

**Urban agriculture policies in the Bay Area cities of Berkeley, Hayward, Oakland,
Richmond, San Francisco, and San Jose, California**

Esther A. Santacruz Acuna

ABSTRACT

In recent decades, there has been a shift in the food system, moving from a conventional and commercial food system to a more sustainable one. Urban agriculture is a way of moving towards a sustainable food system that addresses food sovereignty and the issues that come along with it. With regulatory policies, cities can promote urban agriculture and eliminate any barriers to ensure public safety. Although there are existing documents that provide guidelines on how to adopt urban agriculture policies, it is unclear if and how different municipalities, in particular those in California's Bay Area, have and will in the future develop urban agriculture policies. In this study, I document urban agriculture policies in six different Bay Area cities and compare each city's urban agriculture policies to a document suggesting policy guidelines, as well as to each other, to see if and in what ways their policies are serving their communities by facilitating and/or establishing barriers to the development of urban agriculture. Results showed that San Francisco and Oakland appeared to be the most developed cities in terms of urban agriculture policies. The difference between these two being the overall goal each city is trying to accomplish through urban agriculture. Any city wishing to adopt urban agriculture policies can look to San Francisco or Oakland to see how existing policies aid in urban agriculture and facilitate the creation of such policies in their own cities.

KEYWORDS

municipal code, ordinance code, home gardens, community gardens, urban farms

INTRODUCTION

In recent decades, there has been a shift in the food system. The current conventional food system consists of four major steps, each of which may negatively impact workers and consumers. Production often subjects farm workers to strenuous labor under hazardous conditions for low wages. In processing, workers who manufacture food products may be exposed to hazardous materials and health and safety code violations. Processed food is then distributed, often transported thousands of miles to reach markets (McClintock and Cooper 2009). The last step is retail sales and service, in which consumers purchase food products (Liu et al. 2011). In this process, the consumer lacks food sovereignty, the human right to locally sourced, sustainably produces, and culturally appropriate food (Holt-Gimenez 2010). This has driven communities to focus on consuming local, sustainable, and organic foods which often times comes at a high cost to the consumer (Sexton 2011), this can become an unattainable luxury for lower-income communities. Lack of food sovereignty has particularly nefarious implications for residents of 'food deserts' in lower-income communities, many of whom do not have direct access to healthy, nutritious, affordable food, and opt for cheaper, heavily processed and generally unhealthy foods (Unger et al. 2006). Urban agriculture, the production of food through intensive plant cultivation in and around urban areas (SPUR 2012), is a potential solution to the food sovereignty problem.

Urban agriculture provides health, social, economic, and ecological benefits (Five Borough Farm 2012) by creating a sense of community, diminishing food insecurity, using the land in environmentally friendly ways (McClintock and Cooper 2009) and providing healthy food to those who need it most (Ohri-Vachaspati et al. 2009). Urban agriculture can take multiple forms including edible parks, rooftop gardens, backyard gardens, community gardens, and urban farms, all of which are essential means of addressing food insecurity in urban areas (Unger et al. 2006). This paper focuses on home gardens, community gardens and urban farms. Home gardens are defined as "the property of a single-family or multifamily residence used for the cultivation of fruits, vegetables, plants, flowers, herbs, or animal keeping mainly for personal use (Wooten et al. 2012)." Community gardens are "privately or publicly owned land used for the cultivation of fruits, vegetables, plants, flowers, herbs, or animal keeping by multiple users" and tend to be divided into separate plots for cultivation by multiple users (Wooten et al. 2012).

Urban farms are either private or public land used for cultivating fruits, vegetables, plants, flowers, herbs, or animal keeping for either profit or non-profit purposes (Wooten et al. 2012).

Interest in urban agriculture continues to grow (Unger et al. 2006), and, beyond addressing food insecurity, it is beginning to be perceived as a source of income, community building and a sustainable way of feeding the growing urban population (De Zeeuw et al. 2010). Urban agriculture offers many benefits to urban communities, including creating green jobs, educating residents about the food system and the environment, creating spaces where families can have physical activity and enjoy nature which urban residents tend to be disconnected from, building community, and allowing for urban communities and public officials to have a relationship (McClintock and Cooper 2009, Goddard et al. 2009). Yet costs and challenges may be associated with urban agriculture as well, including the cost of permits and initial building, access to markets or crop swaps for lower-income communities, development of knowledge and skills by those who wish to create a garden, conflicts over government support in funding and regulatory municipal codes (Ecology Center 2012, Food Security Coalition 2012, ChangeLab Solutions 2012). There are also potential problems concerning public health and safety, such as soil contaminants that can leach into crops or pest infestation (Ackerman 2012). Finally, there is the possibility of public nuisances caused by animal keeping, pests, smells, and noises that may arise from gardening (Wooten 2012).

In order for communities to take full advantage of these services while avoiding problems, cities need to have policies and zoning ordinances that encourage the safe and full use of home gardens, community gardens, and urban farms. California's Bay Area, known for its identification with and connection to food movements with a focus on local food production (Unger et al 2006), contains cities that have made progress in the urban agriculture sector. Berkeley, California for example, passed legislation in July 2012, Berkeley Municipal Code Section 23C.20.010, that allows the sale and trade of non-processed products grown on residential properties without a permit (Berkeley Edible Garden Initiative 2012). Although this new legislation covers commercial gardening, it disregards personal use gardening as well as health concerns such as pesticide, herbicide and fertilizer use (ChangeLab Solutions 2012). Urban agriculture is becoming a desirable solution to the food insecurity problem (Bourque 2000), but cities are moving slowly in adopting new policies that encourage such activities. ChangeLab Solutions, a nonprofit organization that helps transform different areas through law

and policy, provides a general model of what cities' urban agriculture framework, including land use policies and zoning ordinances, should look like (Wooten et al. 2012). Even though there are models like these that not only encourage but also provide guidelines on how to adopt urban agriculture policies, it is still unclear if and how different municipalities, in particular those in California's Bay Area, have and will in the future develop urban agriculture policies.

In this study, I document urban agriculture policies in Berkeley, Hayward, Oakland, Richmond, San Francisco, and San Jose, California. I compare each city's urban agriculture policies to the ChangeLab Solution model, as well as to each other, to see if and in what ways their policies are serving their communities by facilitating and /or establishing barriers to the development of urban agriculture.

