

**Urban Agriculture and
Community Food Security in the United States:
Farming from the City Center to the Urban Fringe**

A Primer Prepared by the
Community Food Security Coalition's
North American Urban Agriculture Committee

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While we recognize that agriculture is more than just growing food, this primer focuses on the production, processing and distribution of locally grown edible agricultural products that will lead to an increase in food security and overall public health. It advocates for policies that support small and medium scale urban and peri-urban farming and prepares new generations of urban farming leaders. The task is to increase public understanding that urban agriculture is a major instrument against hunger and poverty.

The primer begins with an overview of the variety of forms that urban agriculture is taking in the United States, and the range of farmers found there. It also addresses some of the positive impacts – current and potential – of urban agriculture on community food security. It lists some of the challenges facing urban agriculture and suggests ways that these might be addressed. Also, it outlines key policy changes that can further expand the effectiveness of urban agriculture. The final section provides additional contacts and resources for those who are promoting sustainable and just urban food systems.

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Urban Agriculture and Community Food Security in the United States: Farming from the City Center to the Urban Fringe

Summary

“To grow your own food gives you a sort of power and it gives you dignity. You know exactly what you’re eating because you grew it. It’s good, it’s nourishing and you did this for yourself, your family and your community.”¹

In 1999, The Homeless Garden Project in Santa Cruz, California provided 12,250 hours of employment to homeless people; employed 43 homeless people in 13 positions; produced 55 shares of produce through its Community Supported Agriculture farm² (CSA) and operated a successful holiday store in downtown Santa Cruz through its Women’s Organic Flower Enterprise.³

Overlook Farm in Rutland, Massachusetts, a part of Heifer Project International, is a 270 acre working farm in an urban county which educates the public about world hunger, poverty, and their solutions through animal agriculture. The farm demonstrates sustainable farming practices such as intensive rotational grazing, organic gardening, wood-lot management and agro-forestry. Over 14,000 visitors come to Overlook Farm each year to participate in tours, work groups, educational programs, or to attend special events. More than 100 local volunteers and interns regularly assist at the farm. The farm is supported through program fees, special events and the sale of farm products.⁴

The Garden Project, as part of the larger mission of the Lansing, Michigan Foodbank, administers 18 community gardens in the Lansing area, by securing land and making arrangements for plowing, and rototilling. All gardener participants receive supplies including seeds, plants, canning supplies, and training, which enables them to grow and preserve their own fresh vegetables. More than 440 families receive supplies and technical assistance for growing their own gardens. The Garden Project also organizes crews of volunteers to harvest surplus fruits and vegetables from area farms. The produce is then distributed to food pantries, human service organizations, and to residents of low-income housing, particularly to senior citizens. Volunteer harvesting efforts provide more than 200,000 pounds of fresh fruits and vegetables each season.⁵

Across North America, town and city dwellers are gaining access to a variety of foods raised in several types of urban sites. Urban agriculture defined in simple terms is the growing, processing, and distribution of food and other products through intensive plant cultivation and animal husbandry in and around cities.⁶ It includes green belts around cities, farming at the city’s edge, vegetable plots in community gardens, and food production in thousands of vacant inner-city lots. Urban agriculture comprises fish farms, farm animals at public housing sites, municipal compost facilities, schoolyard greenhouses, restaurant-supported salad gardens, backyard orchards, rooftop gardens and beehives, window box gardens, and much more. The potential for food production in cities is great, and dozens of model projects are demonstrating successfully that urban agriculture is both necessary and viable.

Health and nutrition advocates are joining with community gardeners, university professionals, Cooperative Extension, emergency food providers, and faith communities in city-wide coalitions and food policy councils to maintain and expand urban food security. Community economic development organizers, city planners, and environmentalists concerned with urban waste reduction and recycling, see the potential of urban farming. A growing consumer demand for fresh, local, and often organic food in its turn creates new markets for urban food production. Many of these efforts specifically address the needs of urban residents who are living in poverty, and consequently experience poor nutrition, hunger, and anxiety about not having enough to eat.

This primer provides an introduction to urban agriculture with a special emphasis on its ability to combat food insecurity in United States cities. Through profiles and information, the reader will be able to gain access to the many resources available to expand urban agriculture in their area.

I. What is Urban Agriculture?

As of 2002, the population of the United States is 280,540,330 people.⁷ In less than 50 years, the U.S. Census Bureau projects that immigration will cause the population to increase from its present 280 million to more than 400 million. The foreign-born population is currently 33.1 million, equal to 11.5 percent of the U.S. population. Of this total, the Census Bureau estimates 8 to 9 million are illegal immigrants.⁸

Approximately 80% of the population lives in metropolitan areas. In its broadest sense, and with the exception of the Midwest, all agriculture is now considered to be urban or urban-influenced, meaning that it occurs in or near urban metropolitan counties.⁹ Urban agriculture defined in simple terms *is the growing, processing, and distribution of food and other products through intensive plant cultivation and animal husbandry in and around cities.*¹⁰

A definition which takes into account the use of resources is defined by the United Nations Development Programme as “an industry that produces, processes and markets food and fuel, largely in response to the daily demand of consumers within a town, city, or metropolis, on land and water dispersed throughout the urban and peri-urban area, applying intensive production methods, using and reusing natural resources and urban wastes, to yield a diversity of crops and livestock.”¹¹ Further, the Council on Agriculture, Science and Technology (CAST) takes into account all aspects of agriculture, its associated businesses, natural resources, and its influences on humans in this definition: “Urban agriculture is a complex system encompassing a spectrum of interests, from a traditional core of activities associated with the production, processing, marketing, distribution, and consumption, to a multiplicity of other benefits and services that are less widely acknowledged and documented. These include recreation and leisure; economic vitality and business entrepreneurship, individual health and well-being; community health and well-being; landscape beautification; and environmental restoration and remediation.”¹² Because the North American Urban Agriculture Committee is a committee within the Community Food Security Coalition,¹³ its primary purpose is to utilize urban agriculture as a means for the food insecure to gain access to fresh affordable, nutritious food. Thus, the simplest definition of urban agriculture is the one used when defining the programs of the committee, though many times its programs and its partnerships with other organizations are inclusive of the concerns addressed in the more complex definitions. Additionally, the focus of this primer is on the agriculture that occurs within city limits and less on the agriculture outside the city, except as it relates to the regional food system.

