

Investing in Healthy, Sustainable Places through Urban Agriculture

This second edition translation paper was commissioned by the Funders' Network for Smart Growth and Livable Communities and written by Kimberley Hodgson. This paper is based on interviews with foundation representatives and is a derivative product of the APA Planning Advisory Service Report 563 — Urban Agriculture: Growing Healthy, Sustainable Places — by Kimberley Hodgson, Marcia Caton Campbell, and Martin Bailkey.

Translation Paper 5
Edition 2

Abstract

Historically in the United States, discussions about urban agriculture have focused primarily on private gardens and community gardens. Today, urban agriculture is much more than private gardens and community gardens, and many communities are beginning to see the promise of other forms of urban agriculture. In addition to producing fruits and vegetables for home consumption, the definition and vision of urban agriculture is expanding to include not only growing plants and raising animals for consumption, but also the processing, distribution, marketing and sale of food products and food by-products, such as compost. A more holistic systems definition acknowledges the intimate connection between urban agriculture and the larger food system, as well as its influence and dependency on a variety of economic, environmental and social resources. The purpose of this paper is to provide funders with an overview of urban agriculture and its various forms, dimensions, and benefits; its connections to the broader community-based food system; and most importantly, how foundations are supporting and encouraging urban agriculture as a public health, social enterprise, environmental stewardship, and/or economic development strategy.

Introduction

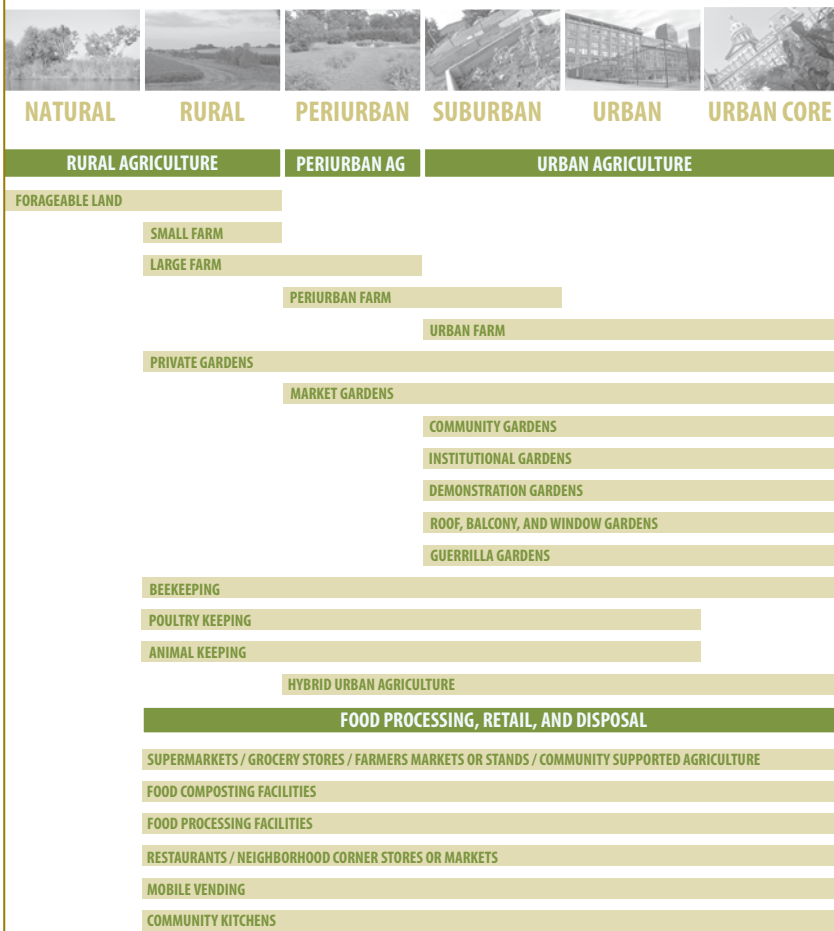
Urban agriculture entails the production of food for personal consumption, education, donation, or sale and includes associated physical and organizational infrastructure, policies, and programs within urban and suburban environments. From commercial farms in first-ring suburbs to rooftop gardens and beekeeping operations in built-out cities, urban agriculture exists in multiple forms and for multiple purposes.

While it is a small component of the larger community-based food system, urban agriculture is important to

the overall health and resilience of communities and regions. Urban agriculture can contribute significantly to the development of social connections, capacity building, and community empowerment in urban neighborhoods, most commonly through community gardening (Hynes 1996; Johnson 2010). In addition, it offers links to community development practice as a viable means of workforce development, youth development, supplementing food budgets, and generating modest levels of revenue for urban farmers who sell their products. When combined with other efforts to improve access to healthy,

The Funders' Network exists to inspire, strengthen and expand funding and philanthropic leadership that yield environmentally sustainable, socially equitable, and economically prosperous regions and communities.

RURAL-URBAN AGRICULTURE AND THE FOOD-SYSTEM CONTINUUM



Kimberley Hodgson, from a concept by Andres Duany; design by John Reinhardt

affordable food (such as healthy-corner store programs and supermarket-financing initiatives), urban agriculture can become a valuable tool in promoting community food security, particularly in low-income, urban neighborhoods.¹

Finally, urban agriculture is part of a larger community-based food-system continuum that spans rural, peri-urban (the periphery of urban and suburban areas, where urban meets rural), suburban, and urban areas. A community-based food-systems approach has the potential to simultaneously address issues of food security, public health, social justice, and ecological health in local communities and regions, as well as the economic vitality of agriculture and rural communities. Such an approach emphasizes, strengthens, and makes visible the relationships among producers, processors, distributors, and consumers of food at the local and regional levels (Raja et al. 2008), while aiming to be place-based, ecologically sound, economically productive, socially cohesive, and food secure.

