kept in agricultural use for a certain number of years, following a use plan or contract that is approved by a state or local authority.

Key Terms

Agency:
An office within the executive branch of a government that carries out or "administers" a specific set of functions under the direction of the executive. In the state and federal context, these agencies are generally created by legislation (e.g., from a law passed by the state legislature or U.S. Congress) and directed by the chief executive (the governor or president). In the municipal context, these local agencies may be created by state statute or local legislation, may be directed by the mayor, the city manager, a hybrid executive-legislative system, and/or even a state-level principal, and may be nested within one another other.[83] "Agency" is the umbrella term for these bodies, which may alternatively hold titles like "department," "office," "bureau," or "commission." A city's parks department and bureau of transportation are examples of municipal agencies.

Annexation:
The process used by a local government to incorporate more land into its boundaries. State law creates the procedures required for annexation, but they are generally implemented at the local level. In most cases, annexation is initiated by residents in unincorporated territory who wish to join a nearby municipality (usually to access city services)[84] or by a municipality hoping to add to its land (and therefore property tax) base. Depending on the state, annexation may take place with or without the consent of the residents of the area being annexed.[85]

Charter:
A municipal governing document that acts as a local constitution. A city's charter may establish the structure of city government, delegate specific powers to municipal agencies, and even establish individual rights for residents. City charters are authorized under state law and adopted and amended by the city's residents.[86]

Executive Order:
In the local context, a legally binding order issued by a city's executive, usually a mayor, often concerning city operations or implementing new initiatives or other policy within the executive's authority. Executive orders require fewer procedural steps to undo than an ordinance; they can generally be repealed through a second order by the mayor (the same mayor or a successor).[87]

Incorporation:
The process used to create a new municipal entity. New municipalities are incorporated under state law, but the incorporation process is generally initiated at the local level. New cities or towns can be created out of unincorporated county or state land or by carving land out of an existing city or town. Reasons for incorporating a new city or town vary from increasing local control over matters like property tax rates and zoning practices to providing new or better services, like policing or public schools.[88]

Ordinance:
A law passed by a city's legislative body, which is usually called a city council. Counties also typically call their laws ordinances. Ordinances are generally compiled into a municipal body of law called a code. Ordinances carry the same force as state law and can be enacted to address any issue the state has authorized the municipality to legislate on.[89]

DIGGING DEEPER

Types of Local Governments

CITY

A unit of local government, usually more densely populated/urbanized than a town. Cities provide municipal services to their residents, including utilities like water and sewer, public health services, etc. Cities are generally governed by an executive (usually a mayor) and a legislative body (usually called a city council). In some cities, including Chicago and St. Louis, the legislative body is called the *board of aldermen*.[90]

COUNTY

A unit of local government which is usually geographically larger than a city or town and may administer some state services at the local level. Counties vary in size and power across the United States. For example, counties in many New England states serve minimal government function aside from dividing up the state's territory, while counties in other parts of the country provide robust services like building and maintaining roads, administering zoning and land use, and providing services like housing and mass transit, either on their own or in partnership with a city government (as in Albuquerque and New York). In Alaska, counties are called *boroughs*, and in Louisiana, they are called *parishes*.[91] In states with stronger county governments, counties may have their own legislative bodies, which are often called *boards of supervisors*.

INDEPENDENT CITY

A city that is located outside the boundaries of any county and operates as a primary administrative division of a state, independent of any county government. This means that residents of these cities are only under the jurisdiction of their city government and the state government.[92] Most independent cities are in Virginia; some exceptions to that rule are Baltimore, MD; St. Louis, MO; and Carson City, NV.[93]

TOWN/TOWNSHIP

A unit of local government which is usually less densely populated than cities and takes a more "bottom-up" approach to governance. For example, in New England, many towns are partially governed via direct democracy through annual town meetings. Towns and/or townships are found in 20 states, mostly in New England, the Mid-Atlantic, and the Midwest.[94] Towns are usually governed by a legislative body, often called a *selectboard or town council*.

SPECIAL-PURPOSE GOVERNMENTS

Units of local government organized to administer a specific purpose or set of services, like a school district or an irrigation district. Special-purpose governments may be overlaid across the borders of multiple municipalities or counties because the territory of the government is meant to match the scope of the function to be performed. For example, a flood control district may run the length of a river or span an entire watershed. On the opposite end of the spectrum, special-purpose governments like business improvement districts may cover only a single neighborhood within a city. Usually, state law enables the creation of special-purpose governments and defines their powers and the actions these governments may perform.[95]

DIGGING DEEPER

Tribal Governments

Many cities and towns in the country, including some large cities like Tacoma, Washington, and Tulsa, Oklahoma, fall within the boundaries of reservation land allocated to federally recognized tribes and within the jurisdiction of sovereign tribal governments. How specific tribal laws and regulations apply to people and activities within reservation boundaries varies widely depending on several factors, including the ownership status of the land and the tribal citizenship (or lack thereof) of the people living and working on that land.[96] Further complicating the legal landscape are the unique federal treaty rights held by each sovereign tribal nation, cooperative jurisdictional agreements signed between specific tribes and their abutting or overlapping state or local governments, and a dense web of federal legal precedent that offers room for interpretation and contestation where tribal authority is concerned. For that reason, we have not discussed the role of tribal governments in this report, although tribal laws undoubtedly impact urban producers in this country.

Role of County Government

Almost every city in the country lies within a county (Richmond, Virginia, is an example of an independent city, which means it operates independently of any county).[97] The ways that city and county governments interact with each other vary widely. In some places, cities and counties divide up which services they provide to residents. For example, the county may be solely in charge of administering a county-wide public library system and public transportation authority while the city manages its own public schools and parks and recreation department. In other places, the county and city may work cooperatively to provide certain services. Lastly, the city and county governments may be functionally merged and provide all local government services as one unified government.

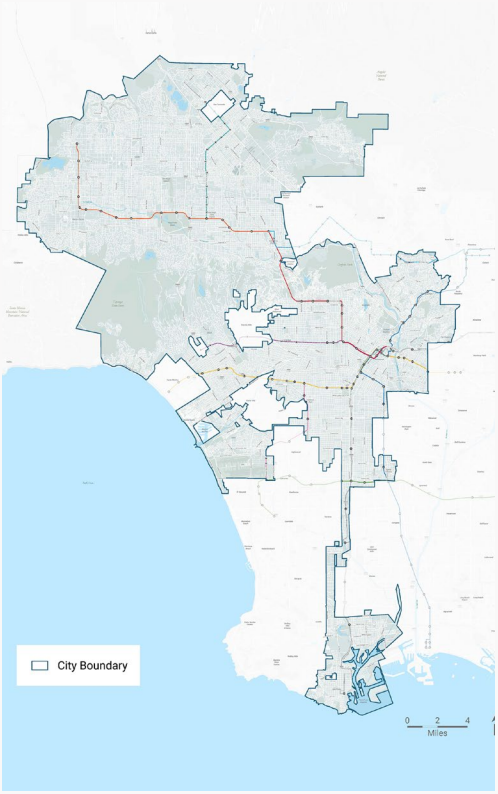
NAYA Community Garden, Portland, OR | Photo by Liz Turner

City and County Government Coordination

LOS ANGELES (CITY AND COUNTY), CALIFORNIA

Los Angeles is unusual among large U.S. cities, in that there are multiple independent cities and areas of unincorporated county land within the city's borders. To further complicate matters, some neighborhoods within the city of Los Angeles retain hyper-local control over certain matters (for example, individual neighborhoods administer their own land use regulations and community planning within the context of the LA City General Plan).[98] Despite this significant interweaving of geographical area, the city and county maintain entirely separate sets of ordinances. LA City provides most of its own public services and there is limited formal cooperation between the city and county. LA City creates a comprehensive plan for land under its jurisdiction, while LA County creates an entirely separate comprehensive plan that covers unincorporated county land. LA City owns its own water and power utility separate from the county's.[99]

This may be confusing for residents, who might understand themselves as "Angelenos" but be unclear on which set of ordinances and local government services apply to them.[100]



Shaded area indicates LA City, while unshaded areas are either unincorporated LA County or separate municipalities.[101]

ALBUQUERQUE AND BERNALILLO COUNTY, NEW MEXICO

Albuquerque is the largest municipality within Bernalillo County. While the city and the county each retain control over some separate government functions, they co-manage the local water authority and created a joint entity called the Local Government Coordinating Commission to address "matters that impact all municipalities."[102] These jointly managed matters include land use planning and parks and open space administration, both of which have profound implications for urban agriculture.

MINNEAPOLIS AND HENNEPIN COUNTY; ST. PAUL AND RAMSEY COUNTY, MINNESOTA

While it may be obvious that "metro areas" consist of more than one municipality, they also often contain multiple counties, which can create confusion about what is permitted or supported within a geographical region. For example, the famously "twin" cities of Minneapolis and St. Paul are not only separate municipalities but also lie in separate counties. This means that residents who live across a bridge from each other are subject to a totally different set of local ordinances but also access separate sets of county services and are subject to development according to two distinct long-term regional planning frameworks.

DIGGING DEEPER

Federal and State Support of Urban Agriculture

Local laws and regulations are not the only legal frameworks that impact urban agriculture. Urban producers must also comply with applicable state and federal laws and regulations, particularly those that address food safety and environmental protection. Farmers may also be able to find support through various financial or technical assistance programs from state and federal agencies.