METHODS

Study system

My study system consisted of California Bay Area cities of Berkeley, Hayward, Oakland, Richmond, San Francisco, and San Jose and each city's urban agriculture policies. Berkeley, Hayward, Oakland, and Richmond are all part of the East Bay. San Jose is in the South Bay and San Francisco is in the West Bay. I chose these study sites because they are spread throughout the Bay Area and have a wide range of urban agriculture policies.

Data Collection

I first searched each city's municipal codes covering home gardens, community gardens, and urban farms on city government websites. In some cases I contacted city officials to identify policies that were not readily accessible online. To locate community garden policies, I had to look at documents that outlined the rules and regulations for each city. These were found under different departments within the city, not the municipal codes and are managed through nonprofits with help of said departments. If a city did not have developed policies, I looked for documents that state that city's future plans for the development of urban agriculture. Finally, I identified the different categories a successful set of urban agriculture policies should include by

analyzing ChangeLab Solution's document, *Seeding the City*, which served as a guideline document for urban agriculture policies.

Data Analysis

I classified city policies according to activities to which they pertain, and three tables summarizing each city's municipal home garden policies, municipal community garden policies, and municipal urban farm policies. I compared existing policies to the model document's categories to determine the progress the cities have made and how they might continue to advance. Finally, I compared each city's policies to those of the other cities to determine if one city could serve as a model for other cities wishing to implement urban agriculture policies.

RESULTS

I found that the six cities differ in the content and comprehensiveness of existing urban agriculture policies. Berkeley, Hayward, Richmond, and San Jose have either passed urban agriculture legislation in the past few years or are still in the developing stages, while Oakland and San Francisco have better-developed policies that have been in place for years, yet all are still improving their policies. Policies concerning community gardens were included in a city department as a Community Garden Rules and Regulation document typically enforced by the nonprofit running the garden. To a greater or lesser extent, each city's policies address, home gardens, community gardens, and urban farms.

Municipal home garden policies

The extent and nature of home garden policies varied widely between cities (Table 1). Berkeley policies regulate home garden location, on-site structures, and crop commerce. Berkeley does not define home gardens not size limits but they are considered a moderate impact home occupation allowed in all residential areas with a one-time permit fee of \$257, a one-time business license application fee of \$25, an initial business license tax of \$51, and a yearly gross

receipts tax (City of Berkeley 23C.16.030). There are no compost regulations or requirements. Fencing regulations are not specific to home gardens but to all residential districts, there are specific material types and height limits that must be followed (City of Berkeley 23D.08.060). Accessory structures do not specifically include greenhouses but specifies height limit of 14 feet, and limits such structures to back yards, with a 5 feet rear property line setback (City of Berkeley 23D.08.060). Signage is not allowed in residential areas unless it is a portable sign (City of Berkeley 20.16.180) and/or a temporary sign concerning noncommercial events and do not cause a hazard to pedestrian or vehicle traffic (City of Berkeley 20.16.010). The sale of produce grown on site is permitted as long as sales are made directly to the end consumer, takes place between 8 a.m. and 8 p.m., and transactions are shielded from public right-of-way view, do not cause nuisances, and do not involve more than 10 customer visits per day (City of Berkeley 23C.20.010 B). There are no policies pertaining to beekeeping and chickens must be kept in an enclosure that is at least twenty-five feet of any dwelling that belongs to someone is not the owner of the chickens, and can be kept closer to the owner's dwelling so long as the chickens are kept temporarily (City of Berkeley 10.12.040). Chickens must also be maintained in a sanitary manner and regularly cleaned (City of Berkeley 10.12.060).

Hayward has very few policies governing home gardening. It is not defined, there are no size limits, the Hayward Municipal Code does not specifically regulate the creation of home gardens on private property, there are no compost regulations, use of produce or produce sales, nor beekeeping. Fencing is regulated under each residential district; single-family residential district (City of Hayward 10-1.235), residential natural preservation district (City of Hayward 10-1.335), medium density residential district (City of Hayward 10-1.435), high-density residential district (City of Hayward 10-1.535), and neighborhood commercial-residential district (City of Hayward 10-1.935) and regulations for such will fall under these categories. Accessory buildings which include greenhouses in high density residential districts and medium density residential district must not exceed 14 feet in height, cannot be located in front or side street yards, and must be setback back a minimum of 5 feet from a side or rear property line (City of Hayward 10-1.545 a; 10-1.445). In neighborhood commercial residential districts and residential natural preservation district, the only policy available is that of the maximum height, 14 feet maximum (City of Hayward 10-1.935 and 10-1.315). Regarding signage, in a high-density residential district and medium density residential district, signs are allowed which identify a

home occupation business (City of Hayward 10-1.545 r and 1.445 r). The use of produce and produce sales and beekeeping are not regulated in the Berkeley Municipal Code. Chickens can be kept so long as they do not become a nuisance to the neighborhood (City of Hayward 4-4.10, 4-4.11, 4-4.13).

Oakland, like previous cities, does not specifically define home gardens, but they fall under occupations if for the purpose of selling goods (City of Oakland 17.10.040). There are no size limits. Home gardens are allowed on any residential area but if it is a homegrown produce business then the homeowner must obtain a home occupation permit (City of Oakland 17.134). There are no regulations pertaining to compost. Fencing requirements and regulations, including height, and fence material are included in each residential district (City of Oakland 17.73.030). In all residential districts, accessory buildings must be setback 5 feet, and be no bigger than 12 feet in height and 8 feet in width (City of Oakland 17.110.040 C). Residential signs cannot be one square foot for each one foot of front lot or .5 square feet for each one-foot of lot in the case of a corner lot (City of Oakland 17.104.020). The sale of homegrown produce is allowed if a conditional use permit is acquired (City of Oakland 17.134.050). Beekeeping is not included in Oakland's Municipal Code. It is illegal to keep chickens in a cellar or basement underneath any grocery store, market, or other place where food is kept, prepared, or sold (City of Oakland 8.14.240). It is unlawful to keep or raise live chickens on a property occupied by an apartment house or hotel or in a business district except when they are kept within a bona fide produce market, commission house, or store for purposes of trade and, while so kept, are confined in small coops, boxes, or cages (City of Oakland 6.04.290). Roosters are prohibited within the city limit and chickens must be kept at least 20 feet from any dwelling, church, or school (City of Oakland 6.04.290).

Richmond Municipal Code does not contain a definition, size limit, compost, signage, use of produce, produce sales, or beekeeping. Gardening is allowed on any residential district (City of Richmond 15.04.110 and 15.04.120). Fencing cannot be higher than 6 feet high (City of Richmond 15.04.810.030). Accessory buildings cannot be bigger than 33% of total yard area (City of Richmond 15.04.830.040). Beekeeping required a permit in the past, but was recently revoked, as there was no department to issue such permits. Chicken coops, houses, or pens may be kept at a distance of 20 feet from the door or window of any dwelling (City of Richmond 9.24.040).