What is Urban Agriculture?

How urban agriculture is defined varies broadly by region and country, as well as by field of study. In the past five years, however, these definitions

¹Food security is defined as “a condition in which all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes community self-reliance and social justice” (Community Food Security Coalition 2010).

have grown to encompass much more than simply the production of food within urban areas. In 2007, the Community Food Security Coalition’s Urban Agriculture Committee and the MetroAg Alliance established a comprehensive definition of urban agriculture to address its multiple dimensions and forms of practice:

Urban and peri-urban agriculture (UPA) refers to the production, distribution and marketing of food and other products within the cores of metropolitan areas (comprising community and school gardens; backyard and rooftop horticulture; and innovative food-production methods that maximize production in a small area), and at their edges (including farms supplying urban farmers markets, community supported agriculture, and family farms located in metropolitan greenbelts). Looked at broadly, UPA is a complex activity, addressing issues central to community food security, neighborhood development, environmental sustainability, land use planning, agricultural and food systems, farmland preservation, and other concerns (Community Food Security Coalition 2007).

As this definition indicates, urban agriculture is embedded in communities, yet it is part of the larger food-system continuum and includes not only the production of food within urban and suburban environments but also related physical and organizational infrastructure and associated policies and programs.

History

The idea of growing food in U.S. cities dates back to the residential kitchen gardens of colonial times. A 1794 description of Boston noted few homes without vegetable gardens. Over the subsequent decades, the evolution of public markets reduced the need for city

dwellers to grow their own food and urban agriculture became less a necessity and more a form of private recreation.

The role of urban agriculture as a recognized part of a functioning urban system began in Detroit in the late 19th century. High unemployment led Mayor Hazen Pingree to initiate, to widespread skepticism, a garden program in 1894 on vacant land being held for speculative purposes. Within two years, almost half of Detroit's families on public relief were growing food on varying-sized lots, most of them at the edge of town (Lawson 2005). The Detroit experiment was quickly replicated elsewhere. An 1898 report by the New York Association for Improving the Condition of the Poor reported similar programs in 19 cities (Lawson 2005).

In response to food shortages during World War I and II and the need to boost public morale, the U.S. government encouraged rural and urban Americans to plant victory gardens, also known as “war gardens” or “food gardens for defense.” In 1943, over 20 million sprouted on private and public land — in front lawns, backyards, on empty lots, and rooftops — producing an estimated 9–10 million tons of fruits and vegetables or about 41 percent of all vegetable produce (Reinhardt).

The current, grassroots-based urban agriculture movement in the U.S. can be traced back four decades. As a response to social activism of the 1970s, many community gardens were created in major metropolitan areas in the United States. By 2000, urban farming was largely guided by local, urban-based organizations operating as tax-exempt nonprofits. Beyond their tax-exempt status, however, each organization evolved in its own way, without a common operating model. The Food Project (Boston), the Southside Community Land Trust (Providence), Nuestras Raíces (Holyoke, Massachusetts), the Philadelphia Green project of the Pennsylvania Horticultural Society, and Growing Power (Milwaukee) are each active today, and serve as examples for the many new organizations created since 2000.

Dimensions of Urban Agriculture

Besides community and private vegetable gardens, other types of urban agriculture include institutional and demonstration gardens; edible landscaping; hobby and commercial bee, poultry, and animal keeping; urban and peri-urban farms; and hybrid forms that integrate gardening and farming activities for personal consumption, educational purposes, donation, or sale. There is considerable variation in the purpose, location, size and scale, production techniques, and end products of these and other types of urban agriculture.



Purpose. Urban agriculture can produce plants or animals for personal consumption or use, educational or demonstration purposes, neighborhood revitalization or economic development, healing or therapeutic purposes, sale or donation, or a combination of the above.

Location. Urban agriculture activities (including the production, processing, and sale of plants, animals, and ornamentals) can be located within an urban, suburban, or peri-urban area, on underutilized private or public land, spaces, or on building sites in developed residential, commercial, or industrial areas.

Size and Scale. Urban agriculture can occur on large, contiguous parcels of land; small, noncontiguous parcels of land; or in other spaces such as rooftops, balconies, porches, utility rights-of-way, fences, walls, or basements.

Production Techniques. Urban agriculture can utilize a variety of production techniques, such as in-soil or raised-bed cultivation, hoop house or greenhouse growing, hydroponics, aquaponics, permaculture, or vertical farming.

End Products. Urban agriculture can include the production of plants or animals for consumption or ornamental use, as well as the production of key urban agriculture inputs, such as compost.

Typology of Urban Agriculture

Noncommercial:

