

Resource needs for a socially just and sustainable urban agriculture system: Lessons from New York City

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Abstract

Many urban agriculture programs, and the organizations that run them, require substantial resources to remain viable and provide the multifunctional benefits that practitioners and supporters hope to achieve. As urban agriculture activity expands, practitioners and supporters face significant challenges, including how to match resources to the needs of practitioners and expectations of municipalities, and how to distribute those resources effectively and equitably so that communities, and the city as a whole, capture the benefits of these projects. This is particularly important as cities face increasing pressure to reduce costs and maximize the return on public expenditures. A 2-year study called *Five Borough Farm* documented the goals and objectives of urban agriculture projects in New York City and the resources for their success. The data showed that resource needs go beyond the material and financial needs discussed in the urban agriculture literature (e.g., land, soil, money). Interviews documented that urban agriculture projects have broader goals than merely producing food, and that attaining these goals (e.g., environmental improvements, community development, social justice) requires the support of government and networks of practitioners, non-profit organizations and philanthropies. Moreover, interviewee comments suggested that significant disparities in access to resources make the urban agriculture system in New York unequal and constrain the efforts of some farms and gardens. This paper, based on the *Five Borough Farm* research, examines the resource needs of urban agriculture operations in terms of farm and garden viability and equity among practitioners. It describes the goals, expectations and resource needs of New York City urban agriculture from the perspectives of farmers and gardeners, and from the views of city officials, funders and supporting non-profits. It discusses the need for attention to the political and social structures that create disparity and precariousness to ensure a sustainable and just urban agricultural system, in addition to the financial and technical assistance resources that enable farmers and gardeners to produce food. The paper concludes with recommended strategies to align resource needs and urban agriculture goals and expectations in New York and other cities.

Key words: food justice, food system planning, New York City, technical assistance, urban agriculture

Introduction

Within the past decade, interest in urban agriculture has grown rapidly in cities throughout the Global North. Community groups have expanded farming and gardening programs, while non-profit organizations and grant makers have increased support for urban agriculture, particularly to expand food production. In response, municipalities in the USA and Canada have implemented policy changes—particularly zoning amendments—to support urban farming and gardening.^{1–5} Yet, changes in zoning and diversified support for urban agriculture address only a few of the many challenges practitioners

(i.e., farmers and gardeners) face as they start, maintain and expand their operations. Farms and gardens require targeted resources not only to survive, but also to provide the multifunctional benefits expected from food production and related activities.⁶

As urban agriculture grows in popularity, key questions for practitioners, policymakers, philanthropic organizations and investors (in the case of for-profit ventures) are what material (e.g., seeds, soil, land) and non-material (e.g., policy support, funding opportunities, technical assistance) resources are required to make garden and farming projects successful, and how to allocate them. The answers are complex because resource needs depend

on stakeholder goals, which range from community gardening to commercial production, and include a municipality's expectations for its urban agriculture system. Significant challenges facing urban agriculture today include how to match resources to the needs of practitioners and municipalities and how to distribute those resources effectively and equitably so that communities, and the city as a whole, realize the maximum benefits that urban agriculture has to offer. This is particularly important as cities face fiscal pressures and income inequality grows.

While many urban agriculture programs in the Global North center on community gardens that depend on volunteers, grants and city funds,⁷ urban agriculture forms are increasingly diverse, in terms of scale, biophysical site characteristics, land tenure, management systems, labor arrangements and practitioner expertise.^{7–9} Even the notion of appropriate spaces for growing food has expanded. Forms of urban crop/plant production include contiguous farms (farmed by community groups or for-profit businesses), dispersed farms on multiple lots, rooftops farms, greenhouses, mobile container gardens, temporary agriculture projects and vertical hydroponic farms. In many cities, farms also include chicken keeping, beekeeping, aquaponics and other forms of small-scale livestock husbandry.^{1,6,10} The goals and objectives for urban agriculture are also quite diverse and include food production; self-sufficiency; community empowerment; maintenance of cultural heritage; environmental improvement; economic profit, along with many others.^{9,11,12}

Numerous studies describe the resource needs of urban farms and gardens: growing space, clean soil, compost, fertilizers, water, and money for supplies, salaries and other operational costs.^{13,14} Land, and particularly secure land tenure, is often cited as one of the most important needs,³ as it justifies investing labor in improving soils, building infrastructure, and cultivating perennial crops in addition to annual vegetables. Except in cities with abundant vacant parcels, farms and gardens face fierce competition from other land uses.^{15,16} The emphasis on using urban land for its 'highest and best use,' typically defined as uses producing the most revenue, places agriculture at risk in cities with high land prices.⁵

Clean soil and compost for raised beds are also frequently cited resource needs, since urban land tends to have soils low in nutrients and high in contaminants. This is particularly true in communities with mixed industrial and residential land, often communities of color with predominantly low-income residents.⁸ Chemical contaminants can create hazardous exposures, necessitating raised beds, increasing costs and requiring clean soil and compost.¹⁶