USDA's Office of Urban Agriculture and Innovative Production (OUAIP), created by the 2018 Farm Bill, administers grants and other funding and serves as an intra-agency hub for designing and providing USDA services to urban and innovative producers.[103]

State legislatures can pass laws that explicitly regulate or encourage urban farming and food production. For example, California's Urban Agriculture Incentive Zone law allows local governments to offer reduced property tax rates to landowners who use their land for urban farming.[104] All U.S. states have their own administrative agencies—such as agencies of agriculture, environmental protection, and natural resources—that may provide assistance programs to individual urban producers or to local governments that support urban producers.[105]

The Minnesota Department of Agriculture's Emerging Farmers Office was created after a series of listening sessions in 2019 about barriers to entry for farmers without a family connection to farming. Emerging Farmers programming includes financial and technical assistance for all kinds of farmers with non-traditional farming backgrounds, including urban farmers.[106]

State and federal governments work together to administer some federal programs and provide support to farmers of all kinds through the agricultural research and education carried out by state land-grant universities and cooperative extension agencies.[107]

Types of City Governments

City governments vary widely in how they are organized. Some cities follow a *strong mayor* or *mayor-council* model, where mayors are elected separately from city councils and have wide ranging authority to appoint heads of city departments and set policy priorities for the city government.[108] Other cities follow a *weak mayor* or *council-manager* system, where mayors serve more of a figurehead role while a professional city manager appointed by the city council takes on much of the work of running the city government.[109] Still others use a model that falls somewhere on a spectrum between these two poles. These differences in government style can impact how a city's policies are created and how they might approach urban agriculture. These governmental forms are generally established by a city's charter. Many cities explain how their cities operate on a municipal website.

Policy Tools Available to City Governments

Typically, larger city governments have an executive branch (the mayor and administrative agencies) and a legislative branch (the city council). Like Congress and the President, or state legislatures and governors, city councils pass legislation (often called ordinances) while mayors implement policy in the form of executive orders or through administrative rulemaking. In general, ordinances are more difficult to change or repeal than an executive order. Changing an ordinance either requires new legislation to repeal or amend or a court order that stops a city from enforcing it. On the other hand, executive orders are generally more limited in scope and can be undone when the mayor or their successor issues another executive order to repeal a previous order (or by court order). City executives and councils often work together in some capacity to create and approve the city's budget, although the details of these processes vary from city to city.

At the administrative level, individual city agencies can create and implement policies that have an enormous impact on city residents, generally with far less process than what is required to enact an ordinance. New York, the country's largest city, requires its agencies to publish prospective administrative rules and allow for public comment before they go into effect.[110] In many other cities, city departments have wide latitude to implement new rules without any public notice or input.[111] For urban producers in those cities, this means that local regulations, and policies concerning matters like how they access municipal water, purchase or lease city-owned land, or qualify for certain municipal programs can be implemented or changed without much, if any, notice from the city government.

Role of Nonprofit Organizations

In many cities, nonprofit organizations are a critical source of support for urban producers. Nonprofits might provide training to new farmers, administer farmers markets or other market opportunities, coordinate networks of community gardens, or help organize farmers and other stakeholders to advocate for policy changes at the local level. Importantly, nonprofit organizations are often eligible for state or federal grants or private foundation support that individual producers are not.

In many cities, nonprofit organizations that serve urban producers partner with city government to develop policy solutions or to coordinate services. While nonprofits can step in to fill gaps in services, they are not subject to the same types of oversight requirements and democratic principles as state and local government agencies. City governments are broadly mandated to protect the public health, safety, and welfare of their residents and must be responsive to their voters, while nonprofit organizations are only bound to serve their approved "charitable purpose," which is usually a mission that is much narrower in scope. Nonprofit organizations lack the power of local governments to implement policy changes that help overcome barriers like outdated zoning codes or unaffordable utility costs. These organizations are beholden to the requirements imposed by their funders (which may be public or private) and boards of directors, rather than the will of the public. Accordingly, they may fail to include certain populations in their programming, whether due to limitations imposed by their mission, insufficient funding, or lack of interest among leadership and staff. They also may fund services that are note broadly beneficial to a city's urban producers.

DIGGING DEEPER

The Role of Volunteers in Urban Agriculture

Urban agriculture operations offer many benefits to their surrounding communities, including providing a hub for neighbors to connect with each other by working to collectively tend to a local green space, hosting community events and wellness activities, or growing produce for community members who may struggle to access fresh food. However, volunteer participation in these activities is limited to certain types of urban agriculture sites. In general, any urban farm that is organized as a business and grows food for profit cannot legally use volunteers as any part of their workforce.[112] Urban farms and community gardens that serve a charitable or public purpose and are run by nonprofit organizations or local governments can incorporate volunteer programs into their operations.[113]

City Governance Barriers to Urban Agriculture and Innovative Production

While the connection between city governance and urban agriculture may not be obvious, the way a city is organized influences how it makes and implements policy. This can have significant implications for urban producers. Included below are a few barriers urban farmers might face related to the structure of local government.

▸ There is a lack of city attention to urban agriculture.

Many cities simply overlook urban agriculture in their policymaking and governance structure. A prime example of this phenomenon is Portland, Oregon. Between 2002 and 2012, the city of Portland passed several legislative changes that supported urban agriculture, including a wide-ranging zoning code amendment recommended by a joint city-county food policy council.[114] However, the council dissolved in 2012 after years of growing tension between its leadership and the city and county governments. The city has been without a dedicated food systems position or advisory body since that time.[115] The current lack of city staff focused on urban agriculture means urban farmers in Portland may struggle to identify who to contact to help them understand city policy, navigate municipal processes like permitting and water access, or communicate their concerns to city policymakers.

▸ Urban agriculture is vulnerable to budget cuts and lack of municipal funding.

While some cities may have implemented policies or hired staff to support urban producers, they may fall short in allocating funding to support urban agriculture. Urban agriculture initiatives may be vulnerable in times of municipal funding shortfalls or other budgetary distress. In a recent high-profile example, New York City's mayor cut all funding for its longstanding community composting program in the budget for fiscal year 2025—a position that was later reversed after widespread public outcry.[116] In the proposed FY2026 budget, the mayor similarly omitted funding for GreenThumb, the city's nearly 50-year-old community gardening program.[117] While this funding was restored in the final budget, the initial cut signals the vulnerability of urban agriculture in the municipal budgeting process.[118]

▸ An overreliance on the nonprofit sector creates unclear accountability structures.

In many cities, especially smaller cities with fewer municipal resources, nonprofit organizations fill critical roles in supporting urban agriculture. These nonprofits may act as service providers by providing training and other educational resources to urban producers or may serve as policy advisors.[119] For example, many food policy councils in cities around the country are private nonprofit organizations.[120] Nonprofits may also provide critical infrastructure in a local food system by administering farmers markets, facilitating land access, offering grants to farmers and gardeners, or supporting community garden networks.[121]

In situations where cities are hoping to expand their support for urban agriculture, they may partner with or offer funding to private nonprofit organizations to provide these services. While these partnerships can facilitate welcome programming and support producers struggling with major issues like land and capital access, nonprofit organizations are not subject to the same democratic input and oversight as public bodies (as discussed above). Nonprofit leaders are not elected or appointed by elected officials, so they are not beholden to public engagement standards or open meeting and public records laws. This insulation from broad-based public input can lead to uneven delivery of services, resistance to or ignorance of public concerns, or failure to meet the full needs of the populations they claim to serve.[122]

LOCAL CHALLENGE

Philadelphia's Land Bank

The Philadelphia Land Bank was established in 2013 after years of public advocacy led by the city's community gardeners and urban farmers.[123] Initially established as a public body, the land bank was moved under the management of the Philadelphia Housing Development Corporation, a private nonprofit corporation, albeit one with close ties to city government, in 2019.[124] Urban producers and advocates claim that the land bank has failed to fulfill its mission of providing land for urban agriculture (for instance, by neglecting to move forward with an adequate number of land transfers to gardeners) and complain that the board has been inaccessible to members of the public who want to share feedback on navigating their policies.[125]

▸ Support for urban agriculture is based on temporary mandate rather than permanent policy.

In many cities, urban agriculture is not a top priority for municipal governments. While most of the 17 cities researched for this report have enacted some kind of ordinance related to urban agriculture, less than half have an office or full-time city staff devoted to supporting urban agriculture.[126] In other cities, urban agriculture staff are housed within departments as varied as parks and recreation, sustainability, or public health. In still other cities without dedicated urban agriculture staff and funding, a city official with a particular interest in the topic may spearhead urban agriculture policies and programmatic support. Personal interest in urban agriculture can motivate these individuals to create impactful programs, but without permanent staffing and durable legislation, urban agriculture programs may be vulnerable to cuts after a change of staff or administration.

Policy Strategies to Support Urban Agriculture through Local Governance

Policymakers can help connect urban producers and local government by directly incorporating urban agriculture concerns and priorities into city governance. Strategies for supporting urban agriculture through local governance include:

▸ Creating an urban agriculture office or hiring staff dedicated to urban agriculture.

By hiring or appointing a city employee or official dedicated to urban agriculture, a city government can signal support for urban agriculture and offer urban producers a clear point of contact to address their concerns. Urban agriculture offices can also advise city officials on policy, guide urban agriculture planning processes, and coordinate services across city departments. Larger cities may be able to create entire departments with multiple staff members to support urban producers, while smaller cities may simply clearly identify a city employee as a point of contact for farmers and gardeners. Depending on where the position is housed, the urban agriculture official may also be able to update operational policies and set administrative rules and regulations that streamline service delivery to urban producers. For example, an urban agriculture director housed within the parks and recreation department may be able to easily update the department's policies addressing where community gardens are located and how residents can access plots in those gardens.

Franklin County Community Garden, Columbus, OH | Photo by Liz Turner

LOCAL APPROACHES

Where Does Urban Agriculture Live in City Government?

