Utilizing Urban Forests for Fruit Production

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Introduction

Urban forests provide many benefits to society – aesthetic beauty, protection from the elements, the ability to sequester carbon and reduce pollution, to name a few. However, one basic attribute of trees is often overlooked in urban settings – their ability to produce food. Within urban areas, trees have frequently been treated as architectural elements used to soften the human-built landscape. City trees that produce food—such as apples and other fruits—are usually located in public parks or on private lands occupied by schools, homes, and places of worship. Fruit produced from trees located on these properties is often wasted or unused. In this sense food is an afterthought – trees are planted for beautification and environmental purposes, but rarely for the purpose of food production.

This report seeks to showcase organizations around the U.S. that promote urban fruit tree production, inform readers of urban fruit tree possibilities and benefits, and develop a greater awareness among city dwellers about an existing, underutilized resource that our country's urban forests can provide.

Why Fruit Trees?

Growing fruit trees within urban areas takes advantage of vital resources while simultaneously providing social, environmental, and possible economic benefits. From a social perspective, growing fruit directly in communities where it is consumed provides residents with immediate access to healthy food and can improve food security in poor communities.[1] Additionally, people may gain a stronger sense of connection to the food they consume if they know how it was grown and where it came from.

From an environmental perspective, locally grown produce has the potential to reduce air and water pollution related to conventional food production and transportation.[2] According to the National Center for Appropriate Technology, the food industry accounts

[1, 2] Horrigan Leo, et al. 2002. "How Sustainable Agriculture Can Address the Environment and Human Health Harms of Industrial Agriculture." *Environmental Health Perspectives*. May 2002: 445-456. www.ehponline.org/members/2002/110p445-456horrigan/EHP110p445PDF.PDF

for approximately 10% of all fossil fuel use in the United States, around 80% of which goes toward processing, packaging, transporting, storing, and preparing food.[3] Within the current model, processed food can travel over 1,300 miles, and fresh produce can travel over 1,500 miles before being consumed.[4] By contrast, food grown in dense urban centers travels a much shorter distance to consumers. Furthermore, locally grown food usually does not require the same intensive amounts of processing and packaging as conventionally grown food. Additional reduction of agriculture-related air and water pollution (as well as reduced use of petroleum-based products) can be achieved if fruit within urban forests is grown organically - i.e., without synthetic fertilizers and pesticides.

From an economic perspective, the potential exists to grow fruit and sell it within a given city, thus effectively creating jobs and keeping the associated income within local communities where it's generated. Currently, a small number of organizations exist across the U.S. that promote the growing and harvesting of fruit from trees within cities to aid their underserved residents. These organizations tend to operate as non-profits, focusing on volunteer help and donations of food obtained from urban forests distributed to those in need. However, if their business models were implemented for profit, food produced from urban forests could potentially provide economic benefits to their respective communities as well.

U.S. Fruit Tree Organizations

Over the past decade a handful of organizations have sprouted up throughout the U.S. that focus on promoting the use of trees within urban forests for fruit production. A common goal of such organizations is to teach city dwellers about fruit trees and the benefits they provide. In order to achieve this goal, the organizations promote fruit tree harvesting, stewardship, and education. Each organization takes a slightly different approach, ranging from simply picking and distributing existing fruit, to educating the public about tree planting and maintenance through workshops and classes, planting new fruit tree orchards, and mapping existing fruit trees. These organizations are leading the way towards creating a strong relationship between urban forests and local food production.

Within the past few years, emerging digital mapping technologies and social media have also aided some of the organizations. Internet access, social media outlets, and smart phones have become more commonplace, allowing organizations to get in touch with their intended audiences at a much faster pace than in the past when they would have had to rely on conventional outlets such as T.V., postal mail and newspaper. A few fruit tree organizations have utilized digital mapping programs and social media in order to map existing fruit trees within urban forests, gain the input of local residents, raise awareness, and garner interest in their programs.

[3, 4] Hill, Holy. 2008. "Food Miles: Background and Marketing." NCAT. http://attra.ncat.org/attra-pub/foodmiles.html

The following table lists some of these organizations and summarizes their approaches.