Funding is a third critical resource. Non-profits stewarding urban land, including community gardens, often lack sufficient budgets, hindering organizational growth and putting projects at risk.¹⁷ The dearth of

funding and inability of social enterprises to cover expenses limits the transition from individual gardening efforts to larger community farms.^{18,19} Furthermore, in addition to material resources, and policy commitments to making these available, farms and gardens also require non-material resources such as experience and expertise, organizational capacity, member commitment and community support.^{1,18,20}

The negative impacts of insufficient material and non-material resources have been documented extensively, and range from limited success to project discontinuation,^{9,18,19,21–23} and inequitable distribution of these resources may reinforce broad societal disparities. Moreover, as goals vary, so do the needs of the organizations running urban farms and gardens. For instance, a study in Alameda County, California found that community gardens more frequently needed assistance with networking and working in groups, whereas organizations focused on community food security more frequently needed help with technical aspects of farming and salaries for staff.^{9,24} Thus, as urban agriculture becomes more diverse—in terms of goals, forms and participants—it is increasingly difficult for city officials, technical assistance providers and funders to determine how to effectively allocate resources to support farming and gardening. This makes it essential to understand how urban agriculture goals, expectations and needs diverge and intersect.

This paper examines these questions in terms of the viability of farms and gardens, and equity among practitioners in New York City, based on data collected during a 2-year study (*Five Borough Farm*). The paper describes the goals, expectations and resource needs of New York City urban agriculture from the perspective of practitioners, city officials, funders and supporting organization representatives. It concludes with recommended strategies to align resource needs and urban agriculture goals and expectations in New York and other cities.

Methods

This paper is based on data collected during a 2-year study of urban agriculture in New York City called *Five Borough Farm*. New York has more than 700 food-producing community gardens and farms across the five boroughs, as well as 117 school gardens⁶ and a small but increasing number of non-profit and commercial farms. Strategic and policy plans commit the city to supporting urban agriculture,⁶ and multiple municipal agencies provide support, including a Parks Department program called GreenThumb,²⁵ which licenses gardens and farms on city property and provides supplies and technical support, and the Housing Authority's Garden and Greening Program, which recently added a 1-acre community farm on city property.²⁶ Competitive grants from the Department of Environmental Protection have

also funded the establishment of rooftop farms. Numerous non-profits manage, advocate for and provide technical assistance to farms and gardens, and private foundations have supported urban agriculture projects throughout the city. The extent of these activities and support systems make New York an interesting single case analysis that can generate lessons for other cities.

Five Borough Farm, a project of the Design Trust for Public Space,⁶ involved a 75-participant stakeholder workshop, document review and structured 1- to 2-hour interviews of 31 key informants with unique knowledge about urban agriculture in New York City. A purposive sampling strategy was used to select interviewees from four stakeholder groups: (1) urban gardeners and farmers with operations throughout the city ('practitioners') ($n=16$); (2) representatives of non-profits providing support or advocacy for urban agriculture ('support organizations') ($n=5$); (3) representatives of philanthropic organizations funding urban agriculture programs ($n=4$); and (4) municipal and state-wide government officials directly involved with agriculture in New York City ($n=6$). The criteria used to select practitioners included diversity of location, leadership demographics and form of operation, based on a typology that divided urban agriculture projects into:

- Community gardens tended by community members focusing on provisioning individuals and households;
- Community farms managed by non-profits with products distributed within surrounding neighborhoods;
- Commercial farms growing and selling food and related products for profit; and
- Institutional farms affiliated with public or non-profit facilities (e.g., hospitals, jails) with products used or sold by the institutions.

Educational gardens, demonstration gardens and farms, private backyards and non-food horticultural gardens were excluded because the research focused on publicly accessible food-producing urban agriculture activities.

Funders represented foundations that had recently supported urban agriculture. Supporting organization interviewees represented groups that had specific urban agriculture programs. Government agency interviewees were selected from agencies that oversaw an aspect of urban agriculture in the city. Names of individuals, organizations and agencies are omitted here for confidentiality.

The interviews explored characteristics of urban agriculture in New York City, as well as policy and evaluation needs as observed from key informants' respective positions. The interviews were recorded, transcribed, coded, and analyzed for consistent and divergent themes. Methods were approved by The New School's Institutional Review Board. The authors' participation in New York City food policymaking, advocacy and planning processes also informed the research.

Findings

Practitioner goals

Practitioners reported multiple goals for their farms and gardens, and frequently reported using one activity to work toward several of these. For example, gardens were used to grow food, which was sold at on-site farmers' markets to increase food access and generate revenue for the organization's multiple activities.

While the fact that practitioners had multiple goals and activities was not a unique finding, documentation of these goals in New York City was important in terms of identifying strategies to meet specific needs. Across the four types of operations, interviewees described the following types of goals:

• *Environmental goals*

Farmers and gardeners described numerous environmental goals, including increasing green space, putting vacant lots and rooftops to beneficial use, and improving environmental citizenship. Often, these were linked to wider community or societal benefits. For example, one gardener described efforts to turn a former industrial site into an agricultural project:

I think a related goal is also to create... a sort of a green... healthy space just kind of 'greening up' the neighborhood... We're remediating an industrial lot that was vacant and sort of dangerous... turning that into something more positive for the community.