San Francisco includes home gardens under neighborhood agriculture which is the production of food or horticultural crops to be harvested, sold, or donated on land less than 1 acre (City of San Francisco 1.102.35 a). There are no prohibitions on where use is allowed. Compost must be set back at least 3 feet from dwelling units and decks (City of San Francisco 1.102.35 a1). Fencing must be wood, ornamental, or chain link that will be covered by plant material (City of San Francisco 1.102.35 a2). Since neighborhood agricultural practices are permitted on every district, fencing, structures, and signage will pertain to the specific zoning district the urban farm it is located in. The sale of food and horticultural products may occur between 6 a.m. and 8 p.m. (City of San Francisco 1.102.35 a5) value-added products are not permitted (City of San Francisco 1.102.35 a6) and there is nothing regulating the number of customers per day. There are no Municipal Codes affecting beekeeping. In order to keep chickens for commercial purposes in residential districts a permit from the Department of Public Health is needed and chickens must be at least 25 feet away from any door, window, or opening of any dwelling, and premises must be rodent-proof (City of San Francisco 1.37). The plucking, sinning, or cleaning of chickens needs to be carried on in a separate room, and all dust, smoke, odors must be disposed of by air shafts, fans, forced air, or other mean approved by the Department of Public Health (City of San Francisco 8.440.3).

San Jose has the fewest number of policies concerning home gardening. It is not defined, there is no size limit, or compost regulations. Home gardening is considered a home occupation and is allowed in al residential areas (City of San Jose 20.80.700) The regulating setback depend on where the residential property is located (e.g. interior lot, corner lot, intersections) and may not be made of barbed wire, razor wire, electric fences, glass, or other sharp materials (City of San Jose 20.30.600). Accessory building limitations include a maximum height of 12 feet, and front setbacks of 60 feet (City of San Jose 20.30.600). Signs are allowed in residential areas (City of San Jose 23.04). The selling of produce is not allowed in residential districts (20.80.720). In regards to bees, a permit must be applied for (City of San Jose 7.09.020). No more than 6 chickens may be kept (City of San Jose 20.80.720). A permit and inspection of premises where chickens will be kept is required before having chickens on property (City of San Jose 7.04.030)

Table 1. Municipal Home Garden Policies

City	Definitions	Size limits ¹	Where use is allowed	Compost	Fencing	Structures ²	Signage	Use of produce/ produce sales	Beekeeping	Chickens
Berkeley	NP³	NP	23C.16.03 0	NP	23D.08.06 0	23D.08.060	20.16.180 20.16.010	23C.20.010. B	NP	10.12.040 10.12.060
Hayward	NP	NP	NP	NP	10-1.235 10-1.335 10-1.435 10-1.535 10-1.935	10-1.545A 10-1.445 10-1.935 10-1.315	10-1.545r 10-1.445r	NP	NP	4-4.10 4-4.11 4-4.13
Oakland	17.10.040	NP	17.134	NP	17.73.030	17.110.040C	17.104.02 0	17.134.050	NP	8.14.240 6.04.290
Richmond	NP	NP	15.04.110 15.04.120	NP	15.04.810. 030	15.04.830.04 0	NP	NP	NP	9.24.040
San Francisco	1.102.35a	1.102.35a	NP	1.102.35.a1	1.102.35.a 2	MP⁴	MP	1.102.35.a5 1.102.35.a6	NP	8.440.3 1.37
San Jose	NP	NP	20.80.700	NP	20.30.600	20.30.600	23.04	20.80.720	7.09.020	7.04.030 20.80.720

1. Size limit is not typically included under home garden policies but San Francisco is an exception so the category was kept here

2. Structures refers to greenhouses, loophouses, and cold frames

3. No policy was found directly addressing this category

4. Multiple policies cover this category

Municipal community garden policies

Community garden policies were included in rules and regulations documents under different departments within each city. All cities but Richmond had such documents, and covered a number of the *Seeding the City* suggested categories. Not all categories are covered through these documents, and those missing ones can be covered by respective municipal codes (Table 2).

Berkeley's community garden regulations are ran by the Department of Park Recreation and Waterfront with the document *City of Berkeley Community Garden Guidelines* (BCGG). There is no definition of a community garden but it is stated that community gardens are for the growing of organic produce, herbs, flowers and fruit, and for fostering community among plot holders and the community garden and their neighbors (BCGG). Berkeley community gardens do not have a restriction on either garden size or individual plot size but do require an area of a minimum 100 square feet for community activities and communicating public information (BCGG). Where community gardens are allowed and soil testing is not mentioned in Berkeley's municipal code or the City of Berkeley Community Garden Guidelines. Operating Standards is the most in depth section. The Community Garden Guidelines provide a set of operating rules addressing the governance structure of the garden that includes criteria for assigning plots, gardening practices, and administration. The hours of operation are required to be posted on a sign outside the garden (BCGG). The City of Berkeley is responsible for maintaining and paying for existing utilities and for maintaining the perimeter fences it owns or leases (BCGG). Plot holders must maintain their plot accordingly and will be given a notice if anything is not properly maintained and 30 days to fix it otherwise their plot is forfeited (BCGG). Security requirements consist of keeping the garden locked when unattended to protect plots from loss and theft unless the garden as a whole decide to leave the garden unlocked (BCGG). The Garden Coordinator acts as the liaison with the City of Berkeley Department of Parks Recreation and Waterfront and has the responsibility to represent the interests of the plot holders and takes action as he or she sees fit (BCGG). The sign kept outside the garden must also include the name and phone number of the Garden Coordinator and needs to comply with local requirements. Watering is paid by the City and must be done early in the morning or late in the afternoon. The city calls for the compliance of the Americans with Disabilities Act to accommodate anyone with a disability

(23B.52.010). In addition to this, BCGC states that all community gardens must have at least one accessible plot for every 20 plots with at least one accessible path of travel. Fencing and accessory buildings are regulated under each zoning district. The donation of fresh produce from community gardens to local food programs is encouraged (City of Berkeley EM-34; BCGG). Beekeeping and chicken keeping are not included in either municipal codes or the Community Garden Guidelines. The general regulations for chickens are the same as those for home gardens (City of Berkeley 10.12.040 and 10.12.060)