MAYOR'S OFFICE

Chicago:
No city director; Food Equity Council
https://www.chicago.gov/city/en/sites/advancing-food-equity-in-chicago/home.html

PARKS & RECREATION

Grand Rapids:
No city director; Urban Agriculture Committee
https://www.grandrapidsmi.gov/Government/Boards-and-Commissions/Urban-Agriculture-Committee

Philadelphia:
Urban Agriculture Director and Farm Philly
https://farmphilly.org/

PLANNING

Oakland:
no dedicated staff, but managed by Planning & Building
https://www.oaklandca.gov/Planning-Building/Planning-Zoning/Zoning/Urban-Agriculture-and-Community-Gardens

PUBLIC HEALTH

Cleveland:
Local Food Systems Strategies Coordinator
[no website]

Minneapolis:
Department Manager, Homegrown Minneapolis
https://www.minneapolismn.gov/government/programs-initiatives/homegrown/

SUSTAINABILITY/ENVIRONMENT

Atlanta:
Urban Agriculture Director, AgLanta within Mayor's Office of Sustainability and Resilience
https://www.aglanta.org/

Dallas:
Food Access team within Office of Environmental Quality & Sustainability
https://www.dallasclimateaction.com/foodaccess

Detroit:
Urban Agriculture Director, Urban Agriculture Division within Office of Sustainability
https://detroitmi.gov/government/mayors-office/office-sustainability/urban-agriculture

New Orleans:
Urban Agriculture Liaison, Office of Resilience & Sustainability
https://nola.gov/next/resilience-sustainability/urban-agriculture/

New York:
Urban Agriculture Director, Mayor's Office of Urban Agriculture within Mayor's Office of Climate and Environmental Justice
https://www.nyc.gov/site/agriculture/index.page

Phoenix:
Brownfields and Food System Environmental Programs Manager within Office of Environmental Programs
https://www.phoenix.gov/administration/departments/oep/oep-programs/food.html

Richmond:
no official position, but managed by Office of Sustainability
https://rva.gov/sustainability

NONE

Albuquerque, **Los Angeles**, **Portland**, **St. Paul**

CITY HIGHLIGHT

Chicago's Food Equity Council

In 2022, the mayor of Chicago created the city's Food Equity Council through an executive order. The Food Equity Council takes the lead on food policy for Chicago, including urban agriculture.[127] While the Council has been effective in its first three years, driving policy development and implementation that has improved the city's support for urban agriculture, the council itself could be disbanded by any future mayor with the stroke of a pen. Additionally, the council has a formal role in city government but technically no city employees; the council's leader is employed by a local nonprofit and "detailed" to the mayor's office to coordinate the council.[128]

▸ Establishing formal pathways for community engagement on urban agriculture policy, such as a food system or urban agriculture policy council.

Many urban agriculture stakeholders across the country feel overlooked by city officials, including municipal agencies and elected officials. In the absence of a municipal department, a city can convene a policy council made up of key stakeholders from local government and the community and dedicated to food systems or urban agriculture. This council can help a city identify how to implement policies that support urban food production and facilitate public engagement on urban agriculture issues. One way that a policy council can help improve local urban agriculture policy is by conducting a survey of local policies that impact urban producers, identifying which barriers stem from outdated ordinances that are due to be updated, and connecting with stakeholders on what policies might be better suited to community needs. Some cities have policy councils that are formally affiliated with the city government as official advisory councils.[129] Other cities work closely with independent nonprofit policy councils to help guide their policymaking around food systems issues.[130] In the absence of an organized advisory body like a policy council, cities can engage with urban agriculture stakeholders on policy issues through forums like listening sessions or town hall meetings convened by a municipal agency or elected city official.

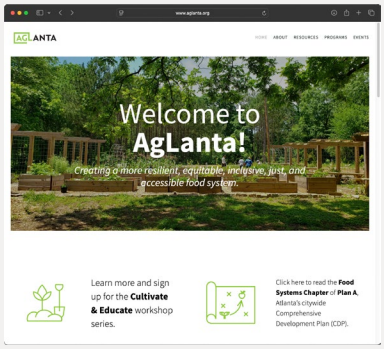
Weaver Way Farms, Philadelphia, PA | Photo by Liz Turner

▸ Providing centralized information and public engagement opportunities for urban producers.

To make information accessible to urban producers, a city can aggregate its urban agriculture policies in one place on the city's website. For example, Detroit, Atlanta, and Philadelphia have thoughtfully assembled information about common issues like zoning, water access, permitting, and land access, and published the information in standalone urban agriculture websites that are easy to find and navigate. Since urban agriculture is often practiced by a variety of immigrant communities, these resources should be translated into languages spoken by the city's urban producers whenever possible. Cities can also ensure that their programs and policies are meeting producers' needs by offering frequent opportunities for producer engagement, whether through more formal listening sessions or more informal "office hours" or similar drop-in programming.

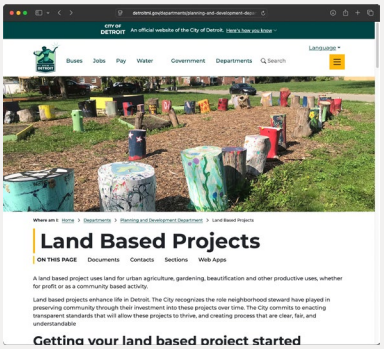
LOCAL APPROACHES

Urban Agriculture Websites



AgLanta

www.aglanta.org/



Detroit Land Based Projects

www.detroitmi.gov/departments/planning-and-development-department/land-based-projects

Farm Philly

www.farmphilly.org/

▸ Using city fundraising and budgeting processes to allocate funding to urban growers.

Cities can increase material support for urban agriculture by allocating municipal funding to urban agriculture initiatives. Some cities, like New York, have a long history of supporting urban agriculture through their annual budgeting process (in New York, this support comes through the GreenThumb community garden program).[131] Other cities fund urban agriculture through an economic development or sustainability framework. For example, Chicago's Community Growers Program is a relatively new program developed by the Food Equity Council and funded through the city's Department of Business Affairs and Consumer Protection as an economic development initiative.[132] In Portland, Oregon, the city levies a special tax on large corporations to fund a Clean Energy Community Benefits Fund for projects that help the city build climate resilience, including urban agriculture.[133]

KEY TAKEAWAYS

For policymakers:

- Create a permanent urban agriculture office or designate a staff member within city government to manage urban agriculture concerns.
- Provide clear public information about urban agriculture policies and programs in one easily accessible location and facilitate frequent community engagement on urban agriculture issues.
- Designate specific budgeting and fundraising streams for urban agriculture programs, and/or seek out state and federal grants to support local food production.
- Ensure that services provided by private-public partnerships are open to the same public input processes as public services.

For producers:

- Identify the office responsible for urban agriculture in your city's government.
- If your city does not have an office or staff member dedicated to urban agriculture, look for nonprofits that provide services and assistance to urban farmers.
- Make sure to check for policies and programs that apply to you at multiple levels of government, including city, county, and state.

V. Water Access

Defining Water Access

Water is a fundamental resource for anyone hoping to grow food. In rural agricultural settings, most farmers access water through private wells or systems of irrigation ditches. In urban environments, food producers typically access water through the same municipal water systems that provide drinking water to a city's residents. While municipal water authorities are generally a reliable source of clean water for irrigation, accessing that water—whether through permanent connections to the city's system of water mains or through informal, ad hoc measures—can pose significant challenges for urban producers.

DIGGING DEEPER

How Do Urban Producers Access Water?

PERMANENT CONNECTIONS TO MUNICIPAL WATER SYSTEMS

The most secure way to access water is to tap into the city's water supply through a permanent connection to the city's water mains. This process typically involves installing a meter and other water infrastructure at the producer's expense.

TEMPORARY HYDRANT PERMITS

Many cities offer urban producers the opportunity to access water through a nearby fire hydrant by obtaining a temporary, renewable permit from the city. Producers also generally must purchase specialized equipment (a hydrant wrench and other connection hardware) to "open" the hydrant and connect it to a hose or irrigation line.

PRIVATE WELL

While most cities retain subsurface water rights within city limits, cities with more undeveloped space available for agriculture may allow urban producers to drill their own wells to access groundwater.[142]

RAINWATER HARVESTING

In most cities, urban producers can meet some of their irrigation needs by collecting rainwater using rain barrels, cisterns, and other water storage systems. Note that some states, particularly in the American West, may limit the ability to harvest rainwater for agricultural uses.[143]

SURFACE WATER IRRIGATION

In some cities, mostly in the American West, urban producers may access water through a system of irrigation ditches that divert water from a nearby river or other surface water source. Traditionally, in these systems, irrigation is conducted as "flood" irrigation, where water from the ditch is periodically permitted to flood a growing field and gradually permeate the soil. These irrigation systems are usually managed under a separate local government authority, sometimes called an irrigation district or, in parts of the Southwest, an acequia. In the present day, most irrigation districts facilitate more modern styles of irrigation by diverting water into drip lines or hoses.

RECLAIMED WATER

In some cities with significant water supply concerns, local governments provide "reclaimed" or "recycled" water for non-drinking uses, including irrigation. Reclaimed water is wastewater that a city has processed to remove any hazardous impurities.[144] This water is then suitable for irrigation and other non-drinking beneficial uses. Users generally access reclaimed water from a central location where they can fill their own tanks and self-transport back to their homes or gardens.

Key Terms

Drip irrigation:
An irrigation technique where water is directed through a series of tubes that slowly release drips or "trickles" of water directly onto plant roots. While drip irrigation requires more initial infrastructure than other styles of irrigation, it can reduce water waste and help limit weed growth by directing water to desirable crop plants.[134]

Groundwater:
Water originating from underground aquifers. This water may naturally discharge into rivers, lakes, and oceans, but it is most commonly accessed through digging or drilling.[135]

Hydrant permit:
In many cities, urban producers can apply to the municipal water department to access water through the city's network of fire hydrants. To use a hydrant for irrigation, producers must use a special wrench to open the hydrant, as well as an adaptor that allows them to attach a garden hose to the hydrant.[136]

Prior appropriation:
In most states in the American West, water is distributed (or "allocated") under a system called "prior appropriation." In this system, rights to use surface and groundwater are dependent on when a user first started diverting the water for what that state defines as a "beneficial use." These water rights can then be bought and sold, along with their seniority, separate from the land the water runs through. When water is rationed, holders of older water rights are prioritized over those whose right has been more recently created. Under most prior appropriation regimes, rightsholders can be individuals, corporate entities, municipalities, or other local government bodies.[137]

Riparian rights:
In most states in the eastern U.S., water rights are allocated under a "riparian" system, which gives landowners the right to use surface water from waterways that cross or adjoin their property.[138] This right is generally limited by the "reasonable use" doctrine, which means the user, in exercising their right to use this water, cannot prevent or prohibit other property holders who live along the same waterway from exercising their identical rights. For example, a property owner who lives next to a stream and wants to divert water from the stream to irrigate their fields would not be able to dam the stream and entirely prevent a downstream neighbor from using or accessing the water.