And, a commercial farmer explained that a goal of farming on rooftops was to provide environmental benefits:

[T]here's all this empty roof space... that's unused, and something productive... something environmental should be going on.

• *Public health goals*

Urban farmers and gardeners sought to improve the health of participants and the surrounding community through various strategies, including providing access to nutritious food and motivating people to increase fruit and vegetable consumption. For one community farmer, growing food meant increasing access to fresh vegetables while also generating revenue and educating the community:

The food grown [here] is brought directly into our food stream. We create more access to healthy, safe, and affordable food in the neighborhood. We lift up our ability to generate revenue and we expand our opportunity to educate folks about critical issues around sustainability.

In contrast, a commercial farmer emphasized the ability of locally grown food to motivate people to eat healthier food:

There's a farmer's market near all of the schools that we visit... [but] I know... people can make smarter food

choices. . . So we're just trying to give them the excitement, the motivation, the impetuous [feeling], the guilt, whatever it takes.

● *Social and educational goals*

Social and educational goals of the farms and gardens included youth development, job skills training and environmental/agricultural education. (As noted above, schools with educational gardens were not part of the study. However, food-producing urban farms and gardens also provide educational experiences, for both youth and adults.) Again, many of these goals overlapped and were shared among the four types of projects. An institutional farmer, for example, mentioned science education, career development, and social and work skills in describing goals for an agricultural project:

My goal is to expose kids to the fields of. . . animal and plant science. . . with a hope that they will pursue a career in that field. That's primary. . . [E]qually as important is to expose kids to. . . working collectively to obtain a goal.

A community gardener expressed similarly multidimensional social and educational goals: '[O]ne of the main goals is to empower women and youth. And we do that by creating a safe space, creating opportunities for them to develop skills and . . . take on leadership roles.'

● *Economic goals*

Many farmers and gardeners focused on entrepreneurial ventures for financial viability and to provide jobs. Some hosted farmers' markets, selling produce from their site and regional farmers. Several farms and gardens paid stipends to teenagers to manage farm operations and participate in leadership programs, and a few community gardens selling food at farmers' markets hired residents to set up or run the markets. A handful of commercial farms sold food for profit. Again, these goals and activities often overlapped. For example, a commercial farmer's goal was both to make a living and demonstrate the financial feasibility of commercial urban farming:

My short-term goal was to just figure out how to be a paid farmer in the city. Cause that's my love, both of those things: farming and cities. And then the macro goal of what the [farm] represents is. . . to prove that it can be a sustainable model that could be replicated.

An institutional farmer explained the goal of making urban farming an employment development strategy: '[W]e're trying to provide jobs, so we're trying to figure out a financially secure place for an urban farmer.'

● *Community goals*

Practitioners expressed six main goals related to community: cultivating community empowerment; community organizing and development; increasing connections between producers and consumers; creating safe public spaces; fostering intergenerational interaction; and increasing the visibility of community-led efforts. These overlapped and aligned with many public health and

social/educational goals noted above, particularly youth development, but community goals were often articulated as benefiting the local neighborhood and residents. For example, one community gardener spoke about the local benefits of its farmers' market: 'The market is a community solution to the health disparities in Central Brooklyn.'

Urban agriculture was often described as a means to advance social justice and engage people in broader political efforts, and practitioners used gardens or farms to educate low-income participants about racism in the food system and teach skills needed to advocate for their communities. One community farmer explained:

[Our organization] really is, in many senses, a vehicle for community organizing, community building, and community development. We happen to use the vehicle of greening communities to do that.

Practitioner activities

Again, practitioners described numerous related activities used to achieve multidimensional outcomes. Beyond growing food, these included:

- Community and youth education programs addressing topics from composting to healthy cooking to leadership;
- Programs to support greater food access, including on-site markets and delivering produce to seniors;
- Workshops on conflict resolution and women-only events to help strengthen community relationships and empower residents;
- Environmental restoration;
- Job creation/training programs and microenterprise development;
- Tours and experiential opportunities for community members and corporate groups;
- Public events designed to increase neighborhood safety; and
- Policy advocacy related to urban agriculture and the food system.

Farmers and gardeners hoped their activities would produce numerous tangible outcomes within 3–5 years. These included:

- Increased food access;
- Improved eating habits among residents;
- Expanded food production and composting;
- Additional agricultural education programs for community members;
- Economic empowerment (through job creation and micro-enterprises);
- Changes in policies to support urban agriculture; and
- Improved finances to support programs and salaries.

Funder goals and programs

Funders in this study identified several ways that the urban agriculture projects they supported addressed their

organizations' goals. These included: civic engagement and community organizing; environmental and food justice; increased access to and affordability of healthy and local food; community empowerment and strengthening; engagement in agricultural and food policymaking; farm viability; open space preservation; and environmental education. Goals were complementary within individual foundations, and urban agriculture was often envisioned as a way to address more than one philanthropic goal. One funder explained how urban agriculture programs addressed multiple objectives:

[T]he mission of [our organization] is to empower underserved [people] to make better food choices by increasing access and affordability of healthy, locally-grown food. And in addition to that, we focus on the other side of helping farms or farm viability, especially for small to mid-sized farmers. . . . And all of our programs meet those two goals.