Sustainable urban agriculture is an essential tool that addresses a city’s problems in innovative ways. Environmental stewardship is enhanced through urban agriculture’s efforts to green cities. Purchasing food that is locally grown decreases energy needs and costs associated with long distance travel and refrigeration. Economic development and community revitalization are achieved when neighborhoods take pride in a community garden, when inner-city residents gain the ability to grow and market their own food, and when inner-city farmers’ markets provide new opportunities for entrepreneurs and commercial farmers. Individual health and a sense of empowerment is enhanced when urban dwellers have access to and greater control over their own food system. The city’s residents can benefit from cleaner air, lower summer temperatures and

recycled waste water and trash. Urban farming takes into account the real cost of food and the real benefits from a local and regional food system.

Food insecurity in U.S. towns and cities

Food security is all persons in a community having access to culturally acceptable, nutritionally adequate food through local, non-emergency sources at all times.¹⁴

As mentioned earlier, in the United States, 80 percent of the population lives in cities. This is in marked contrast to 100 years ago when 50 percent of Americans lived on farms or in small rural communities where they fed themselves with locally grown foods. More food is shipped from markets outside the U.S. than at anytime in history.

As the urban population has grown, so too has the complexity of how to feed people who are so far removed from the actual production of foods. The sheer tonnage of food that must be transported daily to supply a city's residents is stunning. Food products typically travel between 1,500 and 2,500 miles from farm to plate, as much as 25 percent farther than food products traveled in 1980.¹⁵ Fruits and vegetables shipped from distant states and countries can spend as many as seven to fourteen days in transit before arriving in the supermarket. Almost 50% of the food transported is lost to spoilage. Most fruit and vegetable varieties sold in supermarkets are chosen for their ability to withstand industrial harvesting equipment and extended travel, not for their taste or nutritional quality.

While many enjoy the advantages of an array of foods, there are significant social, economic, public health, and environmental costs to the food system. The environmental costs of large-scale, industrial agriculture include air pollution, surface and groundwater contamination, soil erosion, and the loss of bio-diversity. Contract farmers have less control over the inputs onto the farm, and the quality and type of produce sold from the farm. Rural communities have been destabilized and rural food security decreased as the economic benefits in these communities more often travels outside of rather than remains within the community.

One of the worst paradoxes in human history and one of the consequences of the economic structure of the current food system is hunger in the midst of plenty. An unacceptable number of Americans, including many children, do not get enough to eat on a daily basis. The percentage of people in poverty rose to 12.4 percent in 2002, up from 12.1 percent in 2001. Thirty-three million people - including 13 million children - live in households that experience hunger or the risk of hunger.¹⁶ Food insecurity in the U.S. is represented by people who frequently skip meals or eat too little, sometimes going without food for a whole day. They tend to have lower quality diets or must resort to seeking emergency food because they cannot afford the food they need.

In 2002, the U.S. Census Bureau released a report stating that more than 1.3 million Americans are living below the official poverty line. An increasing number of working Americans, known as the working poor, are experiencing food insecurity in greater numbers. Those needing emergency food in Massachusetts asked emergency food providers to remain open later in the day so that they could stop by and pick-up food on their way home from work.¹⁷ A 25-city survey by

the U.S. Conference of Mayors reported that requests for emergency food assistance increased an average of 19 percent as housing costs continued to rise faster than incomes and the national economy remained weak.¹⁸

Even when cash is available to low-income urban residents, food is not always accessible. Many supermarkets have closed or moved from the inner-city due to complex market forces related to the increasing impoverishment of their clientele and the deterioration and depopulation of once vibrant communities. Because many inner city residents do not own cars, transportation to suburban food stores is often difficult, requiring several bus changes or expensive taxi services. If one has small children, is disabled or elderly, food shopping can become a great hardship.

The quality and quantity of food are lacking in small neighborhood stores.¹⁹ A study of all food stores in three low-income zip codes in Detroit found that only 19 percent, or fewer than one in five stores, carried a minimal "healthy food basket" (products based on the food pyramid).²⁰ Merchants tend to leave perishable food on the shelf longer, compromising quality and safety, further limiting customers' choices for nutritious and affordable meals. Many inner-city grocery and convenience stores charge higher prices for even basic food items. People on limited incomes in cities are likely to pay more for their food than wealthier shoppers in higher income neighborhoods.

Food insecurity, whether related to actual food insufficiency, nutritional quality, or anxiety about a future lack of food, affects the quality of life of urban residents in far reaching ways. Inadequate nutrition is clearly associated with school and work absences, fatigue, and problems with concentration. Hunger and poor nutrition are linked to the increased incidence and virulence of infectious diseases, many of which - such as tuberculosis - are on the rise. Preschool and school-aged children who experience chronic hunger have higher levels of anxiety, depression, and behavior problems than children with no hunger.²¹ Furthermore, the lack of a nutritious diet is a well-known risk factor for diabetes, hypertension, and heart failure.

Food Security in the Context of Homeland Security

Since September of 2001, the term security in the U.S. will forever be linked with homeland security. Homeland security should include a safe, regional food supply that is less vulnerable to the uncertainties of economies and the choices of government leaders and individuals. Natural disasters such as floods, droughts, or hurricanes can also cause temporary and long term effects on the food supply.

To prepare for emergencies, every community should be able to produce or supply at least a third of the food required by its residents. At present, less than 5 percent is produced. Every community should have a local food system that connects producers, processors, distributors and eaters. This would demand a rethinking of agriculture, from industrial farming and large-scale production, to a multiplicity of small-scale farms, with vegetables and animals, and a revitalized and simple processing and marketing system.

The seeds of this new food system are already present. Farmers' markets where citizens have access to regional food are springing up across the country. There are at least 1000 CSAs (Community-Supported Agriculture) initiatives in the U.S. The Farm to School movement connects schools and colleges to local farmers and brings fresh food to student cafeterias. Urban agriculture - growing food in and around cities - is spreading. Consumers are using their food dollars to support organic production, better treatment of livestock, and buy local campaigns.