The City of Hayward does not have any community garden policies regarding definitions, size limit, where use is allowed, soil testing, or security requirements. Operating standards is the most detailed sectioned. The Hayward Community Gardens is a nonprofit group that works under the City of Hayward, has an *Operating Rules and Regulation* document stating the rules all plot holders must agree to before receiving a plot to garden on. The purpose of the Hayward Community Gardens (HCG) is to promote community gardening, providing lower-income residents of Hayward with gardening, recreation, and socializing opportunities and helping lower-income residents to supplement their diets with home-grown produce. In order to qualify for a plot, new or current members must not exceed 140% of the stated low-income guidelines. There is also an annual fee of \$125 per plot unit. The hours of operation are from sunrise to sunset. Maintenance regulations include the keeping of plots and paths clean and free of weeds and overripe, rotting, or spoiled crops. Gardens must be worked on the first 3 weeks of date assigned and must be 75% planted between February 28th and November 15th. A total of 3 notices are given if any rules are broken after which the plot will be forfeited. An elected unpaid volunteer Board of Directors governs the organization; the name and contact information of this individual can be found by contacting the Hayward Community Gardens group. Any new irrigation on plots must be drip irrigation, and watering must be attended, weekly tested, and conserved at all times. All gardening must follow organic methods, and the use of inorganic pesticides, synthetic fertilizers, inorganic rodenticide, or inorganic herbicide is prohibited. The City of Hayward supports and encourages compliance with the Americans with Disabilities Act (City of Hayward 10-1.145) and the Hayward Community Gardens abides by the Americans with Disabilities act. Fencing must be approved by the HCG Board of Directors, some of the regulations include a maximum height of 46 inches, and the prohibition of black shade cloth as material, and fences may not be painted, stained, varnished, or treated with any other finishing

products. Shade structures or greenhouses are not allowed. Banners are not allowed in plots either. Gardeners must also agree not to sell or use garden produce for profit; produce is for home use only and any excess should be contributed by to the garden. Animal keeping, bees or chicken, is not discussed in the document but citywide chicken regulations may apply (City of Hayward 4-4.10, 4-4.11, 4-4.13).

Oakland defines community gardens as land that is used for the cultivation fruits, vegetables, plants, flowers, herbs, ornamental plants, and/or animal products and livestock production by more than one person for personal consumption and/or donation (City of Oakland 17.10.140). Community gardens are allowed on every zoning district (City of Oakland 17.11.060). There are regulations on size limits or soil testing. Through the City of Oakland, the Department of Parks and Recreation has the *City of Oakland Community Gardens Program, General Rules & Regulations* document stating all operating standards. Maintenance regulations require all gardeners to commit a minimum of 20 hours per year for the upkeep of common areas. It also required that all pathways be kept clear of weeds and crops, no stakes are allowed below ground level, cover crops must be planted by November 15th, and all members are responsible for maintaining the compost area. Security requirements consist of keeping both the gate and tool shed locked when not in use. The *General Rules & Regulations* document includes contact information in case of suggestions of questions but does not include any contact information on the Oakland Parks and Recreation Community Gardens Coordinator. Oakland's community gardens welcome and will make accommodations for any individual with disabilities. Fencing, accessory buildings, signage, beekeeping, and chickens is not mentioned in the *General Rules & Regulations* document, but may be covered by Oakland's municipal codes according to each zoning district. Finally, the sale of produce on public property for personal gain is prohibited; gardeners are encouraged to share any excess harvest.

Richmond does not have any information readily accessible concerning community gardens.

San Francisco defines neighborhood gardens through municipal code as any cultivated land that takes is no larger than 1 acre and defines community garden through Community Garden Policies (CGP) as a site operated and maintained by volunteers where a publicly owned parcel of land is used for growing ornamental plants and/or produce for noncommercial use. Plots should be a minimum of 40-60 square feet while the largest plot may not be bigger than 2

times the smallest plot, excluding wheelchair accessible plots (CGP) and must be less than an acre to be considered a neighborhood garden (City of San Francisco 102.35.a). Community gardens can exist in any district (City of San Francisco 102.35.a). The testing of soil was not mentioned in either the municipal code or the *Community Garden Policies*. Operating standards are under the City of San Francisco's *Community Garden Policies*. Hours of operation and security requirements are not included under these policies. Maintenance consists of each garden member being responsible for the maintenance of his or her assigned plot and to help maintain the common areas within the garden (CGP). The garden coordinator is elected by the garden members and is in charge of the managements of the garden. The program manager is the City's representative from the Recreation and Park Department who manages its Community Garden Program (CGP). The City is in charge of installing hose bibs every 25 feet and must provide water for the gardens at no cost to the gardeners (CGP). Drip irrigation can be installed by the gardeners (CGP). Any fertilizer has to be organic-based, inorganic herbicides and pesticides are prohibited (CGP). Compost bins can consist of 1—3 compartments where each compartment is at least 3 feet by 3 feet, and must have lids designed to be secured at open and closed positions. Compost bins are not allowed to be adjacent to a main pedestrian pathway and must be rodent-proof (CGP). Community gardens located on public property are intended to be accessible to all (CGP). Fences and gates can range from 3 feet 6 inches to 10 feet in height and may be constructed out of wood with redwood posts or metal; pressure treated posts should be avoided (CGP). The building of accessory buildings is not mentioned in the document so the policies for the district in which the garden is located in apply. Any sign stating facility identification or rules and regulations will be fabricated and installed by the City (CGP). The gardeners may fabricate any other signs in the garden so long as the signs are visually compatible with the garden environment (CGP). The sale of non value-added produce is allowed between 6 a.m. and 8 p.m. (2.102.35 a5, 1.102.35 a6). Beekeeping is permitted by consensus of the garden members and a sign must be posted stating that bees are on the property (CGP). A permit is required in order to keep chickens in community gardens (CGP).