Another funder explained the relationship between farm-based education and community development:

[I]t goes back to the mission of the foundation which is to strengthen communities in Brooklyn. We find that having an educated population, whether it's academically educated or civically educated, or having that self awareness about the role you can play as an agent of social change, that's strengthening the communities of Brooklyn. . . . So having folks understand that having a community garden or a farmers market isn't about producing every morsel of food that you're gonna consume but it's about being actively engaged in what's happening in your community and providing some tomatoes and collard greens that can go into your dinner. . .

Funders engaged in various activities to achieve their programmatic goals. Chief among them was providing financial support for organizations actively working to address the foundations' missions. Beyond simply providing grants, several of the philanthropic organizations represented in this study were also exploring ways to increase the organizational capacity of smaller urban agriculture groups and to efficiently disburse very small grants to organizations that either lacked non-profit status or the capacity to follow standard grant management procedures.

Government agency goals and activities

Agency representatives in this study were also generally supportive, and shared many goals for urban agriculture with practitioners, including improving public health (by providing access to produce and encouraging healthy eating), education, environmental improvement, the beneficial use of land, community development and job creation. One official made connections among several benefits:

[W]e are trying to use this idea of farming connected to job creation, connected to developing . . . training, for people to learn how to cultivate, what it means to produce in quantities that are marketable, what it means to . . . develop a business

plan, for people to be able to . . . cultivate and convince restaurants . . . to buy the produce that we cultivate. . . avoiding . . . transportation of produce from one state to another to reduce carbon emissions.

Despite existing, supportive policy documents, and positive comments made by interviewees, several officials questioned the scale of urban agriculture's impacts and whether other means to achieve agency goals were more effective. As one official explained:

The issue at [my department], and at all city agencies, is that we are trying to hit millions of people. It's great if a garden can produce enough food to feed ten people, but that's not something we're going to work on a policy or program around because we're truly trying to hit as many people as possible.

Another official explained that more lucrative real estate development would always be a higher priority for the city than urban agriculture:

The way the Mayor's people are looking at [urban agriculture], except for the ones . . . specifically assigned to promote it, they're just going to be like, 'What is that? It's a drop in the bucket. How much more tax revenue are we going to get off of some new [development] that [could] go there?' . . . I just don't ever see it being a real priority.

Despite this hesitation on the part of some interviewees, agency programs supported urban agriculture in a number of ways, including providing community gardens and farms with access to land, material resources such as compost, and services such as lot clearing and trash removal. They also provided technical assistance ranging from supporting an annual meeting of community gardeners to logistical and horticultural advice.

Resource needs to achieve anticipated outcomes

Interviewees identified material and non-material resources needed to achieve their goals and intended outcomes. The relative importance of different resources varied by project but was fairly consistent among practitioners.

Physical and material resource needs.

● *Growing space*

While food production was only one of many goals, it was a core activity in farms and gardens that helped to achieve other goals. Nearly half the interviewees mentioned growing space as a limit on production, and, in some cases, on their ability to expand programs for specific populations. Many practitioners indicated that they needed *more* space and more secure tenure on their sites than the existing 1-year renewable licenses that apply to community gardens on city-owned land, on which many farms and gardens are located. Others mentioned difficulty identifying and gaining access to

new suitable sites, either on an interim, long-term or permanent basis.

Groups like 596 Acres (a non-profit organization) have served as intermediaries among city officials, private landowners and would-be gardeners, yet the steps to gain permission for use of property in New York City can be complex and therefore inhibit groups unfamiliar or uncomfortable with the process. The city recently identified additional city-owned parcels suitable for urban agriculture and adopted regulations making it easier to farm on rooftops. Still, it is not clear whether demand for space will continue to outstrip availability.

● *Growing media*

Farmers and gardeners mentioned the challenges of accessing growing media, including soil, compost and plant nutrients. One community farmer noted ‘Soil is probably the number one [production constraint]... [Because of this], we haven’t even come close to the number of raised beds that our land could hold.’ The need for soil was separate from the need for compost, which was more available, though delivery costs often made it prohibitive. In particular, farmers and gardeners described the challenge of finding substitute sources of compost when the Department of Sanitation eliminated its Compost Giveback Program. For those growing in small spaces and on rooftops, the concern over growing media and inputs pertained specifically to the need for nutrients for closed systems (e.g., raised beds and container gardens) and the lightweight growing media required (due to roof load limitations) for rooftop farms.

Funding/financial needs. Most urban agriculture operations reported that they had limited financial resources, which constrained their ability to grow food, offer programs, hire staff and make infrastructural improvements. Groups were making do with the resources they were able to secure, but funds were generally insufficient to achieve broad goals of expanding production, increasing programming activities and fairly compensating staff.