Robyn Van En, one of the pioneers of community-supported agriculture in the United States said, "Growing food is the common thread throughout the world because everybody eats. It connects everyone across party lines, ethnic and religious differences. It would be different if people did not have power over others to manipulate them with food."

A hungry world is a dangerous place. Only when food policies begin with the hopes - as well as the knowledge and skills - of the urban and rural poor of the world, true food security will be built and this will be a huge step toward national security and world peace. Peter Mann

II. Urban Agriculture Builds on the Resources of Cities

Urban agriculture can build on existing, but somewhat neglected or undeveloped, expertise and social relationships of the urban landscape itself. Many inner-city communities are rich in social and environmental capital even while they are poor in economic resources. Urban agriculture in the United States has always been enriched by the skills and technologies of immigrant populations, from Japanese market gardeners in California to Puerto Rican gardeners in New York. Often some of the most vulnerable people in cities, such as the elderly and refugees, have years of experience in, and knowledge about, raising and preserving food.

Many neighborhoods defy commonly held negative characterizations of urban life, exhibiting instead enduring bonds of reciprocity and trust that tide family, friends, church members, and whole communities over hard times. Local leaders are experienced in the complexities of church and neighborhood politics, and in the often frustrating relationships between low-income communities, social service agencies, and government. Such local leaders are frequently the first to recognize the potential contribution of urban agriculture to their community's food security.

Community health is the social and economic capacity of a community to create an environment that sustains the visions, goals and needs of its residents. The more food security and the better the physical and mental health of all the residents in a city, the less crime, health care costs, and city services are required in that community. Gardening has a role in increasing the health of a community. Philadelphia community gardeners listed recreation (21%), mental health (19%), physical health (17%), produce quality and nutrition (14%), spiritual reasons (10%), cost and convenience (7%), self-expression/self-fulfillment (7%) and other (5%) as reasons for community gardening.²² Green space creates a place for social gathering, creates a sense of community and has been found to reduce stress, anger and even blood pressure.²³ Gardening three to four times a week has the same health benefits as moderate walking or moderate bicycling.²⁴

Growing food in abandoned inner-city areas

As city populations spread into adjoining suburbs, inner-city buildings have been abandoned or demolished. For example, in the United States, Chicago has an estimated 70,000 vacant parcels of land; Philadelphia has 31,000; and Trenton has 900 acres or 18 percent of its total land.²⁵ Between 1950 and 1990, abandoned lots in inner-city areas remained vacant for 20 to 30 years. Failed businesses and homes were bulldozed, leaving relatively inexpensive lots without much economic potential. Urban agriculture is an alternative to vacant lots that immediately yield multiple benefits. The U.S. General Accounting Office identified 130,000 to 425,000 contaminated vacant industrial sites, or brownfields that could be safely converted to agricultural purposes when properly redeveloped.²⁶ City revitalization efforts which include urban agriculture have a regenerative effect when vacant lots are transformed from eyesores- weedy, trash-ridden, dangerous gathering places--into bountiful, beautiful and safe gardens that feed peoples' bodies and souls.

Agriculture as a neighbor, a land use, and a business has 'easy to get along with' characteristics compared to industry, commerce, transportation, and housing. It has an overall green surface. This may be contrasted with the macadam/bricks of shopping, and the concrete and windows of industry. Agriculture can be incorporated into an urban community as a green-belt or commons. In so far as it is fitted or designed into the landscape, agriculture can turn flood plains and steep slopes into economically viable production sites.²⁷

Farming other unused land

Cities have other sources of unused land that have been put into food production by advocates of urban agriculture. For instance, food gardens and orchards have been developed on land schools

and hospitals that once contained only landscaped plantings. Portions of city parks, utility right of ways, and roof tops have been converted to productive space for growing food.

Environmentalists and urban planners have been required to reduce a city's ecological footprint by reducing energy consumption and the urban heat island effect, lower the instance of water pollution through storm water mitigation, and biodiversity conservation. Green roofs, spaces of contained greenery located on the roof of a building, offer numerous economic, social, and environmental benefits. They can provide a place for food production. Rooftops typically comprise at least 30 percent of a city's total land area, thus creating a large area of production. Recent studies by the National Research Council of Canada have shown that if just 6 percent of Toronto's rooftops were greened (equivalent to just 1 percent of Toronto's land area), the city would reduce its greenhouse gas emissions by 2.18 tonnes per year. Food production on those rooftops would reduce the amount of transportation in and out of the city, further decreasing emissions and create \$5.5 million worth of locally produced fruits and vegetables. Earth Pledge, based in New York City, works to raise awareness of the environmental, social, and health benefits of sustainable agriculture.²⁸ They have launched a program aimed at greening the rooftops of New York City. Chicago, Seattle, Vancouver, and Toronto are four other cities with various types of rooftop gardens.

Reusing waste streams

Urban agriculture can use its own waste and the waste of residents and industries to produce food. Recyclable food waste can be used as compost for gardens and feed for livestock. While few yards and parks in cities use organic production practices, their waste products, mainly leaves and lawn clippings, can still be a source of compost that is turned back onto city recreation sites and flower gardens. By processing waste and grey water, the state of California saves 759,000 cubic meters of fresh water each day, with most of the treated effluent put into agricultural use through its 200 waste water reclamation plants.²⁹ Catching and reusing storm water run-off decreases the burden in wastewater treatment plants.

Regional food connections

The full potential of urban agriculture appears in its relationships to the surrounding region. Residents want local supplies of food to remain healthful, abundant, and accessible. This is far easier to do when suppliers, distributors and consumers have the opportunity for more direct local relationships, as with urban and peri-urban agricultural endeavors that provide farm fresh foods through CSAs, farmers' markets, restaurants, and farm to school and farm to institution cafeteria programs. The Maine Organic Farmers and Gardeners Association estimates that if every family in Maine spent \$10 dollars a week on local food, it would put \$104 million into the local economy.³⁰ Maintaining regional and local farm to consumer enterprises helps keep the entire industry accountable for the food system, increasing the likelihood that food is produced and consumed in sustainable ways.

