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Urban Agroecology:
An essential resource for times of crisis and beyond

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Urban farms merit status as protected and planned spaces in cities across the East Bay, the state of California, and the U.S. They are a vital "public good" worthy of public investment, in that they foster community stewardship and promote ecological restoration, environmental education and public health. They help balance the distribution of benefits and burdens of urban development, enabling vibrant, multicultural, equitable, and liveable cities. They provide food, ecosystem services, community education, and well-being. The Bay Area is poised to join a group of leading cities and regions in the U.S. advancing the paradigm of local, healthy food production as an inherent right of citizens in the 21st century "Agroecological City."

Introduction

There is a vibrant yet precarious network of urban farms and gardens in the East Bay providing critical services to vulnerable community members. They face significant insecurities related to land tenure, funding and revenue, food safety, labor, and food distribution capacity. Our research demonstrates the following public policies, programs, and support systems are needed to support the existence of these agroecological spaces and allow them to serve as vibrant, protected green infrastructure in an "Agroecological City":

Bluma Flower Farms operates a rooftop garden in Berkeley. Photo by Alana Siegner.

1. **Improve access to and tenure security of municipal land, both public and private.**
2. **Ensure regional coordination that links public and private land access with integrated programming.**
3. **Develop revenue-generating opportunities for urban farms through public investment or public procurement commitments.**
4. **Invest in public distribution infrastructure.**
5. **Integrate urban agriculture into affordable housing policy.**
6. **Explore creative models of land tenure that increase food and land sovereignty for communities of color.**

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The Berkeley Food Institute (BFI) at University of California, Berkeley strives to transform food systems to expand access to healthy, affordable food and promote sustainable and equitable food production. We empower new leaders with capacities to cultivate diverse, just, resilient, and healthy food systems. We focus on three food system themes and emphasize a holistic approach to address these pressing issues: promoting equitable access to good food; advancing fair and healthy jobs in food systems; and accelerating the adoption of agroecology.

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Background

As the COVID-19 pandemic revealed, local, national, and global food supply chains are highly vulnerable to major disasters, with sudden changes in buying patterns and workplace safety leading to shortages in some places and tremendous waste in others. Urban farms and community gardens, meanwhile, are finding ways to maintain and even increase operations in order to meet local food needs, suggesting that a more localized approach to building food system resilience and food security is an urgent consideration for municipal governments. Urban farmers continue to plant and harvest, and a grassroots network called the Cooperative Garden Commission has emerged to connect seeds, resources, and knowledge to growing spaces across the country. Farmers in the North Bay are donating excess starts to urban farmers in the East Bay and San Francisco, enabling expanded home and community garden spaces across the Bay Area. Building on the success of existing local food policies and innovative practices emerging from the urban farming community, now is an opportunity to turn this moment of crisis into planning and policy for increased community resilience through regional urban food production systems that support community health, social justice, and environmental quality[9].

This policy brief provides targeted recommendations for scaling and sustaining urban agroecology relevant tocounty boards of supervisors, county administrators and public health officials, city councils, and other regional and municipal government bodies. Municipal and regional disaster planning and preparedness is a perfect setting to invest in urban farming in light of lessons from the COVID-19 pandemic and climate-driven disasters on the horizon.

Agroecology

The term "agroecology" refers specifically to a type of farming with a) an emphasis on ecological, non-chemical practices, and b) a social justice focus originating from the Global South diversified farming communities and peasant farmer movements, La Via Campesina. Agroecology is commonly defined as simultaneously "science, movement and practice," an integrated focus of farming operations echoed in our area of study. "Agroecological City" refers to urban environments that merge food production, ecological function, and green spaces more common in rural communities that nevertheless support and enhance urban spaces as healthy, productive, community-oriented, and resilient to a changing climate.

Research Team

This policy brief is based on research completed by an interdisciplinary team of faculty, graduate students, Cooperative Extension advisors, and community stakeholders between 2018-2020 (including Charisma Acey, Joshua Arnold, Leah Atwood, Rob Bennaton, Timothy Bowles, Sarick Matzen, Coleman Rainey, Paul Rogé, Alana Siegner, and Jennifer Sowerwine). The research was funded by the Foundation for Food and Agriculture Research and the Berkeley Food Institute. The research team completed 35 surveys of urban farmers and five in-depth interviews.

Urban Farmers in the East Bay — Benefits to Cities and Counties

Urban farms in the East Bay are providing food to approximately 250 individuals per farm, weekly, while also providing educational workshops, urban green space, and social connections to local residents. That means over 8,700 individuals are receiving food on a weekly basis from the 35 urban farms that participated in our survey, which average approximately 0.5 acres in size. Extrapolating from this figure, it would take approximately 1,200 urban farms to supply fresh produce to 50% of the approximately 607,000 residents

of Berkeley, Oakland, and Richmond, the most populous cities of the East Bay region. There are currently 100-200 active urban farms in the East Bay according to UC Agriculture and Natural Resources, with great potential for expansion into school and community gardens.