More than half the farmers said that labor was one of their largest costs. Community gardeners and farmers reported struggling to pay staff and interns. One gardener expressed frustration about the difficulties paying community members to run the garden’s farmers’ market while personally not being compensated for managing the entire organization. Even commercial farmers relied on volunteers and unpaid interns for critical tasks. One commercial farmer noted that he was the only one on the farm who received a salary, but that it would be advantageous to be able to afford paid employees. In addition to labor costs, practitioners mentioned that finding employees and volunteers with farming skills was a significant challenge. One community farmer explained that staff support was a limitation: ‘Even if we had more space, if we didn’t have another staff member it would be

hard to raise more food. And that’s obviously directly linked to funding.’

This said, the budgets of individual farms and gardens varied significantly, however. For example, an institutional farmer had received two grants from city officials of US\$650,000 each, US\$200,000 from a state senator and an additional US\$100,000 from private donations. In contrast, a community gardener had hosted a community fundraiser that netted US\$250 in donations for a US\$550 generator, with the gardeners making up the difference out of their own pockets.

Practitioners used numerous revenue sources, including: produce sales (through markets and CSAs and to restaurants); foundation grants; government funds; proceeds from fundraisers; individual donations; fees for services (e.g., offering educational programs or renting farmers market spaces); and fees for visitor groups. Farmers and gardeners also described other sources for infrastructure improvements: asking building owners to pay for roof membranes for a rooftop farm, obtaining donations of material and scavenging. GreenThumb provided some supplies, including tools and seeds, to its licensed community gardens.

Need for city agency services. The farmers and gardeners reported good relationships with city agencies. However, there was a desire among interviewees for city agencies to do more to assist urban agriculture activities (although some interviewees expressed reluctance for government involvement in their activities). In particular, some expressed a desire for agencies to respond more quickly to maintenance, sanitation, safety and security, with one community gardener describing the complexities of getting the city to remove a squatter living in the garden, which extended across parcels held by multiple agencies. Other farmers and gardeners expressed frustration with unclear procedures and regulations that they felt hindered the organizations’ activities. For example, one community gardener urged ‘clearer guidelines for farmers markets and for selling produce.’ Several interviewees mentioned that municipal program cutbacks made it difficult to obtain key materials and services, which previously had been provided by an agency. These included the Department of Sanitation Compost Giveback Program mentioned above, and budget cuts to services such as a Summer Youth Employment Program that facilitated participation in urban agriculture activities.

In addition to these needs, some farmers and gardeners felt that city agencies did not sufficiently appreciate the benefits provided by their grassroots community organizing, and failed to support gardener or farmer activities that related to agency programs. For example, one community gardener felt that the Department of Health had ‘taken more than it had returned’ to the urban agriculture program, engaging gardeners to glean information from them rather than to support their public health activities as partners. This practitioner explained,

'I'm not going to say that there's no value to that relationship...but I believe the relationship is about absorbing instead of supporting.'

Political resource needs. Gardeners and farmers expressed a need for more effective mechanisms to interact with government agencies to ensure that programs and policies meet their needs. A number of interviewees wanted to be more connected to policymaking related to their urban agriculture goals, claiming that community members often were excluded or consulted perfunctorily to inform policy decisions affecting their neighborhoods. This feeling of disconnection from policymaking was also expressed as a sense that government officials made decisions without an appreciation of the importance of the block and neighborhood scale. For example, one community farmer criticized a community garden license provision that permits the city to look up to one-half mile away for an alternative location if the city wishes to develop a community garden site. The community farmer argued that this ignored the 'super-hyper-local' nature of communities and that residents might feel little connection to alternative garden sites beyond their immediate neighborhood.

Technical assistance needs. In addition to material and financial needs, farmers and gardeners, as well as supporting organization representatives, identified specific forms of technical assistance needed to facilitate program success. Practitioners stressed the value of assistance with horticulture, pest control and farm management, and mentioned different organizations providing such assistance. Beyond help growing food, numerous practitioners expressed a need for the following:

- *Community outreach and networking*

Some farmers and gardeners described challenges in strengthening and expanding their relationships with specific populations, notably low-income residents, non-English speakers and youth. Several interviewees discussed wanting to create and strengthen relationships with farmers outside the city to expand their production capacity through partnerships with larger landholders, or to get business and agricultural advice from farmers whose focus was on production and sales rather than the more typical non-profit business models found in cities. Additionally, several farmers and gardeners said they hoped to cultivate strategic relationships with philanthropic organizations and state agencies that might facilitate their programs, as well as connecting with local restaurants to develop marketing opportunities.

- *Evaluation assistance*

Practitioners noted that program evaluation would help them document specific outcomes ranging from the success of youth employment programs to the farm's impact on biodiversity. Numerous practitioners also expressed a need for support with evaluations required by funders, citing lack of time and unfamiliarity with

evaluation techniques. One hoped for participatory evaluation techniques: 'It would be a wonderful project for the young people to be involved in—actually doing some of the surveying of the community, doing some of the quantitative [analysis] and linking it up...with a science [or] math class.' This interest in evaluation notwithstanding, some interviewees expressed concern that more evaluation might result in closer scrutiny by agencies, leading to more regulation.