Industrial food production and distribution systems, with its hidden subsidies for commodities, transportation, and energy, does not reflect the true cost of food as it affects the environment and

human health. As oversight of food production and processing decreases, public apprehension has increased in regard to a range of food safety problems - from e-coli contamination, bio-terrorism, and the unknown consequences of foods containing genetically modified organisms, to disruptions in the supply or distribution chain through man-made or natural disasters. When consumers purchase locally grown, food, they vote with their pocketbooks to support agricultural practices and labor relations that are more likely to be sustainable and just. Supporting a regional food system now is preparation for 'rainy day' events when relying that local food system may become a necessity. Farmland *and farmer* preservation for the production of meat, produce and value-added products is part of long term preparation for the rainy days that may come.

Opportunities for entrepreneurship

Urban agriculture can be an effective arena for the development of small businesses. Many inner city youth programs teach leadership and job skills through the production and sales of produce and value-added products. Many community gardeners combine their surplus and sell at farmers' markets or sell food directly to restaurants. Nuestras Raices, Inc., in the heart of one of the Northeast's poorest inner city neighborhoods (Holyoke, Massachusetts), started with one small community garden and within seven years started selling bedding plants through their greenhouse, increased community gardens to eight serving 100 families, selling bread through their community kitchen, and this year began a catering service and a small restaurant, all on the sites of once vacant lots.

Food from the 'Hood (FFTH) is the nation's first student managed natural food products company. FFTH was created on October 3, 1992 in response to the Los Angeles uprising. What started as a classroom project at Crenshaw High School campus has become a nationally acclaimed program. FFTH is an exceptionally unique non profit organization dedicated to the empowerment of today's youth through the development of real-world entrepreneurial training. The program combines work-based skills training, academic tutoring, life skills development and practical business experience by working with seasoned entrepreneurs. The students began to market their own line of salad dressing with help from local businesses. To date FFTH has awarded over \$140,000 in college scholarships to student-managers. Seventy seven program graduates have attended two-year or four-year colleges or technical schools.

Food from the Hood's Homepage:

<http://www.foodfromthehood.com/home-%20main.htm>

People are often surprised about how much can be produced on the small plots and acreages found in cities. The intensive methods of production can maximize the efficiency of small-scale operations, as well as providing much of the household's yearly vegetable needs and nutritional requirements.³¹ Urban commercial gardens utilize raised beds, soil amendments, and 'season extenders such as row covers and hoop houses to produce yields can be 13 times more per acre than rural farms.³² This potential is well illustrated by The Food Project in urban and suburban Boston.³³ Staff and volunteers annually raise more than 120,000 pounds of fresh vegetables on 21 acres and 12,000 pounds of food between two city vacant lots located less than two miles from downtown Boston. This produce is sold to shareholders in their CSA, at a farmers' market, and to guests in Boston shelters and soup kitchens.³⁴

“I have always been into gardening. I love the work. I also believe that he who controls your breadbasket controls your destiny...I think one of the things we overlook is that if we have a garden, or we have a farm, or we’re raising food, we need to go a little further and express that we’re not just raising food, we’re raising people. Everything starts with food...Life...Everything” Abu Tabib³⁵

III. The Potential for Growing Food in Cities and Metropolitan Areas

Urban agriculture is a significant economic activity, central to the lives of hundreds of millions of people throughout the world. There is ample evidence here and abroad, that the potential of urban agriculture for food security is real. Only now is the full potential being tapped. The United Nations Development Programme estimates that while 15 percent of food worldwide is grown in cities, the opportunity exists to significantly increase this percentage.³⁶

One example of a powerful shift toward urban agriculture worldwide, especially in response to economic crises, is found in Russia. Food production on large-scale rural farms fell by 40 percent when the Soviet Union disbanded, making the cost of food on the new, free market very expensive. Many Russians have since been allowed to use idle and provisional land in urban areas to create a new production and distribution system. The use of this land produces 30 percent of the total food grown in the country and 80 percent of the vegetables.³⁷ Between 1970 and 1990, the number of Moscow families engaged in food production increased from 20 to 65 percent.

Other examples support the premise that it is possible for urban areas to produce significant amounts of food. One-half of the vegetables consumed in Havana, Cuba are grown in the city’s farms and gardens.³⁸ Singapore has 10,000 urban farmers who produce 80% of the poultry and 25% of the vegetables consumed.³⁹ Currently, 14% of London’s⁴⁰ and 44% of Vancouver’s⁴¹ residents already grow some food in their gardens. It is estimated that Londoners could produce up to 232,000 tons of fruits and vegetables or 18 percent of the population’s nutritional needs.⁴² However, many U.S. urban areas are producing food far below their potential. Massachusetts, a state with 12 of 14 counties considered urban, currently produces 15 percent of its food needs, but has the potential to produce 35 percent, and this percentage does not take into consideration vacant lots or rooftops in urban areas.⁴³

U.S. counties defined as urban influenced (within metropolitan counties or adjacent counties) grow 79% of the fruit, 68% of the vegetables, and 52% of the dairy products produced in the U.S.⁴⁴ This takes into account all large commercial, industrial farm operations and does not distinguish between food that is consumed in the U.S. and food that is exported out of the country. Few dollars generated by this system remain in the town and regions where the food was produced. Some parts of the food system are owned by foreign interests, thus removing dollars even further from the source. Those who support the industry claim that the result is inexpensive food in grocery stores, but the reality is that the food industry actually contributes to the poverty of Americans.

IV. Who is Raising Food in Cities?

There are three broad categories of urban growers who contribute significantly to food security and raise the bulk of food involved in urban agriculture: commercial farmers, community gardeners, and backyard gardeners. In actual practice, these categories overlap. For example, community gardeners may sell or barter some of the produce or pool produce with others to sell at farmers' markets. The categories may not encompass the entire range of people involved in urban agriculture. For instance, food is also grown in therapeutic settings such as hospitals, senior centers, drug treatment facilities, and long term care facilities. In addition, food is raised by children in school programs that incorporate the gardens into the many facets of the curriculum and into school lunches.