These farms play an invaluable educational, cultural, and social role in addition to food production: they educate young people on how to grow food, they teach ecological stewardship principles, and they offer gathering places for community members and places to restore physical and mental health. Often less visibly, they provide invaluable "natural infrastructure" in the city that translates into stormwater capture (and thus, flood mitigation,) urban heat island effect mitigation, and carbon sequestration. In recognition of these social, ecosystem, and educational services, farms merit protection and incorporation into city planning in the same vein as schools, museums, parks, and other essential infrastructure of the modern sustainable city. The public benefits of urban food production are so valuable that the United Kingdom, Germany, and Denmark provide residents "allotment gardens" towards this end. The majority of farms in our most recent survey are nonprofits, and over half of farms surveyed earn annual revenues below $1,500. The majority also operate under uncertainty around their long-term land tenure and are supported largely by volunteer labor without being able to hire paid staff and provide living-wage jobs to those in their community. Thus, the ability of urban farms in the East Bay to sustain or increase their operational scale is threatened. The challenges expressed by urban farmers in terms of land access and security, affordable labor, and available city infrastructure echo findings from repeated surveys of urban farmers in the East Bay going back to the early 2010s.

Volunteers at Gill Tract Community Farm (Albany, CA) grow and distribute over 12,000 pounds of produce annually. Photo by Jennifer Sowerwine.

Farmers in Their Own Words

Farmers in the East Bay see their work as providing cities with essential social-ecological services. For instance, their efforts produce air quality benefits, stormwater management, beneficial insect and pollinator habitats, soil carbon sequestration, and community. Of course, they also produce food. In the words of one farmer, "Urban farms can be havens of peace, health, and community, but it requires heavy involvement and advocacy from those communities for the long term in order to be successful."[2] In surveys and interviews, farmers articulated many solutions that could improve the viability of their farm operations including: a) conversion of city parks into food-producing gardens with paid city staff, b) local government and institutional procurement goals for urban-produced foods, c) municipal investment in cooperatives or other community-based food production, e.g., citywide aquaponics cooperative, and d) establishment of aggregation hubs and distribution infrastructure[2]. Some of these solutions could take advantage of existing city infrastructure through improved coordination and could lead to local jobs, relieving pressure on local unemployment services.

City Slicker Farms began in West Oakland to meet the basic need for fresh, healthy food by creating sustainable, high-yield urban farms and backyard gardens. Photo by Alana Siegner.

Specific Examples of How Counties and Cities Can Better Support Urban Agroecology

Integrate farmer training programs into regional jobs creation programs: In order for urban farms to contribute meaningfully to local economic development and provision of living wage jobs, especially for those at risk of gentrification-driven displacement, agroecology must be planned for and supported in regional jobs creation programs with an equity lens. This can be accomplished through the creation of agricultural education/training programs. One analogy from the construction and renewable energy sphere is the public-private partnership Richmond BUILD.

Integrate farmland preservation and climate-smart economic development: Santa Clara County officials, in collaboration with the Open Space Authority, released the Santa Clara Valley Agricultural Plan in 2018. It is an "innovative approach to agricultural preservation that will reduce future conversion of local farmland and the associated increase in greenhouse gas emissions while growing a vibrant local food economy, contributing to our quality of life." The plan includes four components:

- Policy changes (zoning and regulatory levers)
- Branding, education, and outreach to better connect urban consumers with peri-urban and rural producers
- Financial incentives, e.g., conservation easements, AB 551 adoption, and carbon farm payments, with taxpayer dollars for farmers
- Supporting the agricultural economy broadly, via infrastructure, housing for agricultural labor, and integrated land-use projects such as "agrihoods."

The Sustainable Agricultural Lands Conservation Program, part of the Strategic Growth Council's allocation of state cap-and-trade funds, initially funded the Plan. Conserving agricultural land is recognized in California as a top climate solution, as agricultural land produces on average 50 times fewer carbon emissions than developed land, due to the reduction in vehicle miles traveled (VMT) from commuting. (VMT is California's #1 contributor to greenhouse gas emissions.) The Strategic Growth Council provides counties up to $250,000 to develop strategies or planning efforts to support agriculture and conservation.

Connecting parks with food security: The City Council in Victoria, B.C. recently passed a motion to grow more food plant seedlings in city greenhouses in order to "increase food security for residents with lower incomes." Seedlings will be distributed to residents and will be accompanied by educational materials for home growers. "Parks staff will be growing between 50,000 and 75,000 food plants in the nursery", as part of an expansion to the council's existing Growing in the City initiative[6]. Facilitating and supporting urban residents in growing their own food has potential to deliver large returns on relatively low investment in terms of poverty alleviation, food sovereignty, and disaster resilience.

Summary of Key Policy Recomendations

Counties and cities are responsible for coordinating disaster preparedness and response, and thus optimal governing bodies to adopt many of these proposed policies within General Plans, zoning ordinances, financial incentives, and other policy levers. The intersection of the immediate COVID-19 and looming climate crises offer counties an ideal policy window and opportunity to create sustainable and resilient local food system policies for the future. Developing and implementing any of these policies must include a process whereby urban farmers and food system advocates have a seat at the table, ensuring equity and civic engagement in the process.