The City of San Jose's Municipal Codes regarding community gardens do not include size limits, where use is allowed, compliance with all laws, or soil testing. The definition of community parks is under community parks and recreational policies (7.80.700). Operating standards are included the City of San Jose's Park, Recreation and Neighborhood Services

through its *Community Gardening Programs 2013 Rules and Regulations (CGP)* document. This document establishes the operating rules of the garden. The hours of all gardens is from sunrise to sunset, with the exception of Cornucopia and El Jardin gardens, which open at 8:30 a.m.. Maintenance requires plot holders to have a planting schedule. Woody perennials, trees, or any invasive plants may be grown in an above ground mobile container, crops must be rotated and cannot be left to rot or go to waste, more than 2 types of plants must be grown at all times, and no tall crops that cause excessive shading to nearby plots are allowed. All members are all required to help maintain common areas. Security requirements consist of keeping garden gates locked when not in use. The garden is run by a Garden Coordinator as well as a volunteer Management Team. Excessive water use can result in a fine and watering must always be attended. Growing practices must be organic; any use of inorganic pesticides, herbicides, chemical fertilizers, or other such substances is prohibited and can result in the immediate member termination. The definition of disability will be in accordance with the Americans with Disabilities Act (ADA). Individuals with a disability have priority in renting any of the four ADA accessible garden plots. There is nothing regarding fencing, structures, or signage. The selling of produce is now allowed (City of San Jose 20.80.72) and any excess food should be preserved for future use or shared with friends, neighbors or donated to local food banks (CGP). Beekeeping or the keeping of chickens is not defined in the CGP document. In citywide regulations, beekeeping requires a permit (City of San Jose 7.09.020). No more than 6 chickens may be kept. A permit and inspection of premises where chickens will be kept is required before having chickens on property (City of San Jose 7.04.030).

Table II: Municipal Community Garden Policies

City	Definitions	Size limits	Where use is allowed	Soil testing	Operating standards	Compost	Accessibility	Fencing	Structures ¹	Signage	Use of produce/produce sales	Beekeeping	Chickens
Berkeley	NP²	BCGG ³	NP	NP	BCGG	NP	23B.52.010 BCGG	MP⁴	MP	BCGG	EM-34 BCGG	NP	10.12.040 10.12.060
Hayward	NP	HCG ⁵	NP	NP	HCG	NP	10-1.145 HCG	HCG	HCG	HCG	HCG	NP	4-4.10 4-4.11 4-4.13
Oakland	17.10.140	NP	17.11.060	NP	OCGP ⁶	NP	OCGP	MP	MP	MP	OCGP	NP	8.14.240 6.04.290
Richmond	NP	NP	NP	NP	NP	NP	NP	MP	MP	MP	NP	NP	9.24.040
San Francisco	102.35.a SFCGP ⁷	102.35.a SFCGP	NP	NP	SFCGP	SFCGP	SFCGP	SFCGP	SFCGP	SFCGP	1.102.35a5 1.102.35a6	SFCGP	SFCGP
San Jose	7.80.700	NP	NP	NP	SJCGP ⁸	NP	SJCGP	NP	NP	NP	20.80.720 SJCGP	7.09.020	7.04.030

1. Structures refers to greenhouses, loophouses, and cold frames
2. No policy was found directly addressing this category
3. City of Berkeley Community Garden Guidelines
4. Multiple policies cover this category
5. Hayward Community Gardens
6. Oakland Community Garden Program
7. San Francisco Community Garden Policies
8. San Jose Community Garden Programs

Municipal urban farm policies

Berkeley's agriculture is limited to personal and community gardens according to the City of Berkeley's Environmental Management Element.

Hayward's urban farm regulations are mostly mandated through Alameda County's Municipal Codes. Urban farms are defined as an agricultural operation, the growing, harvesting, and processing of any agricultural commodity. This includes livestock, fur bearing animals, fish or poultry, and any commercial agricultural practices (Alameda County (AC)-6.28.010). There are no size limit regulations Agricultural operations may be used on agricultural districts or limited agricultural districts (AC-6.28.010). A farmer must also comply with appropriate state, federal or local laws (AC-6.28.010). There are no regulations regarding soil testing, operating standards, compost, or signage. The City of Hayward supports and encourages compliance with the Americans with Disabilities Act (City of Hayward 10-1.145). Fencing has regulations on height limits, 4 feet for front and side street yard maximum and a 6 feet maximum for side and rear yard (City of Hayward 10-1.2035). A Site Plan Review approval is also required from the City before the construction of any fence (City of Hayward 10-1.2040). Maximum height for an accessory building is 26 feet (City of Hayward 10-1.2035). A Site Plan Review approval is also required before the construction of any accessory building. The sale of fruits, vegetables, and flowers grown on the premises is allowed as long as displays are not conducted from a motor vehicle, or a structure or stand exceeding 300 square feet in area (City of Hayward 10-1.2015). Apiaries are allowed to be kept (City of Hayward 10-1.2015) and there is nothing specific about keeping chickens on agricultural districts but municipal code states that chickens can be kept as long as they do not become a nuisance and are kept in sanitary conditions (City of Hayward 4-4.10, 4-4.11, 4-4.13).

In Oakland, urban farms are considered to be agricultural activities and is defined and the on-site production of plant and animal products by agricultural methods (City of Oakland 17.10.590). Size limits, where use is allowed, compliance with laws, operating standards, compost, and beekeeping regulations are not included in Oakland's Municipal codes. Crop and animal raising is allowed as long as the soil used in growing does not contain any harmful contaminants and the activity will not create contaminated soil (City of Oakland 17.13.01 L2). All businesses must comply with the Americans with Disabilities Act (City of Oakland

2.30.030). Fencing height limits are defined in each perspective district (City of Oakland 11.8.18.070). Height, setback, and other regulations regarding accessory buildings are 5.5 feet high, 3 feet wide, and 5 feet setback (City of Oakland 17.110.0140). Business signs must be located behind a display window, have a display surface smaller than 12 square feet, or does not occupy more than one half of the area of display surface (City of Oakland 17.10.840). Advertising signs must follow the same regulations (City of Oakland 17.10.850). The sale of produce is allowed (City of Oakland 17.56.095). The raising of animals is allowed (City of Oakland 17.10.610) but may not become a nuisance to surrounding neighborhoods (City of Oakland 17.13.01 L2).

Richmond does not define urban farms, does not regulations pertaining to size, where use is allowed, compliance with all laws, soil testing, operating standards, compost, accessibility, use of produce, produce sales or beekeeping and since urban farms are not defined or mentioned in any way, there are no fencing, structures, or signage regulations that would fit under urban farms. The keeping of chickens is defined at a citywide level with the only regulations being that coops, houses, or pens may be kept at a distance of at least 20 feet from the door or window of any dwelling (City of Richmond 9.24.040).