Private garden	Private food-producing gardens located in the front or backyard, rooftop, courtyard, balcony, fence, wall, window sill, or basement of a private single-family or multi-family residence, attended to by an individual or gardening business. End products are typically used for personal consumption.
Community garden	Small- to medium-scale production of food-producing and ornamental plants, on contiguous or discontinuous plots of land, located on public or private property in residential areas, gardened and managed collectively by a group. Gardening activities and end products are typically used for consumption or education; however, they may also be sold on- or off-site, depending on local government regulations and the goals of the garden as a collective effort.
Institutional garden	Small to large food-producing gardens or orchards located on private or public institutional property (school, hospital, faith-based organization, workplace) in a residential, commercial or mixed-use area, gardened by an organization or business. The process of gardening is typically used for educational, therapeutic and community service purposes — including but not limited to nutrition education, environmental stewardship, and community ministry. The end products are typically used for donation or consumption. Depending on local government regulations, they may also be sold on- or off-site at a stand, market, or store to financially support the garden's specific activities.
Demonstration garden	Small food-producing garden located on private property (school, hospital, faith-based organization, workplace) or public property (park, school, and other civic space) in a residential, commercial, or mixed-use area for public demonstration purposes only, gardened by a local government agency, community organization, or business. End products are typically donated to local organizations and food banks.
Edible landscape	The use of food-producing plants in the design of private and public outdoor spaces in residential, commercial, and mixed-use developments, attended to by an individual or business. End products are typically used for consumption.
Guerrilla garden	Unauthorized appropriation and cultivation of food-producing or ornamental plants on untended, abandoned, or vacant private or public land by an individual or group. End products are typically used for neighborhood revitalization purposes.
Hobby beekeeping	Small-scale keeping of honeybees for personal use. Beehives can be co-located with gardens or non-garden uses (such as parks), on underutilized spaces (including rooftops) in residential, mixed-use, or other public land areas. End products are typically used for personal consumption, education, or donation.
Hobby chicken keeping	Small-scale keeping of chickens for personal use in residential areas or for commercial use in residential, mixed-use, or other public land areas. Poultry keeping can be co-located with other agriculture and non-agriculture uses. End products are typically used for personal consumption, education, or sale.

The Edible Schoolyard is a well-known example of an institutional garden. This one-acre organic garden is located on the property of Martin Luther King, Jr. Middle School in Berkeley, California, and provides hands-on gardening, science, nutrition, and ecology education to students.

First Lady Michelle Obama's White House Garden, Baltimore's City Hall vegetable garden, and the San Francisco City Hall Victory Garden are only a few examples of the many demonstration gardens appearing in cities across the country created to show that urban agriculture can contribute to health, social, economic, and environmental goals.

Typology of Urban Agriculture

Commercial:

Market garden	Small- to medium-scale production of food-producing or ornamental plants, bees, fish, poultry, or small farm animals located on public or private property and designed and managed for commercial purposes using a variety of growing techniques including in-soil, container, hydroponic, and aquaponic growing systems. End products are typically sold on- or off-site at a stand, market, or store.
Urban farm	Typically larger than market gardens and include larger scale production of food-producing or ornamental plants, bees, fish, poultry, or small to medium farm animals for commercial purposes using a variety of horizontal and vertical growing techniques including in-soil, container, hydroponic, and aquaponic growing systems. End products are typically sold on- or off-site at a stand, market, or store. If large enough, urban farms may adopt the community-supported agriculture (CSA) distribution model, through which consumers of the farm's produce over the growing season also share in its risks.
Peri-urban farm	Practiced outside or on the fringes of metropolitan areas, often on agricultural land facing some threat of future development. Includes larger scale production of food-producing or ornamental plants, bees, fish, poultry, or small to large farm animals for commercial purposes using a variety of growing techniques including in-soil, container, hydroponic, and aquaponic growing systems. Such farms usually employ organic techniques, are managed as agricultural businesses, and often employ the CSA model. In most cases, the farm's production is marketed and distributed in the nearby metropolitan area.
Beekeeping	Medium- to large-scale keeping of honeybees for commercial use. Beehives can be co-located with other urban agriculture uses (such as market gardens or urban farms) or other non-agriculture uses (such as parks or rain gardens), on underutilized spaces (including rooftops) in residential, commercial, mixed-use, or industrial areas. End products are typically used for sale.

Potomac Vegetable Farms (PVF), founded in 1960, is a commercial urban and peri-urban agriculture operation, located on a 10-acre urban farm in Vienna, Virginia, outside of Washington, D.C., and a 180-acre peri-urban farm in Purcellville, Virginia (www.potomacvegetablefarms.com). PVF's primary source of revenue is a 450-member community-supported agriculture program, or CSA, with weekly shares of varying sizes. Other sources of revenue include sales from several farmers markets and an on-site farmstand at the Vienna location. PVF employs three full-time staff and several part-time and seasonal employees.

Hybrid (often referred to as social enterprises):

Any combination of food production, processing, distribution, marketing, or educational activities; they are typically operated by a nonprofit organization for social, economic, or environmental purposes. Lynchburg Grows (Lynchburg, Virginia), Kansas City Community Farm (Kansas City, Kansas), Earthworks Urban Farm (Detroit), Green Youth Farm (Chicago), Red Hook Community Urban Farm (Brooklyn, New York City), Growing Power (Milwaukee, Wisconsin), and Hollygrove Market and Farm (New Orleans) are all examples of this emerging form of urban agriculture. In addition to producing food for sale at a number of retail destinations — including on-site farm stands, community farmers markets, CSAs, and locally owned and operated food retail businesses — they offer a range of community and educational programs for children, youth, adults, and specific populations, such as homeless people, pregnant teens, and formerly incarcerated youth or adults.

The Multiple Benefits of Supporting Urban Agriculture

Despite the many benefits of urban agriculture, the availability, accessibility, and regulations of land and other physical, technical, operational, and financial limitations pose challenging obstacles for both urban farmers and governmental and non-governmental organizations wishing to support them. Considering urban agriculture's many benefits and the numerous connections between these benefits and the mission statements and goals of many philanthropic organizations across the country, foundations play a crucial role in the success of urban agriculture as a public health, youth development, social enterprise, environmental stewardship, or economic development strategy.

Why support urban agriculture?

Urban agriculture helps meet local food needs while promoting environmental sustainability, health, nutrition, and social interaction; creates opportunities for locally controlled food enterprises and economic development; and enhances community engagement and empowerment.