Table 1. U.S. Fruit Tree Organizations

	Harvesting	**Education**	**Planting**	**Mapping**
Portland Fruit Tree Project Portland, OR http://portlandfruit.org/	Harvesting Parties, Group Harvests, Benefit Harvests	Food Preservation & Tree Care Workshops	Community Orchards	
Philadelphia Orchard Project Philadelphia, PA http://www.phillyorchards.org/			Orchard Planting	Philadelphia Orchard Map
Tree Folks Austin, TX http://www.treefolks.org/		Urban Forestry Workshops, Fruit & Nut Tree Growing Guide	Urban Orchard Project	
Earthworks Boston, MA http://www.earthworksboston.org/		Outdoor Classroom Program	Urban Orchards	
City Fruit Seattle, WA http://www.cityfruit.org/	Fruit Harvests	Fruit Tree Workshops & Classes, Fruit Tree Stewardship		Urban Orchard Mapping, Fruit Tree Mapping Tool
Village Harvest San Francisco, CA http://www.villageharvest.org/	Fruit Harvests	Fruit Tree Care, Harvesting & Preservation Education		
Fruits of the City Twin Cities, MN http://www.mnproject.org/food-FruitsOfTheCity.html	Fruit Gleaning	Fruit Tree Education Classes	Community Orchards (in planning & funding stages)	
Neighborhood Fruit Digital http://neighborhoodfruit.com/				Focused on mapping existing fruit trees within U.S. cities

Case Study: Fruits of the City

Within the Twin Cities of Minneapolis and St. Paul, a non-profit organization named the Minnesota Project seeks to "champion the sustainable production and equitable distribution of energy and food in communities across Minnesota."[5] The organization focuses on multiple issues, including agriculture and water resources, local food education, and renewable energy resources. One of their programs, Fruits of the City, aims to harvest fresh fruit from city trees that would otherwise go to waste and redistribute it to those in need. In order to accomplish this goal, the program focuses on fruit gleaning and public fruit tree education.

Source: Minnesota Project, http://www.mnproject.org/food-FruitGleaning.html

Gleaning is the act of gathering un-harvested, unused, and leftover fruit from trees.[6] According to the Minnesota Project, hundreds of existing fruit trees located throughout the Twin Cities produce excess food that their owners either don't pick or can't consume before it rots and goes to waste. In essence, a vital resource is under utilized. The Fruits of the City program uses existing, privately owned fruit trees to achieve its goals. Trees are "donated" to the program; that is, respective property owners offer their trees as candidates for the gleaning process. Then, trained volunteers complete the gleanings and donate the food to those in need.

In 2009, volunteers gleaned over 15,000 pounds of fruit, and twelve Twin City food banks received fruit from the program.[7] According to the Minnesota Project, "Food shelves are typically stocked with canned and packaged goods, and are delighted to be able to offer fresh fruit to their patrons."[8] Within cities, more often than not, low-income residents lack access to fresh, healthy, affordable food. By donating food harvested through Fruits of the City, the Minnesota Project is taking a step toward improving this situation during certain seasons.

In addition to gleaning, the Fruits of the City program focuses on fruit tree education. Fruit tree classes supply attendees with information regarding:

- Tree selection
- Planting techniques
- Maintenance procedures
- Tree longevity
- Best practices for optimizing fruit production

[5] http://www.mnproject.org/about-mission.html
[6, 8] http://www.mnproject.org/food-FruitGleaning.html
[7] http://www.mnproject.org/food-FruitsOfTheCity.html

The Fruits of the City education program informs current fruit tree owners while also inspiring others who are interested in planting food-producing trees.

Currently, Fruits of the City is in the planning and funding stages of creating a new community orchards program for the 2011 season. The program seeks to plant fruit tree orchards consisting of six to ten trees each on corporate campuses, school grounds, and unused/underused public land. According to Dave Glenn, Executive Director of the Minnesota Project, the orchard program has a goal of planting three to six community orchards in its first season.[9] A few corporations and one school have already shown interest in the program, and Fruits of the City is looking into the possibility of establishing orchards on properties owned by food shelves as well.