San Francisco defines urban farms as large-scale urban agriculture for the producing of food or horticultural crops to be harvested, sold, or donated (City of San Francisco 7.102.35). Large-scale urban agriculture must be on a plot of land 1 acre or larger or on smaller parcels that cannot meet the physical and operational standards for neighborhood agriculture (City of San Francisco 7.102.35). The use is allowed in all districts (City of San Francisco 2.209.5). There are no regulations on compliancy, compost, or beekeeping. The Urban Agriculture Program must consult with the County Agricultural Commissioner and Director of Public Health to ensure that there are no health risks such as soil contamination (City of San Francisco 53.3 b8). All operating standards and regulations is a summary of the rest of these categories included under the Urban Agriculture chapter in San Francisco's Municipal Code (City of San Francisco 53.3). Any development must comply with the Americans with Disabilities Act (City of San Francisco 102.6.1). Since large-agricultural practices are permitted on every district, fencing, structures, and signage will pertain to the specific zoning district the urban farm is located in. The sale of produce is allowed (City of San Francisco 7.102.35) and there are no restrictions to this. The plucking, skinning, or cleaning of chickens needs to be carried on in a separate room, and all

dust, smoke, odors must be disposed of by air shafts, fans, forced air or other mean approved by the Department of Public Health (City of San Francisco 8.440.3). In order to keep chickens for commercial purposes in residential, commercial or industrial districts a permit from the Department of Public Health is required. Chickens must also be at least 25 feet away from any door, window, or opening of any dwelling and premises must be rodent-proof (City of San Francisco 1.37).

San Jose does not have any regulations that cover any of the categories except produce sales, beekeeping, and chickens. There is no specific municipal code, but the sale of produce requires a certification before the selling of produce in a farmer's market. A permit must be applied for in order to keep bees (City of San Jose 7.09.020) and a permit and inspection of premises where chickens will be kept is required before having chickens on property (City of San Jose 7.04.030).

Table III: Summary of Urban Farm Policies

City	Definitions	Size limits	Where use is allowed	Soil testing	Operating standards	Compost	Accessibility	Fencing	Structures ¹	Signage	Use of produce/produce sales	Beekeeping	Chickens
Berkeley	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
Hayward	AC ² 6.28.010	NP	AC- 6.28.010	NP	NP	NP	10- 1.145	10- 1.2035 10- 1.2040	10-1.2035 10-1.2040	NP	10-1.2015	10-1.2015	4-4.10 4-4.11 4-4.13
Oakland	17.10.590	NP	NP	17.13. 01.L2	NP	NP	2.30.0 30	11.8.18. 070	17.110.014 0	17.10.8 40 17.10.8 50	17.56.095	NP	17.10.610 17.13.01. L2
Richmond	NP	NP	NP	NP	NP	NP	NP	MP ³	MP	MP	NP	NP	9.24.040
San Francisco	7.102.35	7.10 2.35	2.209.5	53.3.B 8	53.3	NP	102.6. 1	MP	MP	MP	7.102.35	NP	8.440.3 1.37
San Jose	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	7.09.020	7.04.030

1. Structures refers to greenhouses, loophouses, and cold frames

2. Alameda County Municipal Codes

3. Multiple policies cover this category

DISCUSSION

Although all six cities have some policies governing urban agriculture, San Francisco and Oakland have the most developed regulatory regime, and may serve as models for other cities planning to incorporate urban agriculture into their policies. The differences between Oakland and San Francisco urban agriculture policies reflect the nature of each city's goals and the complex culture of the food movement. San Francisco is focused on the Slow Food movement (Slow Food San Francisco 2013) that prioritizes sustainably growing and consuming locally grown organic food, with no emphasis on food production for lower-income communities. Oakland, on the other hand, focuses on resolving the problem of food insecurity through food justice for low income communities through social justice approaches by providing those who many not have access to food, healthier options and a healthier lifestyle (Oakland Food Connection 2013). Berkeley, Hayward, Richmond, and San Jose have less developed urban agriculture policies overall. All but Richmond have documents regulating community gardens. Hayward, like Oakland, focuses on community gardens as a means of facilitating lower-income income community wellbeing. San Jose and Richmond both have action plans for the establishment of a fully developed urban agriculture policy plan. Berkeley has been making progress in the home garden sector and future plans are uncertain. Policy should promote urban agriculture, eliminate unnecessary barriers to establishing gardens and farms, ensure safe practices, and protect gardeners, farmers, and neighboring landowners (Wooten 2012). Overall, the policies I identified, by matching them to *Seeding the City's* suggested policies, address key issues in terms of health, safety, and commerce. Although, there are existing policies governing urban ariculture, cities still face challenges in achieving effective governance over urban agriculture.

Municipal home garden policies

In general, home gardening tends to not be regulated, as it is oriented to toward private consumption. Because of this few regulations were suggested by *Seeding the City* and included very basic regulations revolving around public health (Table 4). If home gardening is used commercial processes, more regulations need to be in place. A codified definition for home

gardens is essential in specifying what crops and animals may be grown or raised and where they may be located on private property and in residential neighborhoods. Cities tend to not require soil testing, but should encourage this to avoid any health problems and should consider coordinating with a local universities or organizations to aid in soil testing and to educate the community on its importance. Fencing, structures, signage, and the use of sale of produce should all be incidental or accessory use; a use depended on or affiliated with the land's primary use, and is regulated in the district it is located in. The keeping of bees and chickens should require permits and follow regulations that promote public health as well as reduce any nuisances that may arise (Wooten 2012).

Most cities lacked a specific definition of home gardens as a starting point for regulation. Home gardens, if not defined, tend to be classified as "home occupations", since home gardens can be used for small-scale commercial activities. San Francisco is the only city to specify a definition of home gardens in its municipal code (City of San Francisco 1.102.35 a). Oakland does not define home gardens, but states that home gardening falls under home occupations (City of Oakland 17.10.040).

Another important dimension of home gardens that is often left out of municipal codes is the use and sales of produce from these gardens. Berkeley and Oakland recently passed legislation that allows for the sale of produce from a home garden (City of Berkeley 23C.20.010 B, City of Oakland 17.134.050). Hayward and Richmond do not have any regulations, while San Jose forbids the sale of home garden produce (City of San Francisco 20.80.720). Compost is yet another category not regulated under the municipal codes of any city except San Francisco (City of San Francisco 1.102.35 a1). Composting can generate foul odors, and attract rodents and other unwanted pests that can contaminate produce (Blue 2013). San Francisco, as the only city with compost regulations, should expand regulations, including requiring rodent-proof containers for composting (Wooten et al. 2012).