Stormwater:
Water generated by rainfall, snowmelt, or other precipitation events. Stormwater becomes "runoff" when it does not soak into the ground and instead flows over the surface, posing a risk to soil and manmade infrastructure. Cities generally maintain a system of drains and sewers to divert and manage stormwater runoff.[139]

Surface water:
Water originating from the surface of the earth. Most surface water diverted for agricultural or municipal water systems comes from rivers, lakes, and streams.[140] Water obtained through rainwater catchment systems like rain barrels is also counted as surface water under many regulatory systems, including federal food safety regulations.[141]

An acequia in Albuquerque, NM | Photo by Anita Adalja

CITY HIGHLIGHT

Albuquerque's Acequias

One of the oldest urban irrigation systems in the country can be found in Albuquerque, New Mexico. As early as the first century AD, Native people in the Southwest started diverting river water through ditches to irrigate farm fields. Over time, they developed these ditches into sophisticated irrigation systems that supported tens of thousands of urbanized desert dwellers by the eleventh century.[145] Spanish colonists, using technologies adapted from their own Moorish colonizers, further expanded and formalized these irrigation systems, called acequias, beginning in the sixteenth century. [146] These same acequias are still used today throughout northern New Mexico and southern Colorado. Today, New Mexico state law designates each acequia as an independent local government entity, comparable to irrigation districts or other special units of local government elsewhere, which are democratically funded and managed through local acequia associations.[147] Albuquerque's acequias, largely managed by the Middle Rio Grande Conservancy District, facilitate a unique style of urban agriculture with a continuous legacy stretching over centuries.

CITY HIGHLIGHT

Los Angeles Recycled Water Program

Los Angeles is infamously plagued by water shortages.[148] In 1979, the city started using recycled water to irrigate two city-owned golf courses in Griffith Park.[149] Since then, L.A. has continually expanded its recycled water infrastructure to service many of the city's non-potable water needs, including filling reservoirs for groundwater recharge, irrigating the grounds of parks and other public facilities, and providing water to private companies for industrial cooling processes. The Los Angeles Department of Water and Power also offers free recycled water for its customers at two fill stations; customers can receive up to 300 gallons per visit for non-potable uses.[150] Because the city restricts outdoor watering from potable sources during periods of drought,[151] recycled water has the potential to provide a useful irrigation solution for L.A.'s urban farmers.

Photo courtesy of Los Angeles Department of Water and Power

Water Access Barriers to Urban Agriculture and Innovative Production

While water flows beneath most city streets, accessing that water for agricultural purposes can prove challenging for urban producers. Because water is necessary for agriculture—whether growing vegetables or raising animals—the inability to access water poses an existential threat to an urban farm or garden. Some prominent barriers are listed below.

▸ Residential water rates and connection fees can be cost prohibitive.

While a few cities offer a reduced rate for farmers and gardeners, most urban producers who access water through a municipal water system pay residential rates for water. These rates often include a built-in charge for sewer or wastewater system usage, even though most urban farms and gardens not only lack toilets, sinks, and other plumbing infrastructure that burden the sewer but actively ease the strain on urban sewer and stormwater systems by providing a permeable surface that absorbs rain and other precipitation.[152] In most cities, farmers and gardeners who hope to establish a permanent, reliable connection to a city water system have to pay a substantial connection fee, which can cost up to tens of thousands of dollars.

LOCAL CHALLENGE

Chicago Connection Costs

Updating the city's water access policies has been a focus of Chicago's urban agriculture stakeholders in recent years. In 2020, a coalition of local urban farming groups in Chicago published a water access guide that estimated the cost to install a permanent connection to the city's water supply at $30,000-$40,000.[153] As the guide notes, most of the city's for-profit farms generate around $10,000/year in revenue and do not have permanent land tenure, making such a large capital investment impractical.

▸ Hydrant access policies are unclear or discretionary.

If connection to the water main is inaccessible or unaffordable, urban producers can apply to access water through a nearby fire hydrant.[154] However, many policies concerning hydrant access are opaque and permits may be non-renewable after the initial permit period, leaving urban producers facing water insecurity even after they have put in the work to establish a farm or garden.

LOCAL CHALLENGE

Cleveland's Community Garden Permits

Cleveland's water authority provides permits to community gardens enrolled in the city's Summer Sprout program to access hydrant water at an "affordable" rate (though, at last check, this rate was not publicly available).[155] Separately, the city limits for-profit farms to five years of hydrant access. After five years, farmers must install a permanent water line to the city main if they wish to continue accessing city water. However, the city's land access programs limit use of municipal land to renewable annual leases. Because of their insecure land tenure, urban producers are reluctant to invest in a permanent water connection. The city's Local Food Systems Strategies Coordinator has identified this mismatch as a key barrier to urban agriculture in Cleveland and is working to reconcile the policies of the city's water department and land bank to better meet the needs of Cleveland's urban farmers.[156]

▶ **Cities restrict water use under drought conditions.**

In many states in the Western U.S. that follow a prior appropriation system, water users can see a reduction—or loss—of water available for irrigation during severe droughts. Most drought-prone cities prioritize residential water uses over irrigation, which can threaten an urban farm's viability in the hottest and driest municipalities.[157]

▶ **Water use can be restricted on public lands.**

Farmers and gardeners using land in public parks may lose water access according to the time of year. For example, the parks system in Washington, DC, shuts down water to community gardens on public park land between October and March.[158] Seasonal water shut-offs can limit the ability of gardeners to extend their growing season into the fall and winter months or get their planting activities started on time in the spring.

Policy Strategies to Improve Water Access for Urban Agriculture

Several cities have enacted policies that address some of the barriers listed above and make it easier for urban farmers and gardeners to access municipal water sources. In other cities, local growers have identified solutions that would help connect them to the local water supply. Some of those strategies include:

▶ **Finding ways to lower water costs for urban producers.**

As a first step, city policymakers can identify cost barriers for urban producers hoping to access water, and enact policies that help reduce or offset the cost of water use for urban growers. For example, some cities offer special agricultural rates for water use, subsidize water connections for urban farms or community gardens, or provide free or reduced-cost access to growers who participate in specific city programs.

CITY HIGHLIGHT

Philadelphia's Water Bill Reduction Tools

Through an initiative called "Green City, Clean Waters," Philadelphia offers a set of incentives and subsidies for green stormwater management infrastructure.[159] These incentives include a credit for up to 100 percent of the stormwater management portion of a community garden's water bill on the condition that the garden is managed by nonprofit organizations or other groups that maintain the space for public benefit.[160] Qualifying gardens can also receive a 25 percent reduction in their water rate if they install a metered, permanent water connection.[161]

▸ Writing clear and accessible policies on water use and/or connection for urban growers.

In many cities, policymakers can simply make more information about relevant water policies accessible to urban producers. Few municipal water authorities direct their public-facing information toward farmers and gardeners, who might be intimidated or confused by the process to set up a water source for their growing space.

▸ Exempting urban producers from emergency water restrictions during droughts.

In cities that regularly restrict water due to drought or other emergency situations, policymakers can provide clear exemptions for gardens and farms that need a steady supply of water to produce food.

▸ Providing a clear, simple application for any permits needed and technical assistance tailored to urban producers.

In many cities, urban producers seeking to establish a water connection find the permitting application and permit approval process hard to understand. Producers may not be sure of all the elements required to satisfy the conditions for a permit or how long they can expect to wait for an approval or follow-up. Municipalities can simplify their water connection applications and provide information to producers about what they can expect from the permitting process. Water authorities or city governments can also help producers navigate this process by ensuring staff are properly trained on agricultural water access, and by providing technical assistance for permit applications and other water access issues through either water authority staff or a city staffer who serves as a designated point of contact on agricultural water issues.

KEY TAKEAWAYS

For policymakers:

- Develop policy that reduces water costs for urban producers, such as offering stormwater credits, connection subsidies, or special irrigation rates to urban producers.
- Provide clear, accessible information on water access and use policies for urban agriculture and innovative production.
- Simplify application and permitting processes for water connections for urban producers.

For producers:

- Familiarize yourself with your water utility's rate schedule and inquire about any special rates available for irrigation customers.
- Research the costs and limitations of various water access options, like hydrant permits and permanent water connections.
- Identify any financial incentives that your city or water utility may offer for "green infrastructure," green space, or permeable surfaces.

VI. Soil Health and Composting

Defining Soil Health

Like rural producers, urban producers grow most crops in soil.[162] However, many potential urban farm and garden sites do not have suitable soil in place to support food crops or animal husbandry.[163] Previous land uses may have made the soil inhospitable or unsafe to grow food by compacting the soil, depleting organic matter, or contaminating the soil with industrial, hazardous chemicals. Some sites' soil may be sealed off completely under asphalt or other ground cover.

For these reasons, it is important for urban producers to be able to test their soil to determine what risks exist at their sites, what remediation measures may be appropriate, and whether they should consider importing soil in raised bed systems instead of planting directly in the ground. Urban producers should be able to use nutrient management practices like composting to improve soil conditions and maintain soil health at their sites. Local governments can support urban producers through policies that support testing and remediating soil and remove barriers to onsite composting and other soil health practices.

What Determines Soil Health?