Health Benefits

According to recent research, urban agriculture can increase access to fruits and vegetables, especially in low-income areas that have limited access to affordable, healthful foods. Urban agriculture also provides opportunities for public health programming to improve nutrition knowledge, attitudes, and dietary intake (Bellows et al. 2004; McCormack et al. 2010).

The Youth Farm & Market Project (YFMP), cooks and distributes more than 11,000 pounds of fresh, local produce each year from produce grown on nine youth run urban gardens in Minneapolis and St. Paul. The program not only improves food access, but also engages more than 400 volunteers in over 4,000 hours of service. Youth between the ages of 9 and 13, as well as 25 part-time teen employees, learn about gardening and

healthful eating. Since 2000, the McKnight Foundation has provided financial support to the organization. With current funding, YFMP is expanding its youth gardening program into four new neighborhoods within the Twin Cities region and creating a tool to support YFMP's replication in other communities across the country.

Social Benefits

Community and school gardens, hybrid urban agriculture, and direct marketing strategies (such as community-supported agriculture, farm-to-school programs, and farmers markets) provide opportunities for community involvement, social interaction among ethnically and age-diverse communities, and health and environmental stewardship education. Direct marketing strategies in particular can foster connections between farmers and consumers and can contribute to community economic security (National Research Council 2010, 7). Urban agriculture can foster community building, mutual trust, sharing, feelings of safety and comfort, and friendships that translate into a collective investment in the common good of a neighborhood. It can also serve as an alternative vacant property reuse strategy to decrease or prevent crime, trash accumulation, illegal dumping, littering, juvenile delinquency, and fires, and as a catalyst for additional community development activities and positive place-based programs (Lyson 2005; Teig et al. 2009; Schukoske 1999; Bellows et al. 2004; Mallach 2006; Kaufman and Bailkey 2000; Veenhuizen 2006).

Economic Benefits

Urban agriculture presents many economic opportunities. It can decrease public land-maintenance costs, increase local employment opportunities and income generation, and capitalize on underused resources (e.g., rooftops, roadsides, utility rights-of-way, vacant property). Urban agriculture can also increase property values, and produce multiplier effects through the attraction of new food-related businesses, including processing facilities, restaurants, community kitchens, farmers markets,

The Sears-Swetland Foundation has provided operational funding to the Cleveland Botanical Garden (CBG) for over 15 years. About four years ago, it provided \$50,000 in funding to CBG to support Green Corps, a youth jobs training program that teaches adolescents about urban farming, horticulture, neighborhood building, and science. According to Ruth Eppig, a trustee, the program aligns well with the mission of the foundation, which focuses on sustainability within urban settings, environmental health, and livable communities. Urban agriculture touches on all these areas. "Green Corps is a successful program. It has made a life changing difference for the youth who complete the program. They are respected by their peers, improve their communication and public speaking skills, and other important life skills," said Eppig.



Through its hunger, nutrition, and food systems program area, the Claneil Foundation works to create healthy communities in four eastern Pennsylvania counties, providing small operating grants to numerous nonprofit organizations in and around Philadelphia, Pennsylvania. One grantee, the Las Parcelas Community Garden, is a collective community garden for the Puerto Rican community in North Philadelphia. In addition to improving access to healthy, affordable foods in the neighborhood, the garden has significantly contributed to improving the social cohesion of the community. The garden, onsite community kitchen, benches, and picnic tables provide a meeting place for people of all ages to interact, socialize, and celebrate their culture and heritage.

transportation, and distribution equipment (Veenhuizen 2006; Mallach 2006; Kaufman and Bailkey 2000).

Subsistence production reduces food expenditures and makes household income available for other purposes. For example, in 2008, community and squatter gardens in Philadelphia produced summer vegetables worth approximately \$4.9 million — an amount greater than the combined sales of all of Philadelphia’s farmers markets and urban farms (Vitiello and Nairn 2009).

Environmental Benefits

Urban agriculture can contribute to environmental management and the productive reuse of contaminated land, including brownfields. As a result of increased plant foliage, urban agriculture can reduce stormwater runoff and air pollution, and can increase urban biodiversity and species preservation (Kaufman and Bailkey 2000; Mallach 2006; Veenhuizen 2006). Cleveland, Ohio — site of approximately 3,300 acres of vacant land and 15,000 vacant buildings — recently completed a sustainability plan to productively reuse those properties through a variety of creative strategies, including urban agriculture. Since the plan’s development, more than 30 urban-agriculture reuse projects have been implemented throughout the city (Cleveland 2008).

Unfortunately, with a few exceptions, these benefits are not widely quantified or analyzed. As interest in urban agriculture continues to grow, local governments can play an important role in documenting these benefits and partnering with local colleges and universities to further research urban agriculture’s impacts on communities.

Opportunities for Foundation Investment

There are myriad entry points for foundations interested in urban agriculture as a complement to other grantmaking areas or as a specific program with targeted

outcomes, such as youth development or revitalizing vacant land in shrinking cities. Foundations can provide financial support to nonprofit organizations at the local and regional level to fund projects or programs that address the physical, technical, financial, programmatic, planning, or policy barriers faced by urban growers. Foundation support can also ensure that successful projects, programs, and local government policies are evaluated, disseminated, and replicated in other areas across the country. Urban agriculture also offers an opportunity for funders to participate in partnerships and collaborations with other stakeholders, such as food policy councils and coalitions, food companies, governmental agencies at all levels, and other funders.

The success of urban agriculture, like that of traditional rural agriculture, is dependent on a variety of factors, including weather, light, labor, agricultural skills and knowledge; capital and operating funds; access to land or other growing space; land tenure; access to healthy, uncontaminated soil or other growing medium; and access to water (Tixier and Bon 2006; Veenhuizen 2006).