Urban agriculturalists are as diverse as the population: men, women, ethnic groups, immigrants, seniors, and baby boomers looking for a new career. There are twice as many farmers over the age of 65 as under 35. Some are from farming families; they may be the next generation on an established farm or they may move to a new farm. Many new farmers are coming from non farm backgrounds. There are a growing number of new farmers who are younger than the average. The Growing New Farmers Project (a regional beginning farmer program - Maine to West Virginia), describes a beginning farmer as someone who has operated a farm for ten years or less. All are interested in a very wide range of farming enterprises, production techniques, and marketing strategies.⁴⁵

Farmers within and outside the city are responding to, among other trends, the growing desire of urbanites to buy fresh, nutritious produce, meat and dairy products grown close to their homes. They produce for the local market first, and secondly for the national market. Farmers tend to grow multiple crops, meats, and value-added products and sell to multiple markets. This spreads the farm's risk among different crops and markets. This works particularly well in areas with multiple ethnicities. Typically, for-profit urban farmers are practical, high energy individuals willing to take advantage of the significantly higher margin the farmer can receive for retail compared to the rural farmer who often sells wholesale. The successful farmers must have marketing savvy and find niches not served in the corporate food system. For example, Philadelphia, Mary Corboy is farming one block in an abandoned section of town for sale exclusively to inner city restaurants. Giant Supermarket in the Baltimore-Washington Metro Area buys from 50 selected producers within 125 miles of the White House, as does Whole Foods and hundreds of restaurants.

V. Types of Urban Farms

Commercial farms

The USDA defines small farms as those who generate less than \$250,000 in gross sales. By this broad definition, small farms make up 92 percent of New York's 32,000 farms and the majority of farms in New England. Others have divided metropolitan farms into three categories 1) recreational farms which sell less than \$10,000 annually, and consist of less than 100 acres; 2) adaptive farms which sell \$10,000 or more annually of high-value products and are 100 to 200 acres in size; and 3) traditional farms which sell greater than \$10,000 annually of high-value products and are greater than 200 acres. Recreational farms make up 18 percent of metropolitan

farms, adaptive farms, account for 14 percent, and traditional farms account for 33 percent of all metropolitan farms.⁴⁶ The problem with this definition is that it categorizes most of the farms in the Northeast as recreational. Worcester County, Massachusetts is second in the nation for direct farm sales and yet does not have a single farm that has greater than 100 acres. Many urban agricultural operations operate on fewer than 25 acres.

By selling direct market through farmstands and farmers' markets, urban farmers address some of the problems of inner city residents' access to food and increase the amount of the food dollar going into their own pocket, then spent in the region. According to the USDA, the number of farmers' markets has increased almost 50 percent since 1994.⁴⁷ Smaller markets, with one or two vendors, are set up in specific housing developments such as those in Pittsburgh, Penn. Some farmers have gone door to door with their produce in the back of their truck just like the neighborhood ice cream truck.

The newest type of farming enterprise, the CSA are moving into urban sites. Several CSAs have responded directly to food insecurity issues by making shares available to low-income households through grants, adopt-a-share programs and other subsidies. Along with produce, CSAs cooperate with many farmers and sell meat, cheese, eggs, bread and other value-added products.

Other urban markets were created with initiatives like the USDA's and the Community Food Security Coalition's farm-to-school programs that, with sufficient investment and national replication, could eventually meet the nutritional needs of school children. Similar farm-to-institution programs provide direct marketing opportunities for entrepreneurs to sell to hospitals, prisons, and businesses with many employees.

Some inner city agriculture projects require a subsidy, grant or non-profit status to be commercially viable - at least in their initial stages. Yet these same project have multiple social benefits in terms of job training and community outreach which stretches the outlay of initial capital. It is common, for example, to find an urban farming operation where inner city youth can gain job skills that they can later apply elsewhere.

Some of the issues urban farm enterprises face are unique compared to rural farm enterprises. Trying to maximize earned revenues while maintaining a strong social agenda presents significant challenges, since each objective alone demands energy, focus, and creativity. Food stamps are now dispersed with debit cards. This is problematic at a farmers' market with multiple, independent vendors even if they have a source of electricity. Customers who are eligible for the Woman, Infants, and Children (WIC) Farmers' Market Nutrition and Senior Farmers' Market Coupons do not always use them. Federal and state dollars for this program are decreasing. Not all residents have access to a farmers' market any more than they have access to a supermarket. Some markets have attempted to use shuttle services, but this is often expensive to maintain.

Many urban commercial farms are close to the suburbs. Farmers can develop relationships with suburbanites that will help them achieve their long term goals. Bringing suburbanites to the farm through pick-your-own operations, corn mazes, petting zoos, school tours, and farm stands can create strong community connections to the farm and land and support for farm preservation, farm

to school programs, and buy local campaigns. Many suburbanites live and work for the agencies and offices that growers need to make connections to. Often suburban CSA shareholders are willing to participate in adopt-a-share programs so that those with lesser means can have the benefits of local food.

Community gardens

Community gardens are large lots of land that have been divided into smaller plots for each household's use. These lots can be owned by a municipality, an institution, a community group, a land trust, or private ownership. Generally, each gardener keeps the production for him or herself, family and friends. Sometimes, community gardeners will grow food as a source of income. And sometimes, though more rarely, food is raised expressly to give away. This is the case with the community garden project, Field of Dreams, near Milwaukee. There, volunteers have raised more than 45 tons of food (or 305,000 vegetable helpings) for local food pantries and soup kitchens.⁴⁸

In 1997, the American Community Gardening Association estimated that there were more than 6,000 community gardens in thirty-eight U.S. cities, including gardens on otherwise vacant lots and on land in public housing projects.⁴⁹ Of these, more than 30 percent were started after 1991, reflecting the growing trend of interest in this model of community development.⁵⁰ Depending on the size of the lot, there may be only a few families involved in a community garden. This is the case with three families from Central America who garden in one of the pockets of community gardens associated in East Palo Alto, Calif. On the other hand, some community gardens are very large and involve many gardeners. For instance, some community garden on county owned land in Milwaukee accommodates more than 350 families, most of whom are low-income and a third of whom are Hmong immigrants from Southeast Asia.⁵¹

Most community gardeners expect only to supplement their food budgets. Nevertheless, food budget savings can be significant. For instance, in the Milwaukee example, above nearly half of the community gardeners said they saved between \$101 and \$300 with the food they raised in their garden plots. In Philadelphia, community gardeners reported an annual savings of \$700 dollars per family. Regardless of the amount of economic reward, community gardens provide access to significantly more vegetables (and often more nutritious ones) than many families would ordinarily get in their diets. In a study of 144 community gardeners with the Philadelphia Urban Gardening Project, researchers found that gardeners ate six out of 14 vegetable categories more frequently, and milk, citrus, and sweet foods and drinks less frequently than non gardeners.⁵²

Community gardens provide a gathering space for residents of housing complexes to meet each other. This has often lead to other forms community organizing and community greening. Informal community watches is often started as neighbors begin to know each other, are turning vacant lots into green space, and are out and about their neighborhood.