Disparities among urban agriculture practitioners

Several interviewees expressed strong feelings that not only were resources for urban agriculture limited, but also that they believed resources were distributed inequitably, at times based on race and class. Some gave examples of structural obstacles that made the process of obtaining resources from government agencies contingent on individual relationships with officials, and therefore unpredictable and disparate. Several interviewees characterized New York City's urban agriculture sector as two distinct communities, one with significantly more financial resources, stronger relationships with influential groups, and/or a white leadership that created or took advantage of opportunities to expand their operations. As one institutional farmer noted:

There are two very unique and distinct aspects of this urban farm movement going on... One is very middle class and White, and one is not. One is of-color and very low-income. And they are ... very separate. Unless they are brought together, I don't know that the success of either is going to continue. The needs [of each group that they're trying to serve] are completely different.

When asked for examples of the different needs, this farmer suggested that lower income community gardeners in communities of color often lacked financial resources needed for basic membership fees and supplies, while a newer group of White middle-class practitioners was more concerned with finding paid jobs in urban farming.

Others claimed that public resources were more difficult to attain by organizations led by people of color, who were often less connected with political leaders and groups with financial resources (e.g., foundations, private donors), or that those resources were simply unavailable to these groups. The interviewees based their opinions about disparities in resource distribution on their own experiences in trying to secure funds and other resources, as well as their knowledge of the urban agriculture community overall, including their observations of indicators such as farm size, programming and resource availability at different urban agriculture projects.

A community gardener cautioned that disparities made the urban agriculture system unsustainable:

I'm afraid right now that the way [urban agriculture is] looking is White-led. And that people of color are being

pushed to the side. I don't want crumbs. . . . And I want to make sure that if this movement is sustainable that it is has to be equal, because right now I'm starting to see a trend whereby the people with the most power, the most voices, are getting the money and the people who can't speak as well are [not].

Several interviewees were confident that urban agriculture could be a mechanism for political and social change to reduce race- and class-based disparities, provided that all farmers and gardeners had a voice in policymaking. One community farmer said that food 'can empower people to have political. . . and economic power, which is part of the mission of [our] farm.' This farmer was interested in helping people of color to become more involved in different segments of the urban agriculture system, such as farmers' markets, 'so they don't get left out of a growing marketplace.'

Analysis and Discussion

Aligning diverse needs, goals and expectations

As in cities worldwide, urban agriculture in New York is a multifunctional activity used to accomplish goals beyond growing food. While food production was important to interviewees in this study, the findings underscore the fact that practitioners have a variety of overlapping goals that they seek to accomplish through farming, gardening and related programs. The findings also suggest that government agency representatives and funders in New York have begun to recognize the intersections between some of urban agriculture's benefits and the mandates and missions of their respective organizations. This presents an opportunity to strengthen policy support and funding for specific urban agriculture activities, *if* the overlapping needs, goals and expectations of these stakeholders are recognized in planning processes.

In terms of resource needs, the interview data suggest that New York City farmers and gardeners face many of the same needs identified in past studies: growing space (with secure tenure); clean soil (*in situ* or imported for raised beds); compost and fertilizer; financial support; community support; city agency services; and technical assistance. In this respect the findings are consistent with the literature on the needs of urban food producers noted above. However, studies have not examined how goals and expectations for urban agriculture translate into resource needs and funding priorities. This is a key question, since goals vary from simply growing vegetables to improving the nutritional status of a community, to political and economic empowerment. Existing technical assistance programs that provide gardening materials, such as seeds or rakes, while useful to most urban agriculture groups, neither facilitate participation in policymaking nor address fundamental policy decisions

(e.g., supporting supermarket development or addressing income inequality) that have caused limited access to healthy food, which practitioners, funders and supporting organizations seek to address. This paper begins to examine these gaps.

An additional finding sparsely documented in the literature is that resources—especially financial and sociopolitical resources—may not be distributed equitably among urban agriculture practitioners in New York City. Resource distribution within an urban agriculture system is as important as the gross level of support, since inequitable distribution exacerbates existing disparities and disadvantages groups that may not be connected to the networks that facilitate city or philanthropic support. According to this study, disconnection from these resources is perceived to be related to race and class of the practitioners. If verified, this has important implications for strengthening a sustainable and socially just urban agriculture system.

These findings suggest that the question of 'necessary resources' is a normative one requiring political decisions about urban agriculture's role in the city, the responsibility of government in the food system, and urban agriculture's potential to address the structural patterns that create undesirable conditions in communities. As such, support for urban agriculture must extend beyond land access and basic material goods to more targeted funding, city agency support, political resources, and technical assistance, as appropriate to the needs and expectations of various stakeholders. Furthermore, if these activities have the potential to address social injustices, as suggested by interviewees in this study, explicit measures should also be taken to avoid replicating inequities among urban farmers and gardeners and in the urban system in which they are embedded. We offer several recommendations to these ends.