For the Cedar Tree Foundation, urban agriculture is the bridge between two main focus areas: environmental health and ecological sustainability. “We see [urban agriculture] as a way to reconnect people with where food comes from and how it tastes,” said Greg Horner, program officer. Cedar Tree has provided funding to nonprofit organizations, such as the Southside Community Land Trust (SCLT), in Providence, Rhode Island, to repurpose underutilized land, clean up brownfields, and revitalize neighborhoods through urban agriculture. Through a general support grant, Cedar Tree funded SCLT staff time to implement two urban agriculture projects to transform blighted vacant lots into community gardens by acquiring title to the lots and leasing the land to other organizations.

In 2008, the Bill and Melinda Gates Foundation and the W.K. Kellogg Foundation jointly provided \$400,000 in grant funding to the Wallace Center at Winrock International and the Training and Development Corporation to document successful strategies for small- and medium-scale community-based food enterprises. One deliverable of this project was a day-long conference in Washington, D.C., to report on the findings of the project and educate national leaders about the economic development potential of food enterprises.

Physical Barriers

Considering the various prerequisites of urban agriculture, some foundations may choose to help organizations and entrepreneurs overcome the physical barriers to urban agriculture: availability and access to land or other growing space, land tenure, natural resources, and other essential infrastructure.

Land and Other Growing Space

Land — a place to grow food — is a primary requirement for agriculture. As foundations consider how to best support urban agriculture, they should be cognizant of (1) the availability of growing space and land; (2) land tenure; and (3) location, siting, and land use.

Availability of Growing Space and Land. An important determinant of urban agriculture's long-term success is the availability of and access to space for food production and processing purposes (Mubvami and Mushamba 2006). In some municipalities, vacant property may be plentiful; however, it may not be immediately available, or it may be only temporarily available. In post-industrial cities, vacant property is often owned by an absentee private owner and saddled with encumbrances, such as back taxes, liens, and unpaid utility bills. These create barriers to the reclamation of land for agricultural use (Schukoske 2000).

In built-out municipalities, vacant land may be nonexistent or reserved for other uses, thus limiting the possibilities for urban farms or larger market gardens. Given the wide diversity of urban agriculture, however, it can be easily adapted to variably sized spaces in many different locations: private spaces such as windowsills, containers, fences, rooftops, basements, walls, front lawns, and backyards; public land including space surrounding government buildings, parks and other

open spaces, and utility and transportation rights-of-way; and underutilized private land on hospital grounds, school yards, university campuses, and church grounds.

Land Tenure. Land tenure, or the length of time and conditions (ownership, lease, occupation, or stewardship) under which a given plot of land is available for urban agricultural use, greatly affects the level of investment made by a farmer or gardener. Outright ownership is preferred, but because land values can be prohibitively high, even in economically distressed cities, many urban farmers and community gardeners instead lease land or acquire temporary user permits from public or private organizations, such as local or state governments or land trusts. Long-term agreements (such as a 99-year lease) provide the greatest sense of security. Those made with local or state governments often include certain advantages, such as access to technical assistance and water, tools, compost, mulch, and other materials.

When long-term leases are not an option, urban agriculture practitioners are often offered short-term agreements. However, these can be revoked at any time at a landowner's discretion, with as little as 30 days notice (Schukoske 2000; Brown and Carter 2003).

To mitigate these challenges and to create more secure land tenure for urban gardeners and farmers, foundations can provide financial support for community land trusts, conservation groups, or urban agriculture related organizations to secure land tenure through ownership or long-term agreements (Caton Campbell and Salus 2003; Davis 2010, esp. part 5). The Southside Community Land Trust in Providence, Rhode Island, works with residents to transform blighted vacant lots into community gardens by acquiring title to them and leasing the land to other organizations. This would not have been possible without foundation support. The majority of their operating budget comes from private and public grants.

Natural Resources

The challenges of urban agriculture involve more than accessing and securing land; other resources are needed to make urban food production effective. Foundations can support efforts to develop and implement programs to remove existing barriers to ensure urban agriculture practitioners have access to healthy, uncontaminated soil, compost, and water.

Soil and Water Quality. Soil and water contamination are significant and often limiting factors for the reuse of urban sites for agricultural purposes. Such contamination can negatively impact plant growth and pose serious human health problems. A growing number of urban agriculture projects are established on brownfields, abandoned or underused sites where redevelopment or reuse is complicated by the presence of contaminants such as gasoline, diesel fuel, asbestos, heavy metals, solvents, lubricants, acids, and polychlorinated biphenyls (PCBs). For many, the term conjures images of large-scale industrial properties, but brownfields come in all shapes and sizes — from abandoned mining operations covering several square miles to vacant single-family homes with lead paint or asbestos insulation.

Contaminated soil poses challenges for agricultural uses, as urban farmers, gardeners, and bystanders (particularly children) can absorb contaminants into their bodies via skin contact with, ingestion of, or inhalation of contaminated soil or plants (Turner 2009). Considering the potential risks associated with reusing vacant or abandoned property for urban agriculture, the environmental site assessment is an important strategy to minimize these risks.² After an assessment is complete, site-cleanup goals are developed according to the property's intended reuse plan (e.g., a housing development will have more stringent cleanup standards than a commercial development). However, while specific risk-based standards exist for residential, commercial, and industrial reuse of brownfield sites, they have not been tailored for urban agriculture reuse.

If contamination proves too cost-prohibitive to remedy, contained systems can be used to bypass exposure. These include both soil covers and contained food-production methods such as raised beds, hydroponic or aquaponic systems, and vertical or container-based gardening systems (Turner 2009). Together, soil covers and contained food-production methods reduce plant and human contact with contaminated soil. Such technologies are widely used throughout the United States and, depending on the system, can be low cost and low maintenance.