Backyard gardens

Urban backyard gardens are plots around homes, including balconies, decks, and rooftops. High

yields can be raised even in the simplest of containers. Backyard gardeners grow or raise produce, honey, small animals and fish. In the neighborhood of Pilsen, the primary entry point for Mexican immigrants into Chicago, six women associated with Heifer Project International maintain hydroponic aquasystems built from recycled materials in their apartments. These systems provide up to 80 pounds of protein per family per year.

As many as one quarter of the households in the United States have gardens. Most backyard gardens raise their own food to supplement their diets with seasonal harvests. Surplus food become preserved products and gifts for friends, neighbors and co-workers. Cultivating hard-to-grow crops is a frequent incentive to garden.

In much of North America, while subsistence is not the immediate goal of such gardeners, in many cases the harvest from the backyard garden has stretched the food budgets of low income families and their network of family and friends. There are indications that many more families would like to garden to stretch their food budget. In Omaha, two thirds of the participants in an inner-city extension nutrition education program reported that they ran out of groceries by the end of each month. Eighty percent of these respondents reported that they would like a garden where they could grow fresh produce.⁵³

VI. Challenges Facing Urban Agriculture and Responses to these Challenges

“Whether a community is faced with the challenge of cleaning up an abandoned lot in their neighborhood, fighting a local polluter or creating economic opportunities in their downtown area, community organizing is a means by which those affected by an issue are able to participate in the creation of solutions.”⁵⁴

In order to meet their commitment to food security, urban agriculture growers and their supporters have to respond creatively to a number of complex challenges. This section reviews some of the main challenges that urban agricultural activities encounter and provides some of the responses that have helped counter them.

Land tenure

Challenge: Many involved in urban agriculture do not own the land they use to grow food. Without title, or three to five year leases, they risk losing their investment when the land is taken for other purposes.

Responses

1. Some urban agriculture sites are maintained under usufruct arrangements. This means that growers have the legal right to use public or private land as long as they maintain it well.
2. Conservation easements are used to delineate environmentally vulnerable lands that then can be used for agriculture.
3. Land trusts successfully secure urban and per-urban land parcels for agricultural purposes.
4. Rooftops, roadsides, and institutional property rarely have other uses so could remain in agriculture for years.

5. Communities develop inventories of properties that lead to the inclusion of agriculture in subsequent plans for the land.
6. Many urban growers have been able to write medium-to-longer term leases allowing them to plan for the future.
7. Many forms of urban agriculture are mobile and/or require little investment, and thus are well suited to shorter-term or more uncertain leases.

Start-up costs

Challenge: Agriculture enterprises have start-up costs that can be an obstacle to people with limited income. Costs include: labor, site management, water, tools and equipment, rent and insurance, processing, packaging, and marketing materials.

Responses:

1. Tool banks offer gardeners the option of borrowing tools or renting them for a low fee.
2. Foundations and government “seed” grants provide much-needed funding for individuals and organizations.
3. Banks and government funded redevelopment plans have provided micro-credit to growers who are connected to nonprofit organizations.
4. Some farming businesses, nurseries, and seed companies donate their wares.
5. Community kitchens, offered by churches, schools, and community development corporations provide access for food preservation equipment and small-scale value-added production projects.
6. Crop or harvest loans, crop insurance, liability insurance, and equipment loans can assist the beginning urban farmer.
7. Community supported agriculture provides up front monies.
8. Community development block grants provide money for labor, site improvement, and equipment.
9. Centralized food processing facilities offer incubator space for new entrepreneurs.

Access to markets

Challenge: Growers often find it difficult to market their locally-grown foods to groceries, restaurants, and institutions because of wholesale distributors’ monopolies.

Responses:

1. Food buying clubs and cooperatives are popular ways that allow consumers to pool in their orders to take advantage of wholesale prices and preferences for local food producers.
2. “Buy-local” campaigns fostered by business councils, nonprofit, and government agencies create new farm to consumer connections.
3. Culinary trends such as the “slow food” movement are influencing consumer choices that favor foods prepared with care by locally-owned restaurants using locally-raised produce.
4. Universities and nonprofit organizations can provide data about consumer preferences, market niches, etc.
5. School boards and health agencies can work with farms and cooperatives to bring local food

into institutions.

Knowledge and skills

Challenge: Urban growers may lack the knowledge and skills in production, processing and marketing that would bring about successful yields and food security.

Responses:

1. A number of nonprofit urban agriculture projects offer public education and on-site demonstrations in addition to Master Gardening and Cooperative Extension programs where available.
2. Special training activities for urban agricultural leaders have focused on specific issues.
3. Local media have featured columns and programs that highlight information about agricultural production and small business practices.
4. School gardening programs at all levels - from preschool to university - have successfully provided training opportunities.

Seasonal limits

Challenge: In many climates, food production is seasonal and thus not as dependable as a year-round source of food security. Many urban residents have limited knowledge and access to facilities for preserving foods that they grow.

Responses:

1. Urban growers are innovators in the use of season extenders such as greenhouses, hoop houses, cold frames, the use of waste heat, etc.
2. Unused buildings and parts of buildings (e.g., basements) have been converted for indoor agriculture such as mushrooms, fish, seed sprouts, etc.
3. Community kitchens offer space for canning and other food preservation activities.
4. Urban agriculture educators teach how to preserve food, often featuring elderly community members with expertise in this area.