Soil health is necessary to support plant life and food production that is safe for human consumption.[164] It also promotes efficient water use. Soil health depends on a combination of physical properties (i.e., soil structure), chemical properties, and biological properties (related to the organic matter in the soil). Compost is commonly used to add organic matter to soil.[165]

In urban areas, the history of a site's land use is a major factor in determining soil health.[166] Before planting a new farm or garden, producers should research their site's history to understand the context for any soil deficits that may affect agricultural activities. Historical property records, city directories, insurance maps or planning documents can reveal a site's history. These resources may be accessible through local government agencies, libraries, or online.[167] Some growers use online tools that show satellite imagery or aerial photography (like Google Earth) to learn about a site's history. Long-term neighborhood residents may also know the site's history. At the city or neighborhood level, policymakers and city officials can ensure that the information about historical land uses is accessible to land users.

Key Terms

Brownfield:
Properties that are or might be contaminated by hazardous substances that would affect the use of the property.[168] The Environmental Protection Agency (EPA) estimates that the U.S. has over 450,000 brownfield sites.[169]

Compaction:
A condition where soil has been compressed so that the soil has less space for water and air to travel through it. In urban areas, compaction is often the result of heavy equipment use for construction or ongoing foot or vehicle traffic on the site.[170]

Compost:
The product that results from the composting process, which can be used as a soil amendment to add fertility to soil.[171] Because of its low cost to produce and many fertility benefits, compost can play a critical role in building and maintaining soil health in the context of urban agriculture.

Composting:
A process in which microorganisms decompose organic materials such as leaves, yard waste, food scraps, or animal manure. Commercial composting usually occurs at high temperatures to reduce the risk of pathogens in the resulting compost.[172]

Remediation:
The process of removing contaminants from soil.[173] Soil remediation is most practical at sites with low levels of pollution.[174] For sites with significant contamination, remediation may require removing and replacing the top layer of soil,[175] which is expensive and often impractical in urban farms and gardens. Producers can apply for funding for remediation activities from state programs implementing the EPA Brownfields Program,[176] although these programs are often oversubscribed and agricultural sites compete with housing and other land uses for funding.

Soil:
A mixture of solid mineral particles, organic matter, water, and air that supports plant and microbial life.[177]

- *Soil structure* refers to the arrangement of the solid particles and how water and air can travel in the spaces between them.
- *Soil fertility* relates to the ability to support plant growth and is determined by the soil's organic matter, physical, and chemical characteristics.[178]

Property History and Land Records

Below is a property description from the local property records for a vacant parcel in Cuyahoga County, Ohio that is currently used as an urban farm. In addition to information about who has bought and sold the parcel, the record contains a description of the buildings on the lot, their basic building materials, and their prior use – in this case, a "commercial service garage," a good indicator that there may be soil contamination from gasoline and other toxic chemicals used in the car repair trade. To avoid the risk of contamination, this farmer grows edible crops exclusively in a raised bed system with an impermeable barrier between clean and potentially contaminated soil. While the amount of information available in public land records varies from city to city, they are an invaluable source of information about past ownership and historical uses.

Building Information			
Building ID	2	**Construction Class**	CLASS C
Basement Type	SLAB	**Total Story Height**	1
Usable Area	10419	**Condition**	VERY-POOR
Date Build	1948	**Date Remodeled**	
Exterior Walls	BR & BLK	**Framing**	FIRE RESISTANT
Roof Type	GABLE	**Roof Covering**	COMPOSITION
Office Area	3850	**Mezzanine Area**	
Mezzanine Finish	UNFINISHED	**Wall Height**	18
Heat Type	HOT-WATR/STM	**Air Conditioning**	NONE
Number Of Occurrences		**Office Finish**	FNO
Site Uses			
Use Description		**Floor Level**	**Area**
COMM SERVICE GARAGE		1ST	10,419

CITY HIGHLIGHT

Soil Health After the 2025 Los Angeles Wildfires

Natural disasters can also impact soil health. In Los Angeles, preliminary soil testing after the 2025 Eaton Fire indicated elevated lead levels in the yards of intact homes downwind of the fire. These high levels are thought to be attributable to the large number of burned homes with lead-based paint.[179] These findings led the Los Angeles County Board of Supervisors to allocate funds to help affected property owners test their soils.[180]

Urban farms and gardens in the burn zones need to re-establish healthy soil before replanting. The Altadena Community Garden, comprising more than 80 plots over 2.5 acres, has a seven-step plan for soil remediation after the Eaton Fire: scrape the top three to six inches of topsoil; test the soil beneath it; apply organic materials, compost teas, and fertilizers; add new soil from off site; apply another round of fertility-boosting additives; introduce fungus mycelium to the soil to break down additional toxic substances in a process called mycoremediation; and conduct a second round of soil testing.[181]

Photo by Ringo Chiu | Shutterstock.com

Common Urban Soil Concerns and Site History Associated With Those Concerns[182]

Soil Concern	Site History
COMPACTION Compacted soils provide stability for building foundations but inhibit root growth and water movement through soil.[183]	• Heavy machinery uses for construction or demolition • Concentrated foot traffic
ORGANIC MATTER DEPLETION Organic matter levels vary widely based on a site's history, with urban soil levels ranging from very high to very low.[184]	• Construction or demolition • Removal of topsoil • Soil has been kept bare or covered with inorganic materials
CONTAMINATION Contamination includes soils with high concentrations of salts or chemicals, including heavy metals.	• Industrial land use or product use • Lead paint from older buildings • Salt use on roads • Upwind industrial uses that release airborne contaminants
SOIL SEALING Soil sealing refers to covering soil with asphalt or other impervious surfaces and therefore preventing water from reaching the soil.	• Building construction • Roads, sidewalks, parking lots and other forms of paved surfaces

HAHT soil profile showing debris including brick, concrete, wire, steel, and asphalt.[185]

Urban sites often contain a special category of soil called *human altered and human transported* (HAHT). This is soil intentionally modified by people for various reasons, such as to prepare the land for construction.[186] These soils often include materials like brick, gravel, cement, or coal ash[187] that can affect water retention and infiltration, soil pH, and other soil properties that impact a producer's ability to grow crops directly in the ground.[188] Cement-based building materials, in particular, can make soil more alkaline, which affects nutrient availability for plants.[189]

In addition to soil characteristics deriving from previous land uses, urban soils also show traits common to their geographic region. For example, soils in dry regions may be hydrophobic (water-repelling) and require significant additions of organic matter and water to make them agriculturally productive. Underlying soil types and regional soil characteristics are important considerations for urban growers as they manage urban soil health.

Soil Health Barriers to Urban Agriculture and Innovative Production

Urban land uses can damage soil in several ways that inhibit its safety or suitability for agriculture. As a result, urban producers need to know the condition of their soil and have paths to improve soil health when necessary. Key barriers they face include:

▶ Soil testing and interpretation is costly or inaccessible.

Soil tests give growers the information they need to determine the best practices for soil remediation and management. Soil tests also clarify if urban growers need to import soil or set up barriers, such as raised beds, between imported soil and onsite soil. For cities with municipal land available through land banking or disposition programs, soil testing by the city can ensure that these lands are safe for agricultural uses. In addition to soil testing, growers need clarity in interpreting testing results so that the soil lab's findings translate to actionable information to guide soil management. For example, a finding of certain types or levels of contamination in soil could be paired with guidance about low-cost strategies for mitigation, such as capping contaminated soil and layering clean soil on top, or growing in raised beds.

DIGGING DEEPER

Disincentives to Soil Testing: CERCLA and State Law Liability for Soil Contamination

The federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)[190] imposes liability and penalties on landowners or "operators" (for instance, a farmer or gardener leasing a site) in possession of property contaminated with any one of hundreds of hazardous substances, including lead, arsenic, and various compounds found in common mass-market chemical products like gasoline and antifreeze.[191] The liability standard for owners or users of contaminated land is strict liability, meaning that the landowner or operator can be held responsible even if they did not negligently or intentionally cause the contamination.[192]

While a landowner or operator is generally responsible for any damages resulting from the soil contamination whether or not they are aware of the contamination, one of the only complete defenses to CERCLA liability relies on an owner or operator being "innocent" of any knowledge of contamination – that is, they must "not know or [have any] reason to know" the soil was contaminated when they acquired the property.[193] Further, soil testing may actually disturb and spread contamination, opening the landowner and the testing company up to additional liability.[194] States may have additional environmental protection laws that impose comparable or additional liability on landowners and operators on contaminated sites.[195]

While soil testing ensures that producers who intend to grow in urban soils can do so safely, the threat of federal and/or state liability or a fear of incurring mandatory remediation expenses may discourage them from pursuing soil testing on potential farm sites. However, because of the high likelihood that urban soils are contaminated with chemicals or compounds that make it unsafe to grow food, these producers should opt for practices, such as growing in raised beds atop an impermeable barrier, that minimize the risk of contact between food crops and contaminated soils.

DIGGING DEEPER

Soil Testing

Two types of soil testing are important for urban producers: *routine soil analysis* and *testing for contaminants.* Routine soil analysis is useful for any producer, including those using raised beds, for determining soil pH and nutrient deficiencies. Contaminant testing helps identify hazards in sites with land use histories that suggest potential contamination. Lead testing is particularly important, given widespread historical use of lead-based paint, lead pipes, leaded gasoline, and other industrial activities.[196] PFAS and related "forever chemicals" are another area of emerging contamination concern. Soil testing costs can vary considerably based on the size of the site and the types of tests required. These costs may be prohibitive for many urban producers. Routine soil analysis often costs under $50 for a small site, while contaminant testing potentially runs into the thousands of dollars, depending on what specific tests are warranted.[197]

▸ City governments overlook soil health.

Cities often lack a specific agency or department within city government tasked with managing soil health and may fail to prioritize it. This lack of attention to urban soil health manifests in a few ways. Laws and regulations typically do not require developers to protect soil health when building, which leads to the development of HAHT soils in cities.[198] Even in cities where an agency authority tasked with protecting soil health exists, it typically must contend with competing municipal priorities for attention and resources. Regulating urban growers and community organizations who do not follow best soil safety practices may be a low priority, allowing poor soil management practices to go unchecked.