Unfortunately, many local governments do not require environmental site assessments, do not provide standards for safe and effective contained systems, and do not have standards for ensuring that imported soil and growing mediums, such as “clean fill,” are safe and contaminant free. And recent research indicates that raised beds filled

with fresh compost can become re-contaminated over time, due to runoff and windborne dust from contaminated areas (Estes, Carter-Thomas, and Brabander 2010).

Given these risks and challenges, foundations can take a proactive role in providing funding to universities, colleges or other non-profit organizations to develop scientifically based recommendations for site assessments — particularly Phase 1 assessments, which provide a basic understanding of a site's history and past uses — contained systems, and clean fill.

Compost. The likelihood of contaminated soil on a site — or the lack of any soil structure at all — typically necessitates importing a growing medium from off-site. Increasingly, serious urban agriculture operations try to establish a stream of organic compost inputs from nearby sources; these can include food waste from restaurants and grocery stores, leaves from municipal collection systems, coffee grounds from local roasters, and brewery waste from microbreweries. In Milwaukee, Growing Power and the Milwaukee Metropolitan Sewerage District (MMSD) are partnering to create large-scale composting operations on land owned by MMSD. The district has offered a long-term lease on a four-acre lagoon site for Growing Power to expand its composting operations. Once used to store sewage sludge, the site has not been used for this purpose in more than 15 years (Behm 2009). This partnership was made possible by general operating funding from several funders (see <http://www.growingpower.org/contribute.htm>).



²The first part of an environmental site assessment, Phase I, is an investigation of the potential for contamination based on the historic use of a property. If this assessment reveals a high probability of contamination, a Phase II environmental site assessment is necessary to confirm and evaluate the extent of contamination (Hersh et al. 2010).

Water Availability and Access. Water is required for plant growth. Without the availability of and access to water, urban agriculture will not be a successful community or economic development strategy. While municipalities can establish policies and incentives, and provide affordable water permits to provide community gardeners and commercial urban farmers with access to water, foundations can provide financial support for water related infrastructure, such as underground drip- or trickle-irrigation systems, also known as low-pressure directed-use systems, that provide water directly to the soil and plant roots by capillary action.

Many opportunities exist to invest in programmatic or policy actions to improve land tenure for urban gardeners and farmers; ensure access to healthy, uncontaminated soil and water; and divert food-related wastes and other compostable materials from municipal solid-waste streams to publicly or privately owned composting operations. While federal agencies, such as HUD and EPA, provide resources through Community Development Block Grant and brownfields funding to address these physical requirements, with federal budget cuts and drastic reductions in municipal and county spending on such projects, there is a real need for foundation investment.

The McGregor Fund provided over \$150,000 in funding to the Greening of Detroit to develop a train-the-trainer program for urban growers. The program provides hands-on instruction on how to grow, market, and sell produce at farmers markets and to restaurants. The return on investment year after year is very high for this program. In the long-run the train-the-trainer model continues to work, allowing foundations to formulate an exit strategy based on the program becoming increasingly self-supporting.

Technical, Educational, and Programmatic Barriers

While the availability and accessibility of land is fundamental to engaging in urban agriculture, so is technical, educational, and programmatic assistance. Typically, urban agriculture requires some degree of capital in the start-up, working, and expansion stages of development to cover costs associated with rent, liability insurance, labor, tools, equipment, water, transportation of inputs and outputs, marketing, and potentially the processing and packaging of certain agricultural products. Therefore, urban growers may require start-up capital in the form of grants or loans and funding for technical assistance and training. Specialized training may also be needed on ecologically and economically sustainable production, processing, and marketing techniques; the potential health risks associated with the use of agrochemicals and untreated organic waste and wastewater; and proper hygiene in food processing and marketing activities (Dubbeling and Merzthall 2006). Creating supportive environments for urban agriculture also requires educational training for a range of stakeholders beyond urban growers, particularly local and regional government staff including planning, community and economic development, natural resources, sustainability, and public health department staff.

A number of programs can be used to build the capacity of local stakeholders and strengthen the infrastructure necessary for widespread, sustainable urban food production. These initiatives include technical assistance and educational workshops for urban growers (as well as local and regional government staff), job training, community education, and direct sale programs. While these programs support infrastructure and public policies, and provide important health, environmental, and social benefits to a community, they are often dependent on foundation support.



Workforce Development Programs

A renewed national interest in local and sustainable food has led to the creation of a number of job training programs to teach city residents how to grow and sell food. Most urban agriculture job training programs are administered by nonprofit organizations, and many programs receive foundation funding.

Community Education Programs

Public and private health professionals, food security organizations and other community-based nonprofit organizations can play an important role in developing and implementing a variety of nutrition, health, food literacy, and environmental stewardship programs (Pothukuchi and Kaufman 2000; McCann 2006; APA 2007). Denver Urban Gardens, a nonprofit organization in the Denver region that receives funding from Cedar Tree Foundation and other foundations, partners with Denver Public Schools, Slow Food Denver, and Learning Landscapes to provide school children with garden classes in biology, ecology, horticulture, wellness and nutrition, recycling, composting, and community building. A second partnership with Denver Recycles offers free public composting classes to the public.³

Direct Sale Programs

A variety of direct sale models provide urban food growers with the opportunity to sell their products directly to local businesses, institutions, and consumers. In addition to farmers markets, these include; on-site markets; farm-to-institution programs; community-supported agriculture; and traditional retail.