Since home gardening is allowed in residential areas, fencing, structures, and signage are regulated in the zoning district the garden is located in, as *Seeding the City* suggests. Beekeeping is rarely regulated, since the state lacks funding for the creation of a department to require or issue permits (Parks 2011). The keeping of chickens follows *Seeding the City's* suggestions the model document's suggestions. It is also important to note that all cities with the exception of San Francisco do not have all these policies in one place. Policies fell under different titles

within the municipal code, which may be confusing for anyone trying to create a home garden. This can discourage community members from creating a garden at all if they wish to follow all regulations or can lead to potential health hazards or breaking of laws if gardens are built without following certain codes. In order for cities to have well-maintained, well-running home garden systems, all suggested policy categories should be under an Urban Agriculture title in each city's municipal codes.

Table 4: *Seeding the City* Approach to Governing Home Gardens

Category	<i>Seeding the City</i> suggestions
Definitions	<ul style="list-style-type: none"> • For the cultivation of fruits, vegetables, plants, flowers, herbs, and/ or animal products, livestock production or value added produce • Where in the residential property it can or cannot be grown • By whom it can be grown
Size limit	<ul style="list-style-type: none"> • No regulations
Where use is allowed	<ul style="list-style-type: none"> • Should be allowed in all residential areas
Compost	<ul style="list-style-type: none"> • Should be stored ____ feet from adjacent property • Hidden from view • Is not a nuisance
Fences	<ul style="list-style-type: none"> • Should be regulated in the underlying zoning district
Structures	<ul style="list-style-type: none"> • Regulated in the underlying district
Signage	<ul style="list-style-type: none"> • Signage should not be permitted
Use of produce/Produce sales	<ul style="list-style-type: none"> • Produce should be primarily for personal use or donation, or • Produce should be primarily for personal use or may be donated or sold on-site within a reasonable time of its harvest, during specific times of the day or seasons, and should not be a nuisance to the neighborhood
Beekeeping	<ul style="list-style-type: none"> • Should be registered • Limited number of hives per area • Where hives can be kept
Chickens	<ul style="list-style-type: none"> • Owner should be registered and licensed • Minimum space per chicken • Location of chicken coop/cages • Setback requirements • Maximum number of chickens allowed

Municipal community garden policies

Seeding the City suggests more regulatory policies for community gardens than it does for home gardens. Community gardens should be allowed to be cultivated on a variety of sites

for recreational, food sourcing, and educational uses. Cities may choose to distinguish community gardens from urban farms by having a size limit. Use should be allowed in districts that promote and protect urban agriculture. Site should be tested for harmful contaminants prior to establishment. This is one of the toughest issues facing municipalities, as there can be disagreement on who should be responsible for the test, and there may be a lack of knowledge and funding. Garden sites should have an established set of operating rules that address the governance of gardens. Municipal codes should require such regulating document. As with home gardens, compost requirements need to be implemented in community gardens to avoid any health concerns. All gardens should be required to comply with the Americans with Disabilities Act by providing accessible paths and raised beds. Fencing and signage should be regulated in the underlying zoning district. Community garden policies should include what structures are allowed and their corresponding size requirements. Produce should be for personal consumption or shared. Limited sales may be allowed in some cities. As with home garden regulations, the keeping of bees and chickens should require permits and follow regulations that promote public health as well as reduce any nuisances that may arise (Table 5) (Wooten 2012).

All cities except Richmond have general community garden guidelines that cover most of the categories noted above. With the exception of Oakland and San Francisco, community gardens were not part of any municipal codes outside of the general community garden guidelines. These documents state the regulations, rules, and guidelines all gardeners must follow and serves as an agreement between the garden and the gardener. This ensures that all community gardeners know and agree to all the policies. Richmond, being the only city without this document is at a disadvantage, by not having this document, community garden members may not know of all the regulations, their rights, and what is expected from them.

Cities should include such documents in their municipal codes, so that all documents and policies pertaining to community gardens are in one place and are easier to access by all community members. If not part of the municipal code, cities should at least create an easy to find webpage in the city's website with all community garden information, how to get involved, contact information, and the rules and regulations concerning establishment and maintenance of community gardens.

Table 5: Seeding the City Approach to Governing Community Gardens

Category	<i>Seeding the City</i> suggestion
Definitions	<ul style="list-style-type: none"> • Private or public land • For the cultivation of fruits, vegetables, plants, flowers, or herbs by many users • Divided into separate plots
Size limits	<ul style="list-style-type: none"> • Maximum lot size
Where use is allowed	<ul style="list-style-type: none"> • Zoning districts can include residential, multifamily, mixed-use, open space, industrial or any other district subject to regulations.
Soil testing	<ul style="list-style-type: none"> • Prior to establishments, garden soil needs to be tested for any harmful contaminants • The soil testing needs to be turned in and kept on file with the City [department]
Operating Standards	<ul style="list-style-type: none"> • Gardens must have a set of operating rules addressing: <ul style="list-style-type: none"> ○ The governance structure of the garden ○ Hours of operation ○ Maintenance ○ Security requirements ○ Garden coordinating role ○ Water and ○ Growing practices • This document needs to be kept on file with the City [department]
Compost	<ul style="list-style-type: none"> • Distance from adjacent property • Not visible from adjacent property • Is not a nuisance
Accessibility	<ul style="list-style-type: none"> • Garden should comply with the Americans with Disabilities Act <ul style="list-style-type: none"> ○ Accessible entrance routes, paths, and raised beds
Fencing	<ul style="list-style-type: none"> • Regulated in the underlying zoning district
Structures	<ul style="list-style-type: none"> • Greenhouses, hoopouses, and cold frames should be allowed • Size limits • Total area
Signage	<ul style="list-style-type: none"> • Should comply with city ordinances or • Size limits
Use of produce/Produce sales	<ul style="list-style-type: none"> • Produce should be primarily for personal or shared use or donation or • Prohibition of sale or limited sales
Beekeeping	<ul style="list-style-type: none"> • Should be registered • Limited number of hives per area • Where hives can be kept
Chickens	<ul style="list-style-type: none"> • Owner should register and licensed • Minimum space per chicken • Location of chicken coop/cages • Setback requirements • Maximum number of chickens allowed • May need further approvals

Municipal urban farm policies

Seeding the City suggests that urban farms should be the most highly regulated. Urban farms can be considered businesses, and may have to follow state laws governing business formation. It is important for municipalities to define urban farms so they can be distinguished from other types of urban agriculture that may be lower-impact processes. Since urban farms tend to be commercial enterprises, cities may choose to distinguish for-profit farms from non-profit farms, as the intensity of each will be different. Municipalities may also choose to distinguish urban farms from community gardens by size limits. Soil testing regulations should be the same as for community gardens, and farm soil should be tested for contaminants before anything is grown and should state if it needs to be conducted by either the organization or the municipality. Cities can also require a management plan that addresses how activities will be managed to have the least possible impact on surrounding land. A different approach to requiring a management plan is to include everything that would be on it in municipal codes. Urban farms must also comply with the Americans with Disabilities Act by having accessible routes within the farm. Fencing and signage should follow the ordinances in the respective district. Structure regulations should include the kind of structures allowed as well as their sizing and setback limitations. Policies should also include the seasons or months, days, and times when produce can be sold. The keeping of bees and chickens should follow the same policy requirements as home and community gardens (Table 6).