Additionally, a lack of soil remediation requirements for industrial uses, demolition, or land clearing activities increases the prevalence of contaminated and unhealthy soils in cities. This problem can be exacerbated when agricultural uses are pushed into industrial zones through measures like zoning restrictions on agricultural activities in residential zones. For example, Richmond, Virginia, restricts onsite sales of crops from single-family residential districts,[199] potentially pushing urban farms to commercial or industrial districts with a higher likelihood of soil contamination.

▸ Potential urban agriculture sites are brownfields.

Locations with agricultural potential – factors like space, sunlight, water, ability to access, and/or level ground –within cities may be unusable if they have suspected or actual hazardous soil contamination. Soil testing is needed to determine the type and extent of the contamination. Producers may be discouraged from pursuing agricultural activities on these sites altogether if contamination is known or suspected. If they do try to farm or garden on a brownfield, remediation or mitigation measures may be required to make food production safer or limit legal liability. These measures can be intimidating or cost-prohibitive for urban producers.

▸ Regulatory barriers prevent onsite composting.

Composting is a valuable practice that improves soil health and recycles nutrients from plant matter grown on site. However, several types of municipal policies can discourage or prevent onsite composting. Compost can potentially emit odor or attract vermin, which means that the practice is subject to nuisance law and rat harborage ordinances unless the city specifically excludes it. Potential for conflict with neighbors and additional compliance issues may arise if producers augment compost ingredients sourced onsite by collecting food scraps from community members or selling any surplus finished compost.

For example, Dallas' city code addresses rat deterrence in part by prohibiting dumping or placing garbage on any land in the city, including "any waste vegetables, animal matter or any food products whatsoever."[200] On the other hand, Dallas encourages composting through its sanitation department.[201] In many cities, the language included in zoning ordinances may conflict with programs the city supports through other departments or agencies. In jurisdictions that do not address composting directly, compost may be classified by default as solid waste and subject to unnecessarily burdensome requirements.[202] Cities may also place burdensome permitting requirements on composting, or limitations on which entities can compost.

DIGGING DEEPER

State Composting Laws and Regulations

States also play a key role in composting law and policy by establishing parameters for the sizes and types of composting facilities that require permits and including permitting exemptions for household or small-scale composting. The U.S. Composting Council provides a guide to each state's composting regulations.[203] It is helpful to know the requirements of an individual state to better understand how much latitude a municipality has when setting its own composting policy.

Policy Strategies to Improve Urban Soil Health

Cities can proactively monitor and improve soil health for urban agriculture. Some cities have already enacted measures to become proactive about urban soil health, promote food safety and farmer health, or support urban producers in ongoing soil health management. A few policy strategies cities can follow include:

▸ Assigning responsibility for soil health to an appropriate body in city government.

Cities can start by establishing their role in governing for soil health. Ensuring that a local government body has the authority, resources, and accountability to promote soil health is important to keep this vital issue from being overlooked.

▸ Ensuring information about historical land uses is publicly available.

Public officials can work to make sure that local land records are up to date and that urban producers have guidance in accessing and interpreting these records. This historical information is invaluable to urban producers who wish to better understand the risks they may be shouldering by choosing to grow food in a specific location.

CITY HIGHLIGHT

Healthy Soils Strategy for the City of Los Angeles

In Los Angeles, LA Sanitation & Environment (LASAN) is the municipal government body responsible for soil health in the city. LASAN convened a Healthy Soils Advisory Panel of experts to inform development of their Healthy Soils Strategy for the City of Los Angeles. The Strategy addresses issues of contamination and testing, composting, and urban agriculture, among others.[204]

▶ **Promoting and/or subsidizing soil testing.**

Soil testing is especially important for identifying where lead and other contaminants make the soil unsafe for growing food, but the benefits of soil testing go beyond detecting hazards. Testing can also indicate what types of crops will grow well and what types of soil amendments are needed to improve fertility. Soil testing is commonly offered through cooperative extension, health departments, or other government bodies.[205] Cities can explore different approaches to soil testing, from providing reduced or no-cost testing to facilitating raised bed use until soil testing confirms safety for in-ground planting. For example, Minneapolis provides free testing for lead in soil.[206]

LOCAL APPROACHES

Soil Testing on New Farm Sites

CHICAGO, ILLINOIS

Chicago's land disposition program, ChiBlockBuilder, provides environmental review, including soil testing, for property sold to be used for urban farming. The testing provides a notable benefit to producers but also adds an extra step before a site can be sold by the city, which can slow down land access.[207] It can also keep the land out of agriculture altogether if the site is too contaminated. Chicago's program does not provide soil remediation, so the testing could preclude the use of contaminated sites for agriculture even when producers could safely use the site by employing raised beds or other growing methods that place barriers between contaminated soils and those used for growing food crops.

NEW ORLEANS, LOUISIANA

The New Orleans Comprehensive Zoning Ordinance mandates soil testing before establishing agricultural uses on new sites.[208] However, it also offers the alternative of using raised beds with impermeable barriers between the bed and the onsite soil.[209] The testing requirement promotes soil health for urban agriculture, while the raised bed option gives producers the flexibility to choose a safe alternative if desired. Although the testing requirement should provide confidence in urban soil safety, residents report that the requirement is largely unenforced.

▸ Leveraging state and federal funding to remediate brownfields.

Cities can make more land suitable for urban agriculture by remediating brownfield sites. The U.S. Environmental Protection Agency maintains a Grants and Funding resource page where cities can search for programs that best fit their needs. State agencies may have their own brownfield remediation programs as well.

CITY HIGHLIGHT

Phoenix's Brownfields to Healthfields Initiative

Phoenix used a $400,000 brownfields assessment grant from the U.S. Environmental Protection Agency, along with additional funding from the Arizona Department of Environmental Quality, to clean sites of hazardous substances so they could be used for urban farms, community and school gardens, and other food system activities.[210]

▸ Making composting and other soil management practices accessible to urban producers.

Cities can enable urban producers to compost onsite by explicitly allowing it in their zoning codes. State agencies and nonprofit organizations have created model zoning ordinances that municipalities can adopt to enable small-scale composting.[211] Some cities allow composting by right in all districts, including Chicago, Cleveland, and Minneapolis.[212] Cities and states can also look beyond the zoning code to address unintended barriers to composting in other areas of law (e.g., nuisance ordinances, regulatory definitions). For example, New Mexico state law specifies that its definition of "solid waste" does not apply to agricultural waste, including manures and crop residues converted to beneficial products (such as compost).[213]

Cities can also improve urban producers' access to compost by adopting policies for separating organic waste from other waste streams and using it to increase local composting capacity and volume. These policies can be combined with measures to provide finished compost to urban producers as a public service, for sale, or through other agreements.

In addition to composting, cities can support ongoing soil management practices that address soil health over multiple growing seasons. For example, cover crops can help address issues of soil compaction and structure as well as soil fertility. Soil management practices may also include remediation or creating barriers like raised beds and importing clean soil to the site. Some growers also prefer raised beds because they provide improved accessibility for people with physical limitations. Cities can support these measures through funding or technical assistance, or by enacting policies that lower barriers to these practices, such as explicitly including cover cropping as a permitted use in their zoning code.

Finally, cities can connect urban producers with state and federal resources that support soil health. For instance, a city might include information about local Extension programs related to soil health or share information for local NRCS staff who are able to help producers implement soil management strategies.

KEY TAKEAWAYS

For policymakers:

- Take affirmative measures to protect and promote soil health.
- Ensure land users have access to site history information.
- Increase support for soil testing and remediation.
- Remove barriers to composting and other soil management practices by amending zoning codes and other laws and regulations, including solid waste definitions.

For producers:

- Learn your site's history to assess the likely soil health challenges you may face there and avoid potential liability for past actions that may have led to contamination.
- Look for local soil testing options and municipal programs that provide or subsidize soil testing. Some of these may be offered at the state level.[214]
- Learn about your composting options, including whether there are restrictions on composting in your zoning code.
- Implement a soil health management system to preserve and improve soil health throughout the life of the farm.
- Seek technical assistance from local cooperative extension agents or nonprofit service providers, or from NRCS through a USDA Service Center.

VII. Innovative Production

Defining Innovative Production

Many producers explore and implement nontraditional ways to grow food, using what the USDA describes as *innovative production methods* or *innovative production*.[215] Innovative production includes any type of agricultural production that is not traditional, outdoor soil-based farming. This includes aquaponics, controlled environment agriculture (CEA), rooftop farms, outdoor vertical production, indoor vertical farms, greenhouses, hoop houses, and hydroponic and aeroponic farms. Although cities are often innovation hubs for food production, farmers use these techniques in suburban and rural areas as well. Innovation production also varies in scale, from small, outdoor aquaponic farms using inexpensive materials and managed through primarily traditional techniques to large, high-tech indoor CEA operations.

The costs and benefits of growing food with innovative production techniques vary according to factors like climate, land and utility costs, level of initial investment required, and more. Farmers may choose to use innovative production techniques, such as CEA, indoor farming, and greenhouses, to extend the growing season in certain geographic locations and reduce some of the production and biosafety risks that come with soil-based, outdoor farming practices, such as exposure to pathogens and unpredictable and extreme weather patterns.[216] Some innovative production techniques allow growers to use underutilized spaces, such as rooftops or decommissioned shipping containers, to take advantage of marginal space in dense urban environments, or within modular or portable systems that can be relocated in cases of loss of land tenure. Cities may wish to incentivize innovative production to increase the local supply of certain high-demand crops or provide an additional element of local food system resilience in the face of increasingly variable climate conditions.

However, many forms of innovative production come with high costs and risks. Large-scale CEA, for example, can require substantial capital investment from venture capital firms or larger corporate operators to secure land and develop the requisite structures and systems. Fully indoor commercial-scale production systems are likely to require significant energy and water inputs, which may offset any climate benefits offered by hyper-local food production and incur ongoing input and operational costs that may hinder profitability. Further, a specialized labor force is required to manage unique pest and disease management conditions, which may be expensive to train or retain, or otherwise elusive to secure.