Growers who wish to sell their products to schools, hospitals, or other institutions, however, face many challenges. In order to sell fresh food products during winter months, they may need to invest in commercial refrigerators or other cold-storage units. Depending on the size of the parcel under cultivation and the conditions of the lease, some growers may require additional on- or off-site storage space. Direct sales to institutions, especially schools, may require standardized processing practices as well as regular deliveries to multiple destinations. In addition, it can be difficult for urban agriculture practitioners to produce sufficient volumes to meet the needs of retail and institutional customers. Despite these challenges, there are many successful farm-to-institution programs across the country. Growing Power (Milwaukee) and Soil Born Farm (Sacramento, California) are urban farms that sell to local schools and provide hands-on education activities for students and teachers.

³See <http://dug.org/education/>.

In 2010 Growing Power established a partnership with Milwaukee Public Schools to direct the produce of urban and peri-urban farms in the Milwaukee region directly into school cafeterias. This project is sponsored by general operating support from a variety of funders, including the W.K. Kellogg Foundation.



The William Penn Foundation and other Delaware Valley grantmakers, such as the Claneil Foundation and the Geraldine R. Dodge Foundation, contributed time, financial support, and expertise to a multi-year study of the greater Philadelphia food system. The study was conducted by the Delaware Valley Regional Planning Commission in partnership with numerous regional stakeholders. In an effort to better understand the global and regional food systems that feed the greater Philadelphia region, the study evaluated and analyzed the range of stakeholders, agricultural resources, production trends, natural resources constraints, origins and destinations of food imports and exports, and the economic significance of the food economy. The study area included over 27 million people, 1000 municipalities, 70 counties, and portions of two states.

Technical Assistance and Education Training

Several, foundation-funded programs currently offer technical assistance and educational training to urban growers. Nonprofit organizations, such as Growing Power, and for-profit organizations, such as SPIN Farming (SPIN is short for small plot intensive; the program instructs practitioners how to farm nontraditional urban and suburban settings for profit) deliver regional workshops and trainings for urban agriculture entrepreneurs across the country. In 2011, SPIN Farming began partnering with local and regional nonprofit organizations to offer hands-on workshops at locations across the U.S. and Canada. They also offer a six-week intensive course on commercial urban farming at the Abundant Life Farm Training Center in Walker Valley, New York. Growing Power offers a stand-alone commercial urban agriculture training program and has also partnered with nonprofit urban farms throughout the U.S. to establish Regional Outreach Training Centers. These Centers offer technical support to urban farms modeled after the Growing Power concept. National and regional conferences are also becoming popular methods for providing hands-on training for urban growers. For example, every year since 2008 Washington, D.C.'s Field to Fork Network, a local nonprofit, puts on a free urban gardening forum for D.C. urban gardeners and farmers.

Community Planning and Policy Change

While physical, technical, educational, and programmatic support is important to urban agriculture's success and longevity, urban agriculture is often hindered by the absence of effective planning strategies (such as community engagement, data gathering and assessment, community visioning and long-range goal setting) and supportive public policies. While foundations do not typically fund government, they can provide funding to grassroots advocacy organizations, food policy and urban agriculture networks and coalitions, or other

community-based and community-led organizations to advocate for community planning processes and public policy change from the local to national levels.

Community Engagement and Opportunities for Partnership

Ideally, the starting point for urban agriculture planning is the initiation of a community engagement process through which planners and community stakeholders identify how urban agriculture contributes to the social, economic, and environmental goals of a community.

For example, the Cleveland-Cuyahoga County Food Policy Coalition, funded primarily with grant funding from the George Gund Foundation and the Cleveland Foundation, has been instrumental in bringing together more than 100 organizations, including city and county government, nonprofit and nongovernmental organizations, educational institutions, and private businesses, as well as citizens, farmers, and producers. The Coalition provides a medium for effectively communicating their needs and concerns to local government staff and policy makers. Its five working groups provide the city and county governments with information and advice on the reform of existing policies and the creation of new policies and programs to support a health-promoting, sustainable and community-based food system. The Coalition's Land Use and Planning working group was responsible for spearheading a review and evaluation of Cleveland's zoning code, which led to important regulatory reform. The City of Cleveland adopted a zoning district solely for urban agricultural use and a new ordinance which allows the keeping of poultry, livestock, and bees within city limits.

Assessment of Existing Conditions

As part of municipal and regional plan-making processes, planners typically identify, document, and analyze the social, economic, and environmental characteristics of a community. While not within the traditional domain of

planning professionals, the food-system assessment (and its individual parts) is an important tool that can be used to study food production, processing, distribution, retail, access, consumption, and waste within a community and further engage residents about the needs of the community. Topics covered by such an assessment may include:

- stakeholders
- socioeconomic and health statistics
- household food security
- culturally appropriate food production, processing, distribution resources, trends, and economic activity
- land availability and suitability for food system activities such as urban agriculture
- location and number of food sources and outlets within a community
- availability, affordability, and nutritional quality of foods sold in these outlets
- existing governmental and nongovernmental programs and policies.

Plan-Making

A key indicator of the legitimization of urban agriculture as a planning issue is its increasing appearance in comprehensive, strategic, functional, and sub-area plans, as well as public policies. In each case, urban agriculture is deemed important enough to the public interest to have a part in the long-term future vision outlined in a plan and in the programs and policies used to implement that vision.

The Robert Wood Johnson Foundation's Healthy Eating Research program recently awarded \$100,000 to the American Planning Association to identify and evaluate comprehensive plans from across the country that explicitly address food access, including urban agriculture. Results from this research project will provide guidance to local governments across the country on how to integrate, implement and evaluate food access related goals, objectives and policies.