I found urban farm policies to be the least developed than home gardening and community garden policies. Berkeley's agriculture is limited to personal and community gardens (City of Berkeley website). Hayward has some policies, but does not include soil testing, operating standards, or compost regulations, all vital for successful urban farms. Richmond and San Jose have very limited municipal policies. Oakland has some regulation but does not include compliance with laws, operating standards, or compost. San Francisco has almost all of the suggested categories, and so San Francisco's municipal codes may serve as models for developing urban farms. Urban farms can give communities the option of buying and consuming local organic, fresh, affordable food as well as creating and providing green jobs (Wooten 2006).

Table 6: Seeding the City Approach of Governing Urban Farms

Category	Seeding the City suggestion
Definition	<ul style="list-style-type: none"> • On private or public land • For the cultivation of fruits, vegetables, plants, flowers, herbs, and/ or animal products, livestock production or value increase
Size limits	<ul style="list-style-type: none"> • Size limitations that distinguish urban farms from any other type of urban agriculture
Where use is allowed	<ul style="list-style-type: none"> • Conditional use in residential districts and subject to regulations in all districts
Soil testing	<ul style="list-style-type: none"> • Prior to establishments, garden soil needs to be tested for any harmful contaminants • The soil testing needs to be turned in and kept on file with the City [department]
Operating standards	<ul style="list-style-type: none"> • Management plan required: <ul style="list-style-type: none"> ○ Addresses how activities will be managed as to avoid impacts on surrounding land uses/natural systems <ul style="list-style-type: none"> ▪ Site plan ▪ Operating hours ▪ Type of equipment used ▪ Growing practices ▪ Sediment/erosion control plan ▪ Disclosure of parking impacts ▪ Proposed composting plan
Compost	<ul style="list-style-type: none"> • Managed according to management plan
Accessibility	<ul style="list-style-type: none"> • Garden should comply with the Americans with Disabilities Act <ul style="list-style-type: none"> ○ Accessible entrance routes, paths, and raised beds
Fencing	<ul style="list-style-type: none"> • Regulated in the underlying zoning district
Structures	<ul style="list-style-type: none"> • Greenhouses, hoophouses, and cold frames should be allowed • Size limits • Total area • Regulations on other structures that may be needed
Signage	<ul style="list-style-type: none"> • Should comply with city ordinances or • Size limits
Use of produce/produce sales	<ul style="list-style-type: none"> • Hours of sales/public use of the farm
Beekeeping	<ul style="list-style-type: none"> • Apiaries should be registered • Limited number of hives per area • Where hives can be kept
Chickens	<ul style="list-style-type: none"> • Owner should register and licensed • Minimum space per chicken • Location of chicken coop/cages • Setback requirements • Maximum number of chickens allowed • May need further approvals

Future plans for urban agriculture policies

Richmond and San Jose have action plans that will include extensive urban agriculture policies and are expected to be completed by the years 2020 and 2040 respectively (Schultz and Sichley 2011, City of Richmond 2011). Oakland is still working on policies for animal keeping and slaughtering within city limits, but there are strong opinions on both sides making it difficult to come to a conclusive action (Schell and Molteni 2011). San Francisco plans on doing annual analyses of how urban agriculture policies are serving the community and making changes accordingly (City of San Francisco 2013). Hayward is in the beginning stages of developing urban agriculture policies (City of Hayward 2013). Berkeley is working on decreasing permit fees and taxes that apply to home garden produce (Berkeley Edible Gardens 2013) Moving forward requires support and agreement on goals between government and each city's community. Before passing legislation there have be a number of changes including funding, a timeline, job training for any new positions that may arise from the creation of urban agriculture, and land use changes so that urban agriculture may be fully utilized (Zigas 2012). This can turn into a time consuming process that without the right support and investment could not happen.

Study Limitations and Future Directions

Finding the policies that fit under each suggested category for each city was a difficult task, since policies were not all under the same chapter or title of their respective Municipal Code. I acquired all policies that fit under each category but there might be some policies that I may have overlooked. Another problem I had was getting responses from city government officials regarding all these policies. If possible I could have tried to set up meetings with city officials to have more clarity on the policies. I was also not able to find much information on key policy barriers present that aid in the establishment of urban agriculture in Bay Area cities, which was one of my objectives. Finding the community garden guideline documents did not allow me to have policies pertaining to community gardens since my study considered Municipal Codes and ordinances and not such documents. These limitations could prove that my conclusions are flawed. If cities had more policies than I have currently shown, then perhaps more cities have well developed policies and can act as models for other cities. Studying the policies in each city

and comparing them to each other shows what each city has accomplished and what other cities, with less developed policies, can achieve by using these cities as models. Other cities can easily be studied by comparing their policies to the policies that the six study cities have to see how developed they are or how much development is needed.

Future research will include interviewing representatives of cities with few policies to identify the current progress is being made and if they have considered Oakland or San Francisco as a model. Future research can also include an analysis of what cities are doing to overcome any policy deficits for urban agriculture policies in order to have a better understanding of the progress being made. This could potentially given an answer to existing key policy barriers in the establishing of urban agriculture in Bay Area cities.

Broader implications

This study shows the current advancements of urban agricultures in different bay area cities that can be applied not only to the study sites in this paper but to other cities in the Bay Area. The shortcomings of each city can also serve as an example of what other cities should try to include in future urban agriculture policies, the policies available and those not existing are easily presented in the table for easy access to policies. Both San Francisco and Oakland can be used as models for other cities wishing to expand their urban agriculture policies, within the Bay Area and outside of it. Each city's goals differ so that other cities can adapt according to their own goals. If a city wishes to become a more sustainable community in terms of food production, they can look closer at San Francisco's policies whereas cities looking to be more involved with food justice issues can look at Oakland's policies in more detail.

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