Key Terms

Aquaculture:
The controlled propagation, growth, and harvest of aquatic organisms (e.g., fish, shellfish, seaweed, etc.), conducted in all types of water environments.[217]

Aquaponics:
A food production system that combines growing fish, plants, and beneficial bacteria. Aquaponic systems create a self-supporting water-driven ecosystem, where waste from the fish is broken down by bacteria to fertilize the hydroponic system-grown plants, hence maintaining water quality for the fish. These systems take many shapes and sizes and require varying levels of investment and resources.[218] In general, these systems are more operationally complex and difficult to maintain than conventional, synthetically fertilized hydroponics, especially at commercial scales.

Controlled Environment Agriculture (CEA):
An enclosed or semi-enclosed food production system that allows producers to control factors such as temperature, air flow, light exposure, and/or precipitation. CEA involves some removal of an agricultural production system from the natural, outdoor environment. This removal allows farmers to maintain control over variable climate, pests, and disease, or to extend their growing season. Common forms of CEA include indoor agriculture, vertical farming systems, hydroponics, aquaponics, freight container farms, low- and high-tech greenhouses, hoop houses, and high tunnels. More intensive CEA systems completely control the environment to provide optimal growing conditions for a specific crop and can require significant inputs and technology.[219]

Greenhouse:
A building with a translucent roof and/or walls that provides a controlled growing environment, potentially using tools like heaters, lights and ventilation systems. In greenhouses, plants are typically grown in pots or other containers set on racks or tables or in installed hydroponic systems. Greenhouses that have a permanent foundation and/or anchoring system are often considered "permanent structures" by municipalities, requiring building permits and compliance with building and fire codes. Greenhouse growing falls under the broader CEA umbrella.

High tunnel, hoop house, polytunnel, cold frame, low tunnel, and caterpillar tunnel:
A category of structures generally made with polyethylene sheeting or row cover stretched over a metal or PVC frame to cover and protect crops.[220] These structures fall into various groups of subtypes including:

High tunnels, hoop houses, and polytunnels are often 15 to 20 feet tall and may look similar to greenhouses, although definitions vary by state and municipality. They are generally much less expensive to construct and are managed differently than greenhouses because plants are grown directly in the ground. Additionally, hoop houses are often designated as "temporary structures" in legal definitions.[221] Larger, more permanent structures where crops grow from seed through harvest are generally considered to be tools of CEA, albeit on the lower-tech side of the spectrum (for instance, they are less likely to be paired with climate control systems).

Key Terms (continued)

Cold frames and low tunnels are smaller, made of more lightweight materials, and less permanent than high tunnels. They may be relocated throughout the growing season to provide protection to different crops at different times.[222] These are generally used for season extension, but fall outside of CEA, as most growing happens in "normal" conditions.

Caterpillar tunnels are generally tall enough to stand in and wide enough to cover multiple rows of crops but are smaller and more mobile than high tunnels.[223]

Hydroponics (including aeroponics):
The process of growing plants without the use of soil, instead using different growing media such as sand, peat, or gravel, with nutrients added and managed via nutrified, re-circulated water delivery.[224] Hydroponic systems are often used in greenhouses and other indoor agriculture systems.

Rooftop farm:
A food production site on the roof of a building, which may use soil-based or hydroponic systems. Rooftop farming differs from green roofs, eco-roofs, living roofs, or vegetative roofs, in that its primary function is food production rather than stormwater retention and ecosystem services.

Season extension:
A practice of cultivating crops outside of their normal growing seasons in a given climate, achieved through a variety of climate control or mitigation techniques.[225] Some season extension practices, like growing inside greenhouses or high tunnels, can be categorized as innovative production. Others, like planting permanent windbreaks or using plastic sheeting or natural mulch to protect and warm soils, generally are not regarded as innovative production.[226] Most season extension structures are geared toward protecting crops from cold, although shade structures and other cooling season extension techniques may be used in hotter climates to protect crops from too much sun or heat.[227]

Vertical farming:
Growing plants fully indoors in a vertically stacked bed or tower orientation rather than horizontal rows, using single-source lighting. This method generally requires additional energy relative to other CEA methods due to its crop density and lighting requirements. Vertical farming is generally commercially viable only for leafy greens, herbs, and flowers.[228]

Photo courtesy of Oko Farms, New York City, NY

LOCAL CHALLENGE

Land Tenure for Aquaponics Farm in NYC: Oko Farms

Innovative producers face the same key challenges as urban farmers using traditional soil-based practices, including land access and land tenure. Oko Farms in NYC, which uses low-tech aquaponic growing techniques, lost its land when its landlord Two Trees Management abruptly terminated the farm's lease in November 2024.[229] Oko Farms was forced to search for a new location, move equipment, and restart its farming operations. The question remains as to whether Oko Farms will have secure land tenure in its next location. Without land security and tenure, urban farms and innovative producers are not able to run, adapt, and grow their businesses. To address this issue, cities can make more public land available for urban agriculture and innovative production, offer tax incentives for private landowners, and technical assistance for farmers and innovative producers leasing or purchasing privately owned land.

Policy Barriers to Innovative Production

Innovative producers face many of the same challenges and barriers experienced by other urban producers, including the high cost of property, energy, and water, and regulatory and policy barriers like restrictive zoning codes. However, some local and state laws and regulations, such as building codes and utility regulations, may pose unique challenges for innovative producers. Below are some common barriers faced by innovative producers.

Utility Access: Energy and Water

Water Access and Management

Due to the nature of hydroponic farming, hydroponic growers use water as the primary way to provide nutrients to their plants. This nutrient-rich water (often referred to as "nutrient solution") is then either recirculated through the system or disposed of through municipal wastewater systems. Municipalities or states may regulate this water usage, water recycling/reuse, and wastewater disposal, for example, with drain water discharge regulations that may not be designed for the needs of innovative producers or be difficult or expensive to comply with.[230]

Energy and Water Benchmarking

Water and energy benchmarking is a method of data collection performed by building owners and operators to standardize and track their utility use over time and measure progress toward meeting energy efficiency goals.[231] In recent years, more cities and states have adopted benchmarking and disclosure policies that require building owners to report on energy and water usage (and sometimes require them to decrease consumption over time).[232]

For example, the State of California requires buildings with more than 50,000 square feet to report annually—exempting buildings in municipalities that already require energy benchmarking (municipalities may have different, lower, building size thresholds than the state; for example, San Jose requires buildings over 20,000 square feet to report).[233] While necessary to ensure compliance with sustainability goals and broadly applicable utility regulations, collecting data on energy and water use and reporting may be new and unfamiliar for CEA producers. For instance, they may find it difficult to locate and navigate the specific requirements applicable to them, which vary depending on local and state benchmarking policies.[234]

Utility Rate Design and Incentives

Public utilities, such as power companies, may assess lower power rates on industries they are hoping to subsidize, or impose higher rates on industries whose utility overuse they seek to discourage.[235] However, only a handful of power utilities in the country have created special utility rates for indoor or innovative agriculture, which means that most producers must pay whatever applicable commercial (or sometimes residential) rate otherwise applies to their site. This can lead to prohibitive energy costs for many innovative agriculture operations.

DIGGING DEEPER

Energy and Water Benchmarking and Disclosure Policies

For more information on CEA Energy & Water Benchmarking, see Resource Innovation Institute's **CEA Energy & Water Benchmarking Report**.

For a comparison of U.S. Commercial Building Energy Benchmarking policies, see **Understanding energy benchmarking ordinances: A state-by-state guide**.

Land Use and Zoning

Producers who are looking to get started in innovative production will need to understand local zoning and land use policies that impact their operations—for instance, where they are allowed to set up a new rooftop farm or indoor growing operation and what regulations apply to them. The location and zoning categorization of the farm or production site largely determine which land use laws and regulations apply to innovative producers. Although some cities acknowledge and include innovative production uses in their zoning codes, innovative producers are often regulated on an ad hoc basis because they are not categorized under existing municipal law.

Since techniques such as indoor agriculture look quite different from soil-based agriculture, they are generally treated differently in zoning codes, if they are considered at all. A few cities have their own definitions for hydroponics and aquaponics (see Boston's and Chicago's definitions on page 74) and include them among agriculture uses in their zoning codes—e.g., Detroit includes aquaculture, aquaponics, greenhouse, hoop houses, and hydroponics as agricultural uses.[236] However, most cities have not sanctioned these uses explicitly in their land use laws, which means that producers may be discouraged from starting innovative production operations or may be forced to navigate a web of individual municipal decision makers to issue an ad hoc approval of their proposed use.

Innovative producers have increasingly turned to high tunnel systems as they are both encouraged by USDA and eligible for financial assistance through the Environmental Quality Incentives Program (EQIP).[237] However, some cities have height, size, and setback restrictions for season extension structures, such as Dallas, which restricts hoop houses ("bed covers") to four feet from the growing surface or eight feet above grade.[238] Detroit requires that greenhouses and hoop houses are set back at least five feet from the rear property line.[239] Other cities may not allow these types of structures at all.

In addition to complying with zoning ordinances in terms of permitted uses, building height, lot coverage and setbacks, etc., indoor growing operations must comply with building codes which have additional requirements and limitations (see below).[240]

Building Codes

Producers farming on rooftops or inside buildings or other structures should understand how their city's building code may restrict their operation. Building codes, which are additional rules about building and development that are layered on top of zoning and other land use controls, group types of buildings based on their intended use and then regulate how the buildings are constructed and maintained based on that type. The International Building Code (IBC) is a model building code adopted by many cities; however, it does not include definitions and provisions specific to rooftop farming or indoor agriculture, creating ambiguity for many innovative producers.

Innovative producers may have to carefully review their city's building code to understand which sections apply to them. For example, building permits may be needed for greenhouses if the municipality classifies them as permanent structures, and permits needed for greenhouses on rooftops may be more restrictive than those on the ground level due to weight and height limits.[241] High tunnels or hoop houses are usually seen as nonpermanent structures especially if they are not permanently anchored onto concrete, but municipalities may define and classify them differently.[242] If high tunnels or hoop houses are classified as temporary structures by municipalities, then usually a building permit is not required.[243]

Similarly, indoor growers must comply with building code provisions related to building elements like windows, concrete, insulation, and energy efficiency. Most building codes are geared toward commercial, industrial, and residential development, and do not take the unique needs of indoor agriculture into consideration.