At a more local level, both local and national funders can provide targeted support to fund comprehensive planning processes. For example, with funding from the Surdna Foundation, Neighborhood Progress, Inc. (NPI) collaborated with the City of Cleveland and Kent State University's Cleveland Urban Design Collaborative to complete a citywide study of potential, innovative strategies for returning vacant land and buildings to productive use.

NPI convened a 30-member working group, including representatives from the Cleveland City Planning Commission, Division of Water, Brownfields, Community Development Department, and Building and Housing Department; as well as various community and nonprofit organizations and institutions such as the Trust for Public Land, GreenCityBlueLake Institute, Cleveland Metroparks, Ohio State University Extension, and ParkWorks, among others.

The result of this collaborative study was the development of a citywide sustainability plan — *Re-Imagining a More Sustainable Cleveland*. This plan identified and developed city wide goals, principles, and strategies, including policy recommendations for returning vacant land and properties to productive use. Instead of narrowly focusing on one type of vacant land reuse strategy, such as real estate development, the sustainability planning committee embraced a variety of creative reuse strategies, including urban agriculture. The plan identified both community gardens and commercial agriculture for food production as key productive landscape reuse strategies. The plan established specific goals, criteria, and policy recommendations for the urban agriculture reuse of vacant property and land (Cleveland 2008). With HUD Neighborhood Stabilization Program funds and private foundation support, NPI initiated a pilot program to develop 13 community gardens, 12 market gardens, three vineyards, and two orchards.

The New Orleans Food and Farm Network, a nonprofit advocacy organization dedicated to creating food policy, identifying gaps in food access, promoting urban agriculture, and supporting local producers, has played an important role in connecting various community stakeholders and advocating for policy change, particularly after Hurricane Katrina. In 2007, the Food and Farm Network and other local organizations collaborated to coordinate the New Orleans Food Policy Advisory Committee (FPAC), which was created by the New Orleans City Council to identify food access barriers throughout the city. Through its diverse membership, FPAC advises policy makers on how to improve food access in New Orleans. The work of New Orleans Food and Farm Network is funded primarily by several foundations, including the Greater New Orleans Foundation, CLIF Bar Family Foundation, and Rockefeller Philanthropy Advisors' Gulf Coast Fund, as well as private investors, such as Harrah's New Orleans.

While the Surdna Foundation provided the overall financial support for this planning endeavor, the Sears-Swetland Foundation provided a different kind of support: manpower. Foundation trustee Ruth Eppig served on several committees involved with the development and implementation of *Re-Imagining a More Sustainable Cleveland*.

Public Policies

Local government policy can pose a real barrier to urban agriculture activities, particularly commercial activities, and this is an area where foundation support can provide high leverage, changing the rules of the game. While zoning is a common tool used by local governments to exercise their police power in the interest of public health, safety, and welfare, few governments have used zoning to improve the food environment. Urban agriculture is generally not permitted in residential, commercial, or mixed-use zoning district or is often considered an “interim” use of land. In addition, animal control ordinances do not typically allow backyard chickens, livestock, and/or bees in residential districts. Furthermore, public land use policies may not permit use of certain public lands, such as publicly owned vacant land and abandoned property, for food production.

The McKnight Foundation provides general operating support for several organizations in the Minneapolis region for the purpose of improving places and neighborhoods. Their support funded the work of the Farmers’ Legal Action Group, Inc., a nonprofit law center, to influence changes to the Scott County, Minnesota, comprehensive plan language in support of locally-based food production systems. McKnight also funds Gardening Matters, a nonprofit that serves as a clearinghouse and network for community gardeners across the Twin Cities region. In an effort to influence urban agriculture policy and the local food system, Gardening Matters formed a coalition of 30 urban agriculturalists, landowners, and food system activists.

Conclusion

The financial, technical, and educational support of foundations is essential to maximize the benefits of urban agriculture while reducing the associated health and environmental risks. Foundations, as well as local, state, and federal governments, and even private businesses, can provide assistance to urban agriculture stakeholders in the form of research, education, information, technical assistance and finances.

Financial support in the form of grants or program-related investments can assist urban agriculture producers with start-up and maintenance costs (seeds, biofertilizers, water, tools, transportation infrastructure, etc.) and local food businesses and institutions with the processing and sale of urban agriculture products. Educational workshops and trainings can educate urban agriculture producers on new technologies and methods, ecological farming practices, the safe reuse of urban organic wastes and wastewater and other environmental and health risk mitigation techniques, and direct marketing strategies. Grant support to national nonprofit organizations can assist with the identification of promising programmatic and policy strategies as well as their replication and dissemination to other parts of the country. As more and more local and regional governments begin supporting urban agriculture through planning and policy strategies, all stakeholders will require additional staff expertise, guidance resources and publications, and other types of assistance to ensure they have the capacity to meet the demand.

A lack of funding can pose a serious obstacle for the success of urban agriculture. Foundation funding is critical to the social and economic stability of urban agriculture. Unlike local or state governments, foundations typically have the flexibility and resources to support riskier, innovative projects and advocate for more progressive planning and policy strategies.

For several years, the Robert Wood Johnson Foundation (RWJF) and the California Endowment have supported the work of a national nonprofit organization, Public Health Law & Policy (PHLP). Through its Planning for Healthy Places program, PHLP provides guidance to municipalities and counties across the state of California on how to better integrate health into the planning process. A recent publication, *Healthy Planning Policies: A Compendium from California General Plans*, compiles examples of traditional and innovative goals, objectives, and policies related to nine public health topics, included healthy food access. With RWJF funding, PHLP has also developed customized model land use policies for healthful eating, such as farmers markets and community gardens. These and other publications have supported the development of healthier plans and land use policies across the country.

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