Accordingly, the following policy recommendations are suggested for adoption at the city or county level:

1. **Improve access to municipal land, both public and private.** Cities should adopt measures to facilitate conversion of some city parks or city-owned open spaces to urban farms and community gardens. These should be informed by input from local food policy councils and urban farmers to ensure that spaces are accessible to historically marginalized groups, either through long-term lease, cooperative or other secure land tenure arrangements. Cities should also expand private landowner participation in AB 551, which has been extended to 2029 through Assembly Bill 645. Uptake has been relatively slow in the Bay Area, but participating farms have greater land security while the property tax impact on city revenue has been minimal.

2. **Ensure regional coordination that links public and private land access with integrated programming.** It is important that local, state, private, and other efforts are in regional coordination and embrace the regional nature of agriculture, food production, and consumption. Many counties have urban and rural communities that could be better integrated by, for example, having an urban agriculture representative on the agriculture committee, or by promoting agrotourism. Counties should protect rural and peri-urban open space for small-scale commercial agriculture (40 acres or less,) allowing local farms to serve urban markets while also providing flood mitigation, greenhouse gas emissions reductions, and other ecosystem services from natural infrastructure. Conserved land parcels can be advertised to urban farmers looking to expand operations beyond city-scale ¼-½ acre plots. This regional coordination should also seek to include the voices of diverse communities that have historically been underrepresented in local government planning processes.

3. **Develop revenue-generating opportunities for urban farms through public investment or public procurement commitments.** Urban farms seek steady, secure revenue streams to provide living-wage jobs and scale their operations. Supply and distribution of fresh produce and prepared foods is one potential revenue stream, which can be supported via public investment in cold storage, commercial kitchens, delivery vehicles, and other infrastructure or dedicated contracts to supply schools or food-insecure communities. Providing payments for ecosystem services and carbon farming practices via cap-and-trade funds or other public investments is another route to ensure urban farm viability.

Urban Tilth inspires residents to cultivate agriculture, feed the community, and restore relationships to land to build a more sustainable food system, within a just and healthier community. Photo by Alana Siegner.

4. **Invest in public distribution infrastructure.** Refrigerated storage facilities (with solar and battery systems where possible), shared refrigerated trucks, and/or a hired city coordinator to connect urban farm produce to food-insecure households would greatly reduce the amount of food grown on urban farms that is unharvested or wasted due to lack of staff or time to harvest and distribute. Such distribution infrastructure would also reduce food quality degradation that results from volunteers driving produce in personal vehicles to food distribution sites. With additional infrastructure, urban farms could be poised to provide food in the face of natural and public health disasters that might disrupt long-distance food supply chains, e.g., wildfires, earthquakes, and pandemics, thus strengthening local and regional food system resilience.

5. **Integrate urban agriculture into affordable housing policy.** Solutions to the East Bay housing crisis can be delivered while improving community resilience in other ways. Considering housing and food systems together will service communities through both lenses. Long-time urban farmers should be offered housing subsidies, similar to those being offered to teachers in high-priced areas, to help ensure that those working on the front lines of providing community food security are not displaced by rampant gentrification in the Bay Area. Co-locating urban farms or community gardens with affordable housing enhances equitable access to the myriad benefits of urban farming.

6. **Explore creative models of land tenure that increase food and land sovereignty for communities of color.** Creative models of tenure, such as community land trusts, possibly funded through parcel tax, have the potential to restore sovereignty to and empower Indigenous peoples and communities of color to collectively steward and rematriate land permanently allocated for food cultivation under the management of a place-based community. Policies, programs, and funding can be explicitly targeted to benefit BIPOC (Black, Indigenous, and People of Color) individuals, households, and communities using tools such as CalEnviroScreen, which already guides state allocation of Greenhouse Gas Reduction Fund monies to "disadvantaged communities" and land-use planning for environmental justice through Senate Bill 1000.

Local Examples of Pairing Affordable Housing and Urban Agroecology

- When a new housing development was built close to the UC Berkeley campus, a for-profit rooftop farm was invited to operate above the housing units. The Garden Village development was built privately and leased by UC Berkeley for students. The ¼-acre flower farm provides living-wage jobs for the farm owner and two additional employees. Given the increasingly unaffordable costs of living in the Bay Area, creating such small but strategic spaces where profitable farm businesses can flourish is a powerful opportunity for city councils.
- The Santa Clara Agrihood project provides a model which integrates an urban farm with affordable housing to provide healthy sustenance and new outdoor recreational resources to residents and neighbors alike.

City and county policy is urgently needed to protect and strengthen the diverse network of urban farms in the Bay Area, integrating farms into city development, transportation, job creation programs, and housing plans. These farms serve as critical infrastructure in urban areas, mitigate environmental challenges such as flooding and climate change, and improve local air quality. They also contribute vital food resources, education, and community gathering spaces. It is essential to include attention to fortifying urban food production spaces as part of stimulus, recovery, and future resilience planning.

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