Recommendations for supporting a socially just and sustainable urban agriculture system

The following recommendations are based on the interview data and feedback from a policy advisory group convened by the Five Borough Farm project. They are applicable in contexts beyond New York City, provided that processes to identify local stakeholder goals, expectations and needs for urban agriculture have been undertaken, and that these processes are used to inform the evolution of the urban agriculture system in specific cities. To these ends, municipal government, along with foundations and other funders, should:

1. *Create a citywide urban agriculture plan* that includes participatory processes for establishing common city-wide goals for the urban agriculture system (i.e., goals of practitioners, government, funders and other stakeholders), along with strategic planning to match municipal policies and resources to such goals. While citizen participation in and of itself does not ensure a

fair and collaborative process, nor a just outcome,²⁷ attention to three dimensions of participation—who participates, how participants make decisions together, and how the recommendations are translated into policy—can improve the legitimacy, justice and effectiveness of these processes.²⁸ Such a planning process would, if designed to engage and empower organizations led by people not currently involved in policymaking processes, help those stakeholders to articulate their goals, objectives and resource needs to policymakers, and enable the municipality to more effectively plan and budget for an urban agriculture system that supports work toward these common goals.

2. *Identify ways to integrate urban agriculture into city policies and plans* to create cost-effective initiatives to address city goals and needs while also supporting farmers' and gardeners' diverse activities. This might involve prioritizing urban agriculture projects in the city's green infrastructure capital investment programs, linking municipal composting initiatives to farms and gardens, supporting strengthened school garden programs that integrate agriculture and education, and consistently building urban farms into public infrastructure (e.g., affordable housing and remediated brownfields).
3. *Address the need for more robust technical assistance programming for urban agriculture* by fostering networking among a city's farmers and gardeners, working with groups to support and augment their health, nutrition and educational programming, and providing assistance with program evaluation work. Cooperative Extension programs are well poised to provide this type of assistance, and urban agriculture programs should be funded in cities that, such as New York, have extensive farming and gardening activity. In response to the findings of this study, the specific areas of technical assistance should include the following:
 - (a) *Technical assistance providers should help conduct program evaluations* required by funders, and document the extent to which specific types of urban agriculture address funder goals and those of city agencies. This could also include helping practitioners learn how to conduct effective evaluations geared to improving programming (although for some practitioners, time spent on offering the programs themselves often must take priority).
 - (b) To help farms and gardens accomplish community development, *cities and funders should provide resources for organizing, outreach and recruitment of community residents*.
 - (c) To meet the practitioners' needs for more networking among urban and rural farmers, gardeners and neighborhood residents, *funders should support more networking events* that gather farmers

and gardeners from adjacent neighborhoods, and meetings that connect urban and rural farmers. *Agencies, foundations and support organizations could also facilitate partnerships between themselves and urban agriculture practitioners through wider-reaching events.* This would be particularly useful to connect large philanthropic organizations with smaller agriculture groups that may require the help of an intermediary organization to secure funds.

- (d) To address the resource disparities that urban agriculture practitioners described, *cities and funders should provide assistance in building organizational capacity* among urban agriculture organizations that have historically not received substantial public or private funds, particularly those led by people of color. Such support might include training in bookkeeping, management, data collection, program evaluation, business practices, fundraising and grant writing. In the Northeast, the Community Food Funders, a philanthropic organizing project, is beginning to address some of these needs, and these efforts could be expanded.²⁹
4. *Conduct follow-up research to measure the extent to which resource distribution is correlated with the race, gender, or other characteristics of the leadership and/or membership of farm and garden organizations.*

Interviewees' claims of disparities in access to resources were based on their experience and detailed knowledge of the urban agriculture community. It would be useful to have empirical data to better understand the patterns of resource distribution from government and philanthropic sources. Of course, measurement of resource disparity depends on normative definitions of equal access: equal opportunities to funding; equal dollars for each farm and garden; funding based on need, including the need for greater organizational capacity; funding based on efficiency in converting dollars to various outcomes; and many other possible measures of equity. Furthermore, as our research illustrates, each funding source may have distinct goals and criteria for funding urban agriculture projects.

Philanthropic organizations in particular should *measure the extent to which there are disparities in the current distribution of philanthropic dollars*, and take steps to address these. For funders, this may include encouraging groups to partner on grant applications and pool their resources, rather than competing for funding. In partnership with farmers, gardeners and support organizations, the philanthropic community should explore strategies to engage individual donors, corporations and federal agencies (such as the Department of Agriculture) as potential funders.

Table 1. Intersection of practitioner, government, and funder goals and expectations for urban agriculture in New York City.

	Practitioner goals	Government expectations	Funder expectations	
Eliminating structural race/class/gender disparities (cross-cutting issues)	Environmental	Increase green space in the community; remediate/put underused spaces to uses by neighborhood residents; improve environmental citizenship	Environmental improvements; reduce food miles and carbon emissions through local food procurement	Environmental education; open space preservation
	Public health	Increase access to local, fresh, healthy food; motivating healthy eating	Improve healthy eating and food access	Increase access to fresh, healthy food
	Social/educational	Youth development; job skills training; environmental/agricultural education	<i>Broad agency interest cited in interviews</i>	Environmental education
	Economic	Provide youth employment, stimulate local business, bring farmers' markets to area; sustain operations and activities	Job creation; beneficial (e.g., 'highest and best') use of land	Farm viability
	Community	Cultivate community empowerment; community organizing and development; increase connections between producers and consumers; create safe public spaces; foster intergenerational interaction; increase visibility of community-led efforts	<i>Broad agency interest cited in interviews</i>	Civic engagement; community organizing
	Social justice	Educate participants about food system; connect broader issues to local situation; address/educate about inequality in food system; increase community political engagement		Environmental justice; food justice; community empowerment; increase engagement in policymaking