The fruit from these mini-orchards would be harvested by volunteers and given to food shelves, following the same model as the gleaning program. According to Heidi Coe, Fruits of the City Coordinator, the community orchard program will begin as a pilot program within the Twin Cities and, as it grows, can serve as the basis for similar programs throughout the country.[10] If the orchard program comes to fruition and proves successful, Fruits of the City could assist other major U.S. cities with community orchard training, start-up techniques, and management. By creating a strong base model and education materials, the community orchards program has the potential to increase the availability of fresh produce to underserved populations throughout the U.S.

The Role of Local City Governments

As previously mentioned the potential exists for generating economic benefits from harvesting and selling fruit produced within urban forests. Most of the existing fruit tree organizations with harvesting programs (Table 1) donate fruit within their respective communities. However, one organization, City Fruit in Seattle, Washington, has a harvest program that donates fruit to those in need while also selling fruit to local restaurants and markets. City Fruit sells some of its harvested produce in an effort to make its program financially sustainable and to help cover operating costs. The company still operates as a tax-exempt non-profit corporation. Yet this model presents opportunities for others to make a profit from selling fruit harvested within urban forests.

The City Fruit sales model could be further developed for for-profit companies, thus effectively creating local economic benefits through job creation related to urban forest fruit production within cities where it is produced and sold. However, it should be noted that a for-profit model would likely need to plant new fruit trees and orchards and could not rely on existing privately owned trees. Local city governments may need to provide support in situations where changes to zoning codes are needed in order for this model to work.

[9] Glenn, David. Telephone interview. 6 April 2011.
[10] Coe, Heidi. Telephone interview. 6 April 2011.

Zoning codes were written in many U.S. cities during the 1950s when there was a move to separate land use policies between urban and rural areas.[11] They were originally created as a tool to identify, control and manage activities on various land categories such as industrial, agricultural, and residential. As a result, agricultural practices are generally limited within dense urban areas. This remains one of the main roadblocks to growing and selling food of any kind within cities. However, recent changes to zoning codes that support urban agriculture have begun popping up around the country that will allow people to grow and sell food within cities – further encouraging the use of urban trees for fruit production. Cities that have recently passed, or are in the process of implementing, zoning code changes that favor urban agriculture include Kansas City, Seattle, San Francisco, Milwaukee, Madison, and Minneapolis.

An approach that combines existing privately owned fruit trees with newly planted ones on private property represents the most feasible route for producing fruit from urban forests. Another option would be to plant fruit trees on city-owned land including rights-of-way, parkways, and medians. However, these spaces can present difficult operational and technical challenges, including the costs required to plant and maintain trees, the costs required to pay an adequate hired work force, liability issues, and, in some cases, poor soil conditions. Additionally, street tree ordinances would need to be updated to include provisions specific to fruit tree best practices so that city employees know how to plant, maintain and harvest such trees. For these reasons it seems unlikely that city governments—at least in the near-term—will play a significant role in urban tree fruit production. Although it doesn't seem likely that fruit trees will begin appearing along city streets, public-private partnerships may play a significant role in aiding the growth and harvest of fruit trees within cities.