Health

Challenge: Urban farming, provided it produces, stores and distributes food in an ecologically sound and sustainable manner, can supply much more healthful food than is offered by industrial agriculture and supermarkets chains. Fresh produce, free-range poultry, and grass-fed lamb are a source of nutrition for urban consumers is a response to concerns regarding excessive use of antibiotics and treatment of animals in the dominant food system. However, there are particular health challenges connected to farming in the city. For example, urban soils can be contaminated with heavy metals such as lead. Certified organic farms must have 50 ft of land between a production area and a site of possible contamination.

Responses:

1. Raised beds with imported clean soil and compost have been successfully placed on top of questionable soils, enabling farmers to produce safe food.
2. Lead abatement initiatives have raised public awareness of the problem and removed polluted soils. In some cases, using mulch can reduce airborne exposure to questionable soils.
3. Low-cost soil testing and subsidies have enabled low-income gardeners to know their level of risk and seek appropriate solutions.
4. Phytoremediation (using plants to take up metals from soil) has great potential to assist with lead abatement. A number of experimental sites are in operation throughout the country.
5. Sheltered production methods have been used in urban agriculture to avoid contact with the soil and air by providing alternative production sites in contaminated areas (e.g., greenhouses, indoor production, hydroponic growing mediums, etc.).
6. Conservation programs that share the costs with farmers who use techniques that bring environmental benefits.
7. Campaigns against pesticide use led by public health professionals, government officials, and the public has led to phasing out the use of some pesticides.

Urban planning

Challenge: By incorporating that principles of low-impact development, smart growth, and sustainable urbanization, urban agriculture can contribute to maintaining open space and biodiversity within the urban fabric. A city that promotes urban agriculture can have green space that pays taxes rather than costing taxpayers money. Along with these benefits, there are other environmental concerns related to growing food in the cities.

Responses:

1. Support smart growth that steer development away from farmland.
2. Public awareness campaigns have increased the use of organic alternatives to conventional pesticides.
3. Growing public interest in food safety and ecology has promoted the use of appropriate technologies and approaches.
4. Communities can develop composting facilities to avert wastes from area landfills.
5. Rooftop gardens provide greenspace while reducing the cost of heating and cooling buildings.

Vandalism and crime

Challenge: Although the risk has not proved great, there continues to be concern with vandalism and crime in urban gardens.

Responses:

1. Incorporating youth programs with agricultural activities provides alternative activities, jobs, and leadership opportunities.
2. Urban growers have cultivated good relationships with neighbors and law enforcement, finding that the best protection for their crops is a “human fence.”

3. The presence of weekend and part-time urban gardeners can deter crime, providing “eyes on the street.”
4. Caution and common sense have proved to be invaluable resources, leading to such practices as fencing the urban garden, locking tools in a toolshed, cleaning up debris and other unsightly spaces in the garden, planting less popular crops closest to sidewalks, and choosing garden sites that offer greater protection for crops and growers.

VII Policy Changes to Support Urban Agriculture

“Annex Organics, in central Toronto breaks every rule of conventional farming. The cultivated area is minuscule compared to any country farm. The inputs required are almost as minimal. They have no refrigerator and no delivery truck. Yet here on an industrial rooftop, previously not considered worthy of anything, there’s a thriving business, run by youth without any major start-up costs or bank debts. And it can spread. On urban industrial rooftops all over North America there are jobs to be had - new, challenging, cutting-edge jobs that can pay a fair wage. In August, at harvest time, there is a sea of green...The bees are buzzing about, the tomatoes are rip and beautiful...That, to me, says it all.”⁵⁵

Policymaking takes place at many levels including foundation board rooms, city councils, state legislature, business networks, professional associations, and the federal government. However, agriculture is a low priority between many planners and politicians. Citizens who work on urban agriculture issues are often volunteers who may not have access to officials. Conflict between agriculture and other uses is difficult to resolve and policies often lack enforcement. Urban farmers have few tenure rights over land and water and can easily be pushed out by other land development.⁵⁶

The first step is a city-wide food assessment. As advocates seek to address a range of interconnected food system problems, many find that building partnerships and coordinating efforts is essential to developing effective and long-lasting solutions. They also find that gathering information about the conditions in the food system and publicizing that information is valuable, both to help inform their own work to create positive change, as well as to build broader awareness of and support for their efforts. For these and other reasons, advocates across the country have begun to conduct community food assessments. A food assessment builds on other kinds of assessments from the fields of community planning (asset mapping), social work (needs assessment), public health (nutrition assessment), environmental studies (environmental assessment), and international development (participatory rural assessment).⁵⁷

The second step is to form food policy councils. Food policy councils are emerging in cities and states to coordinate policy initiatives, research, education, and events that build community food security. Individually weak stakeholders such as markets gardeners, can work with anti-hunger advocates, civic organizations, health agencies, and youth advocates around common issues. This enables all groups to have input into plans that would increase food security. The suggestions below can serve as a guide for policymakers who seek to offer cities, especially their urban core, greater food security and the benefits of urban greening.^{57,58}

Coalitions, councils and organizations of cities can work together to accomplish the holistic needs of urban citizens:

Support infrastructures for increased urban food production, processing, and marketing

1. Support a significant community-based infrastructure for urban growers such as tool banks, agricultural businesses, shared processing facilities, farmers' markets, community supported agriculture ventures, funding streams, technical service providers, and Cooperative Extension professionals to urban sites.
2. Encourage farm-to-institution approaches for direct marketing of local products that offer healthy food choices to schools, hospitals, prisons, and businesses, while creating economic opportunities for urban growers and related industries.
3. Expand the WIC Farmer's Market Nutrition Program and the Senior Farmer's Market Nutrition Program so that all towns, cities, and states provide support for buying fresh produce at farmers' markets.
4. Link training and welfare-to-work programs for unemployed people to opportunities in urban food-related businesses as a source of living wage jobs.

Extend to urban growers appropriate farm-related services and opportunities

1. Government, banks, land-grant universities, and private businesses need to tailor their offerings so that urban and small acreage farmers have access to such benefits as start-up capital, credit, crop insurance, production and business advice, soil testing, markets, subsidies, tools, and inputs such as seeds and soil amendments.
2. Policymakers can work with representatives of community gardening and urban farming organizations, as well as food policy councils, to meet needs unique to urban farm enterprises.