5. *Facilitate equitable and transparent participation in policymaking*, and address perceived disparities in access to political resources. As noted above, public agencies should develop guidelines for public participation in policymaking about urban agriculture, including systems for ensuring representation of diverse communities and neighborhoods. To ensure fair representation, the process for selecting participants should be developed in consultation with diverse practitioners. Examples of such community-based food-planning processes include Oakland's HOPE Collaborative, which recruited more than 400 residents in low-income communities and engaged them in planning.^{28,30} Other strategies to ensure fair representation include attention to ensuring that participants represent the demographics of the urban agriculture system (as well as neighborhoods in which sites are located); sensitivity to structural obstacles to participation (e.g., time of meetings, literacy requirements, familiarity with policy-making processes); and monetary compensation for participation by low-income residents. Since working relationships are often forged through social networks or unplanned encounters, it is inevitable that agency staff get to know certain practitioners better than others. These connections are valuable to both parties because they foster collaboration and cooperation, but they also disadvantage practitioners without the time or the social, educational or financial resources to establish these types of relationships. To this end, technical assistance to help practitioners engage in policymaking and planning pertaining to urban agriculture would not only ensure that their opinions are heard but would also forge connections that will help these practitioners access resources.
6. *Address perceived disparities within the urban agriculture system that reflect deeper societal inequalities* such as structural racism, and which create gaps in access to political power and material and financial resources. Addressing these within the urban agriculture system is not a singular 'issue,' but rather a cross-cutting theme that should underlie all strategies and policies to create a sustainable and just urban agriculture system. There are numerous community-based, city-wide and national organizations with experience addressing race- and class-based inequities. Cities should enlist the assistance of these organizations and consult with grassroots community groups whose urban agriculture activities center on food justice, community empowerment and anti-racism. The City of Seattle's recent Racial Justice Initiative and a regional Governing for Racial Equity Network on the West Coast may serve as models for this type of commitment to addressing racism from within city and county government agencies.^{31,32} Private foundations with an interest in advancing social justice could help subsidize this work.

Matching goals and expectations with resources and technical assistance

Urban agriculture practitioners' goals overlap with many expectations that government agency representatives and funders have for addressing their respective mandates and missions through farming and gardening. Moreover, all of these may be affected by structural disparities. These are displayed in [Table 1](#).

By carefully considering these intersections, implementation of the processes recommended above may help government agencies and foundations link their expectations to practitioner goals and create a more socially just and vibrant urban agriculture system.

Conclusions

Urban agriculture's role can extend far beyond food production to address specific social, political, economic and environmental problems. Though cognizant that urban agriculture is not a panacea, many farmers and gardeners, government officials and funders in this study shared an expansive expectation that urban agriculture will accomplish multiple goals, and it is reasonable to assume that this is the case in many other cities. Not all stakeholders share the same goals, however, and neither practitioner goals nor expectations that others have for urban agriculture translate automatically into a consensus on resource needs, priorities or the political support for attending to these. This is why thinking about the urban agriculture system as a whole, and finding a process for agreeing upon the key goals and various types of resources needed to enable farmers and gardeners to achieve them, is such an essential part of creating a sustainable urban agriculture system.

Urban agriculture is also an activity that, over time, can help dismantle forms of racial, gender and economic oppression through education and mobilization. Yet, the same structures that disadvantage racial and economic groups in other contexts, from funding rules to networks that exclude individuals and groups, can create disparate access to resources in a city's urban agriculture system. Only an affirmative process for dismantling the structural barriers to success will ensure that resources are available on an equitable basis. Even if social justice is not an *explicit* goal of urban agriculture stakeholders, sustainability of the system must be built upon equity. While this study focused on New York City's urban agriculture system, many of the findings about goals and resource needs, and structural barriers to accessing resources, are common to farms and gardens in cities in the Global North. Moreover, the racial, gender and economic oppression that farms and gardens in New York City are attempting to dismantle exists throughout the world. Urban farmers and gardeners in other cities are equally involved in anti-oppression work.³³

The process of aligning goals and resources is inherently political, and thus requires transparent, participatory and democratic decision-making. This is not a static process. Establishing goals for urban agriculture and resource needs must evolve continually as conditions in a city, attitudes about urban agriculture, technologies and the food system as a whole change. Thus, planning for an urban agriculture system that remains robust and resilient requires ongoing dialogue, reflection, evaluation and modification, particularly as stakeholders embrace the multiple roles that urban agriculture can play as a source of commercial production, business development, and jobs embedded in other city systems, such as sanitation, sewage, housing and parks. Supporters can also help ensure the long-term future of urban agriculture by focusing more explicitly on dismantling structures that create inequity, in addition to facilitating farming and gardening as important elements in the city landscape.

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