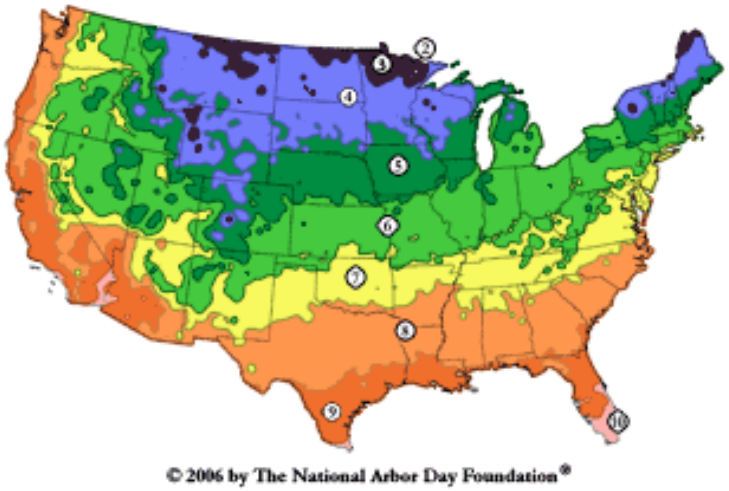
One city to keep an eye on regarding public-private partnerships is San Francisco. The San Francisco Department of Public Works (DPW) contains an Urban Gleaning Program that works with residents and businesses to collect and distribute food grown on trees to shelters, food banks, and those in need.[12] In this case, a public organization, the DPW, works with private citizens who own land containing fruit-bearing trees. The city itself is not planting new trees on public land, but instead relies on the donation of existing fruit trees from its residents. This model is similar to many of the non-profit fruit tree organizations mentioned earlier – except it involves city government directly. Since the city is directly involved in this model, it seems logical that the DPW could also glean fruit from trees located on public land, such as parks, for donation and/or mount an effort to plant fruit trees on such land. Other cities around the country could take note of what the San Francisco DPW is doing and implement similar programs to take advantage of existing urban forestry resources.

[11] Land Stewardship Project. 2010. "How U.S. Cities are Using Zoning to Support Urban Agriculture." http://www.landstewardshipproject.org/pdf/factsheets/21-Urban-Ag-Zoning.pdf
[12] "Urban Gleaning Program." San Francisco Department of Public Works. http://www.sfdpw.org/index.aspx?page=1112

What You Can Do

If you're lucky enough to live in a city that has an existing fruit tree organization, contact them for volunteer and education opportunities. Also, check into your city's stance on urban agriculture and any zoning codes or policies that promote the growth and sale of food within your city. If nothing exists, lobby your local city government for the changes you wish to see.

On an individual level, people who wish to plant fruit trees on their own property for personal use or for donation purposes should start by learning what plant hardiness zone they live in. The U.S. Department of Agriculture created the original Plant Hardiness Zone Map in 1960. Since then, the map has been updated multiple times as a result of climate change, the introduction of new plant forms, and in order to broaden the map's scope.[13] The current map, updated by the Arbor Day Foundation, presents 11 zones based on average minimum temperatures throughout Canada and the U.S. and serves as a tool that allows people to select plants appropriate for the climate in which they live.



U.S. Plant Hardiness Zone Map
Source: Arbor Day Foundation, http://www.arborday.org/treeinfo/zonelookup.cfm

The Arbor Day Foundation, a non-profit conservation and education organization, developed the most recent plant hardiness zone updates in 2006. The organization's website provides the public with an online resource called the Tree Wizard that enables users to enter their zip code into the Plant Hardiness Zone Map and view which trees are best suited for their climate.[14] The website also provides a list of common fruit trees that grow in the U.S., along with information pertaining to which zones they thrive in, how much sunlight they need, their size and how fast they grow.

[13] "USDA Plant Hardiness Zone Map." The United States National Arboretum. http://www.usna.usda.gov/Hardzone/hrdzon2.html
[14] "Best Tree Finder: Tree Wizard." The Arbor Day Foundation. http://www.arborday.org/shopping/trees/treewizard/Intro.cfm

The Bottom Line

Many privately owned trees within U.S. urban forests produce fruit that is typically overlooked as a vital resource. More often than not it goes to waste, falling from trees and rotting before it can be consumed. Urban residents can tap into the potential of this underutilized resource, donating fruit from their own trees, acting as volunteers, and helping their communities plan for fruit tree expansions within urban forests.

Over the past decade, a handful of non-profit organizations that promote fruit tree growth and harvest have begun to raise awareness of fruit production within urban forests. More recently, city governments have begun stepping in to promote fruit tree growth and harvest within urban forests, including a focus on policies that promote urban agriculture. While both models benefit urban residents, a focus on public-private partnerships could further enhance the continuation and growth of urban fruit production. The progression of fruit tree growth and harvest within cities can aid in urban food security and the reduction of negative environmental impacts associated with conventional fruit production. Our nation's urban forests already provide many positive societal and environmental benefits; generating fruit represents one more way in which they can contribute to society.

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