CITY HIGHLIGHT

Dallas's "Grozilla"

Restorative Farms in Dallas, Texas, uses both high tunnels and controlled environment agriculture (CEA). Both innovative production models create a controlled environment, allowing for growing food year-round. Their container farm ("Grozilla") is an indoor growing machine that is also used to train aspiring farmers in new high-tech innovative production.

Restorative Farms, Dallas, TX | Photo by Brad Boa

Food Safety

Innovative producers are subject to the same food safety laws as soil-based farming, including the federal Food Safety Modernization Act (FSMA) and its corresponding regulations and state and local food safety laws.[244] Because hydroponic and aquaponic systems rely on the circulation of nutrient-rich water and involve frequent human contact, they have unique food safety considerations.[245] For example, because hydroponic systems are circular, contamination in one place could potentially lead to the spread of contamination throughout other parts of the system.[246] Aquaponic growers have additional food safety and allergen management considerations because their systems involve the production of fish and produce together which can lead to cross-contamination. Depending on the operation, federal-level seafood Hazard Analysis Critical Controls Points (HACCP) rules may also apply (if the operation involves processing fish into meat and the fish is sold wholesale).[247]

Innovative production policy considerations

Different local and state laws and regulations may apply to innovative agricultural producers depending on whether crops are grown on a rooftop, using hydroponics or aquaponics, in a structure like a greenhouse or hoop house, or inside a building (like many CEA operations). Here are some specific local and state policy considerations for different types of innovative production:

Rooftop Farms

Zoning
- Special use permitting
- Height restrictions
- Unclear definitions, e.g. "green roof" does not specifically include food production

Building Code
- Weight/roof load specifications
- Water access & drainage
- Power access
- Clearances & maintenance

Hydroponic and Aquaponic Systems

Zoning
- Definitions (or lack thereof) as agriculture or another type of use

Water
- Access – e.g., water connections for aquaponics systems established on vacant lots
- Cost – utility rate design
- Effluent/wastewater management

Food Safety
- Special FSMA and HACCP considerations
- Cross-contamination between fish and plants
- Safe processing for fish (if harvested as protein)

Season Extension Structures
(Greenhouses, high tunnels, hoop houses, etc.)

Zoning
- Height & setback requirements
- Accessory structure rules

Building Code
- Special permits if permanent

Energy costs
- Utility rate design and incentives

CEA and Indoor Agriculture

Zoning
- Classification issues (industrial vs. agricultural)

Building Code
- Not designed for indoor agriculture operations

Energy costs
- Utility rate design and incentives

Policy Strategies to Support Innovative Production

Given the considerations discussed above, there are several policy opportunities that could be considered to support innovative producers. These strategies include:

▸ Including definitions and classifications of innovative production practices in municipal codes and programs.

Definitions of uses like "urban farm" or "urban agriculture" should explicitly include innovative production techniques, such as rooftop farms, CEA and indoor farms, hoop houses, hydroponics, and aquaponics.[248] For example, Boston and Chicago include these uses in their urban agriculture-related definitions (see below), and Minneapolis's zoning code includes aquaponics, aquaculture, and hydroponics as accessory uses to urban farms or indoor market gardens if the required licensure standards are met and the tanks do not connect to the sewer.[249]

LOCAL APPROACHES

Defining Innovative Production

BOSTON, MASSACHUSSETTS

Article 89, the city's urban agriculture statute, includes definitions for aquaculture, aquaponics, cold frame, CEA, freight container, greenhouse, hoop house, hydroponics, open air rooftop farm, roof level urban farm, rooftop greenhouse, vertical agriculture, and different urban farm definitions for scales of production (small, medium, or large farms) and location (ground level or roof level).[250]

CHICAGO, ILLINOIS

17-17-0104-H Urban Farm. Growing, washing, packaging and storage of fruits, vegetables and other plant products for wholesale or retail sales.

1. **Indoor Operation.** All allowed activities must be conducted within completely enclosed buildings. Typical operations include greenhouses, vertical farming, hydroponic systems and aquaponic systems.

2. **Outdoor Operation.** Allowed activities are conducted in unenclosed areas or partially enclosed structures. May include indoor operations in conjunction with outdoor operations. Typical operations include growing beds, growing fields, hoop houses and orchards.

3. **Rooftop Operation.** All allowed activities occur on the roof of a principal building as a principal use or accessory use. Typical operations include growing beds and growing trays.[251]

▸ Allowing year-round installation and use of season extension structures, such as hoop houses and greenhouses, and other accessory structures.

Cities should make it easy for producers to use greenhouses, hoop houses, and accessory structures by reducing unnecessary regulatory hurdles. As one strategy, cities and states can exempt structures such as hoop houses from compliance with building code requirements, making it easier for these types of innovative producers to operate. For example, Arizona exempts "polyhouses" and hoop houses from local building permit requirements so long as they are not permanently anchored, meet certain spatial requirements, and comply with other requirements.[252]

▶ Creating financial incentives for innovative production operations.

Cities may incentivize innovative production through grant programs, tax breaks, or reduced utility rates. Massachusetts offers grants to support urban agriculture including rooftop open air and greenhouse production, hydroponics, aquaponics, and aquaculture.[253] Such programs, particularly grant programs, should ensure these opportunities are open to producers who do not own their land, whether they are renting farmland or using a rooftop. Ideally, such grants would be coupled with strategies to ensure secure land tenure, so that public investments are not wasted on a project that is forced to relocate or close.

▶ Considering innovative production when distributing, updating and amending the building code.

State and local codes should clarify how innovative production is defined and regulated.[254] To address confusion from indoor growers, the City of Phoenix issued a guidance document to help producers understand how the building code applies to indoor agriculture, including specific functions such as growing, processing, packing, and retail sale with the corresponding occupancy classification (U-Agricultural, F-1 Factory industrial Moderate-hazard, or M-Mercantile).[255]

Other local and state governments can provide similar clarifications for how indoor farming operations (including commercial-scale indoor farming operations) fit into the IBC to make it easier for producers to understand how it applies to their operations.[256] Cities can also adopt innovative production-specific local building code provisions that add to or modify IBC regulations. For example, Chicago has adopted local building code provisions that specifically address structural and water access concerns for rooftop farms and gardens.[257]

▶ Incorporating innovative production in utility rate design and the energy code.

States and individual power utilities can update their policies to support innovative production. For example, California recently updated its energy code to include a section that applies to CEA (see below). Given the steep energy costs for CEA in particular, utility rate design tailored to CEA, including incentivizing off-peak consumption with lower rates, could reduce costs and create benefits for producers.[258] The state of Hawaii passed a law allowing the Hawaii Public Utilities commissions to establish special preferential electricity rates for "protected agriculture" which includes indoor agriculture and CEA.[259]

Ohio Controlled Environment Agriculture Center, Columbus, OH | Photo by Liz Turner

STATE HIGHLIGHT

California's Energy Code Regulations for Controlled Environment Agriculture

California updated its energy code in 2023 to include energy efficiency regulations that apply to CEA and horticulture with the goal of reducing energy use by these industries. The code includes a definition for a "controlled environment horticulture" ("CEH") space as "a building space dedicated to plant production by manipulating indoor environmental conditions, such as through electric lighting, irrigation, mechanical heating, mechanical cooling or dehumidification." CEH is included as a "covered process" which means it is an activity or use of a building that is not related to human occupancy, and it only applies to new CEH facilities. The energy code includes mandatory energy benchmarking and efficiency standards for CEH.[260]

KEY TAKEAWAYS

For policymakers:

- Provide clear definitions and rules in municipal ordinances, zoning codes, building codes, and energy codes so that innovative producers can better understand how the rules apply to them.

- Allow hoop houses, greenhouses, and accessory structures in a city's zoning code, and provide clear guidelines for these structures in local building codes, so that urban and innovative producers can expand their productivity and build their farm businesses. States can also provide guidance to municipalities for defining season extension structures as temporary structures and for reducing requirements and permitting fees.[261]

- Consider creating financial incentives for innovative production such as grant programs, reduced utility rates, and tax breaks.

For producers:

- Learn about your city's zoning code and how it may apply to certain innovative production practices. If you grow food indoors or on a rooftop, consider whether there are additional restrictions or regulations in the building code and energy code you need to comply with.

- Look for key terms, such as rooftop farm, aquaponics, hydroponics, hoop house, and greenhouse, in the zoning code's definitions section to better understand which practices are allowed under your city's zoning code.

- Identify opportunities to get permission for practices through special use permits and variances which will enable you to engage in a use that might not otherwise be permitted.

- Research incentive programs and grants that you may be eligible for depending on your growing operation.

VIII. Conclusion

Across the United States, local governments are continually considering, enacting, and implementing policy that impacts urban food production. This guide was intended to offer a snapshot of some strategies that city policymakers have used to respond to the concerns of urban producers, and to offer urban producers some tools for understanding and navigating the policies that apply to them. This policy landscape is constantly evolving—even as we finalize this draft for publication, Minneapolis has announced a new land access program—but we hope that this guide will continue to serve as a useful resource to support the tradition of urban agriculture in American cities.

Endnotes

1 These cities are: New York, Philadelphia, Richmond (VA), Atlanta, Cleveland, St. Louis, New Orleans, Detroit, Grand Rapids, Chicago, Minneapolis-St. Paul, Dallas, Albuquerque, Phoenix, Portland (OR), Oakland, and Los Angeles. Press Release, USDA, Biden-Harris Administration Announces Investments in Urban Agriculture, Food and Market Access through President Biden's Investing in America Agenda (Jul. 21, 2023), **https://www.usda.gov/media/press-releases/2023/07/21/biden-harris-administration-announces-investments-urban-agriculture** (Release No. 0155.23).

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20 *Id*. § 8.3.

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