Preserve farms on the urban fringe and support initiatives that convert idle and under-used urban lands into production areas

1. Encourage land tenure schemes such as land trusts, leases, eminent domain, and allied policy initiatives. Securing long-term commitment for community gardens, entrepreneurial farms, and other urban agriculture ventures is imperative to ensure the horticultural, social, and economic value of the endeavor.
2. Incorporate urban agriculture in city land use plans as a desirable civic activity that improves the quality of urban life, food security, neighborhood safety and environmental stewardship. Zoning ordinances need to enable rather than prohibit the development of appropriate agriculture in residential, industrial, business, and open space zones.
3. Amend building codes so that they reflect the actual structural contingencies of rooftop gardening.
4. Convert some public lands in parks, around municipal buildings, schools, public housing, and hospitals to food production with plantings of fruit trees, edible landscapes, and production areas.
5. Provide support and access to public waterways for raising fish in cities (aquaculture) as an inexpensive high-protein food.

6. Enhance municipal support for composting solid waste with door-to-door collection of organic material, on-site composting facilities in urban agriculture projects, public education programs, and advice.
7. Find ways to support alternative energy sources and production.

Promote and develop training in production

1. Organize a web of training activities in a variety of settings, including schools, college, health care facilities, and continuing education programs in order to improve the knowledge of current growers and motivate potential new growers.
2. Offer school-based programs that integrate nutrition and gardening in order to raise awareness about the connection between healthy food choices and locally-grown fresh produce.
3. Support the expansion and return of Cooperative Extension at local universities, especially in urban agriculture, food system specialists and nutritionists.

Sponsor and publicize research which integrates health, nutrition, food production, access and economics together to solve whole city issues

Fund research on such basic topics as

1. The most appropriate crops to grow in urban areas, especially crops of recent immigrants and ethnic groups.
2. Community-based leadership development for urban agriculture and community food security.
3. Urban soil remediation demonstrations; policies to expand urban agriculture within low-income communities and utilize the food-growing skills of immigrants and minorities.
4. Develop campaigns to utilize local and regional food; expand production and markets for ethnic foods.
5. The health benefits and health care savings from increased vegetable consumption by urban growers.
6. The environmental benefits and techniques of rooftop gardens.

Educate professionals so that urban agriculture is automatically considered a part of urban and regional planning⁵⁹

1. Sanitary engineering 'rules' regarding the reuse of wastewater.
2. Public health regulations concerning food handling.
3. Civil engineering guidelines regarding right of way.
4. City planning guidelines regarding street trees and land use.
5. Subdivision regulations regarding lot size, setbacks, etc.
6. Building codes regarding rooftops.
7. Park, recreation, forestry guidelines regarding design and use of public and institutional land.
8. Architecture and the design and maintenance of buildings and edible landscapes and rooftops.
9. Management of waste heat and bio-cooling.

10. Environmental engineering and the role of phyto- and bio-remediation and agricultural production.
11. Traffic engineers and the use of road verges and parking space.
12. Economists and the measurements of the costs and benefits of agriculture from the point of view of eco-economics in addition to commodity production.

VII. Realizing the Potential of Urban Agriculture

The challenges related to urban agriculture have prevented farmers and consumers from realizing its full potential in the United States. The policies and actions outlined above and the dedication of hundreds of people will help to promote urban agriculture as a powerful instrument for building community food security and increasing economic development in U.S. cities. Urban agriculture worldwide shows the best practices and policy changes that can be used in the United States, well as problems and difficulties to learn from.

Readers of this documents can being immediately to demand local farm products, help farmland conservation efforts and support legislation and public funding for land preservation or use of land for agricultural uses, even *or especially* if reader lives in urban areas.⁶⁰

VIII. Selected Resources

<p><i>Center for Popular Research, Education and Policy</i> Hank Herrera 11 North Goodman, Suite 23 Rochester, New York 14607 voice 585-473-4630 fax 585-271-0194 hank@c-prep.org Http://www.c-prep.org</p>	<p><i>American Community Gardening Association</i> Sally McCabe 100 20th St. N Philadelphia, PA 19103 215-922-1508 Http://www.communitygarden.org</p>
<p><i>National Gardening Association</i> T. Schulz 100 Flynn Avenue Burlington, VT Phone: 802-863-1308 http://www.garden.org/</p>	<p><i>The Urban Agriculture Network</i> Jac Smit 8209 Fenton Street, Suite 4 Silver Spring, MD 20910 301-495-9222 http://www.urbanagriculturenetwork.org</p>
<p><i>City Farmer</i> Mike Levenston 801-310 Homer Street Vancouver, BC V6B 2V3 http://www.cityfarmer.org</p>	<p><i>Community Food Security Coalition</i> Andy Fisher P.O. Box 209 Venice, CA 90294 310-822-5410 Email: cfsc@foodsecurity.org http://www.foodsecurity.org</p>

<p><i>Growing Power</i> Will Allen 5500 West Silver Spring Road Milwaukee, WI 53218 414-527-1546 Email: will@growingpower.org http://www.growingpower.org</p>	<p><i>National Agricultural Library</i> 10301 Baltimore Avenue, Beltsville, Maryland 20705 USA (301)504-5755 http://www.nal.usda.gov</p>
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The Humane Society of the United States 2100 L. Street, NW Washington, DC 20037 Phone: 202-452-1100 <http://www.hsus.org>

Websites

www.foodsecurity.org	Community Food Security Coalition
www.foodroutes.org	FoodRoutes Network
www.cityfarmer.org	City Farmer
www.idrc.ca/cfp	Cities Feeding People Program of the International Development Research Center
www.ruaf.org	Resource Center on Urban Agriculture and Forestry

www.communitygarden.org	American Community Gardening Association
www.growingformarket.com	Growing for Market
www.cipotato.org/siupa/urban_harvest_home_page.htm	Urban Harvest
www.iatp.org	Institute for Agriculture and Trade Policy
www.caff.org	Community Alliance with Family Farmers
www.foodandsociety.org	Food Society

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