



Urban Agriculture Types & Precedents

UC Davis Landscape Architecture, Fall 2015, Prof. de la Peña



Types & Precedents

UC Davis Landscape Architecture, Fall 2015, Prof. de la Peña

Urban Agriculture is more than just community gardens and urban farms. It is a complex interplay of many elements and actors working within a dynamic urban food system. Our senior design studio endeavors to better understand urban agriculture through research, engagement and design. The first project shown in this document was an exploration of typologies and best examples of urban agriculture. This is not intended to be the final word or a comprehensive reference on the topic, but hopefully it expands our knowledge of the diversity of places and practices that make up urban agriculture.

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Community Gardens

Designing for Urban Agriculture

Projects Studied

Ballard P-Patch

Freeway Estate Community Garden

Seattle Youth Garden Works



Ballard P-Patch Garden, KGI(Kitchen Gardeners International), <http://kgi.org/ballard-p-patch-community-garden>

Ballard P-Patch

Ballard P-Patch:

Location: 8527 25th Ave NW, Seattle, WA 98117

The Seattle Department of Neighbors has the P-Patch program which has more than 60 gardens, with over 1,900 plots on 12 acres of land.

"P" stands for Picardo after the family name of farmers that started the first P-Patch community garden after donating their land to the trust.

Ballard P-Patch is one of the oldest community gardens in the P-Patch program with its beginnings in 1979.

There are 90 plots in which range from 100 square feet to 400 square feet. The plots are a minimum of 10' x 10'.

They harvest a total of 1200 pounds of fresh, organic produce for the Food Bank. The Giving Garden is for the Growing for a Giving program. They have been known to hold art festivals within the gardens.

There are raised beds known as the enabled gardens for accessibility and ease.



BEFORE, Freeway Estates Community Orchard, <http://freewayestates.org/>

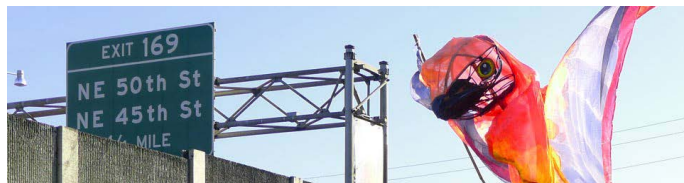


AFTER, Freeway Estates Community Orchard, <http://freewayestates.org/>

Freeway Estates Community Orchard:

Location: 6th Ave NE and NE 60th St, Seattle, WA 98115 United States

Nestled next to the I-5, Freeway Estates Community Orchard is 12,500 square feet. This is an ongoing project where the community and create urban agriculture within the city that is consistent with the Seattle Food Action Plan. This is publicly owned land and is owned by the Washington State Department of Transportation (WSDOT). In 2010, with the permission of WSDOT, volunteers purchased and planted fruit and nut trees. They continue to work on removing invasive plants. Most of the maintenance and all of the improvements are in the hands of our dedicated volunteers. There have been festivals hosted within the gardens.



Header Photo, Freeway Estates Community Orchard, <http://freewayestates.org/>



Seattle Youth Garden Works, Seattle Tilth, <http://www.seattletilth.org/isygw>

Seattle Youth Garden Works:

Location: 6th Ave NE and NE 60th St, Seattle, WA 98115 United States

Seattle Youth Garden Works empowers homeless and underserved youth through garden-based education and employment.

At Seattle Youth Garden Works, youth ages 16-21 gain a meaningful employment experience in urban agriculture. People from diverse backgrounds come together to grow food and market a diverse selection of vegetables. In the process they develop leadership skills and personal connections to the food system. Homeless and underserved youth participate in job training program emphasizing responsibility and growth. They grow, harvest and sell produce at farmers markets, participating in all aspects of the food system and gain a range of employment and life skills.

Crew members spend half their time on the farm doing farm work. The other half is spent on education. Student's curriculum includes everything from gardening and cooking skills to nutrition education, resume building, public speaking and small business training.



Seattle Youth Garden Works, Seattle Tilth, <http://www.seattletilth.org/isygw>



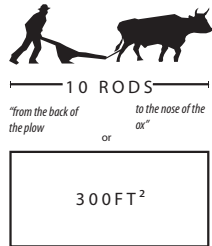
Seattle Youth Garden Works, Seattle Tilth, <http://www.seattletilth.org/isygw>



Seattle Youth Garden Works, Seattle Tilth, <http://www.seattletilth.org/isygw>

THE ALLOTMENT - CAN YOU DIG IT?

Typical Allotment Size



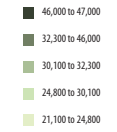
General Information and Logistics

In the United Kingdom, an allotment is an area of land leased by a private landlord or a local governmental authority for the purpose of growing produce.

Allotments are made available to tenant gardeners through an annual contract with a landlord, usually costing between £25 - £125, or \$35 - \$190.

Allotments are either deemed statutory, or temporary. Statutory means that the given allotment land is protected by law and can not be sold for development or any other purpose. Temporary means that the allotment land may be lawfully subject to change given the landowner's interests.

Allotment Distribution Throughout England



Key Features and Components

the Greenhouse

The miniature greenhouse enables a grower to extend the growing season for outdoor crops and to grow crops that are too tender to survive outside.

Polytunnels

Usually constructed from UVI polythene and a cheap frame, these devices work to trap solar radiation and insulate crops, regulating temperature, humidity and ventilation.

the Shed

The typical shed is 8' x 6' and is a shelter against the elements where a gardener keeps his or her tools.

Animals in the Garden

Under the 1950 Allotment Act, the keeping of hens and rabbits is permitted on allotments and viewed as an allotment holder's right. However, keeping of bees, pigs, goats and other livestock is subject to the landlord's permission.

the Compost Heap

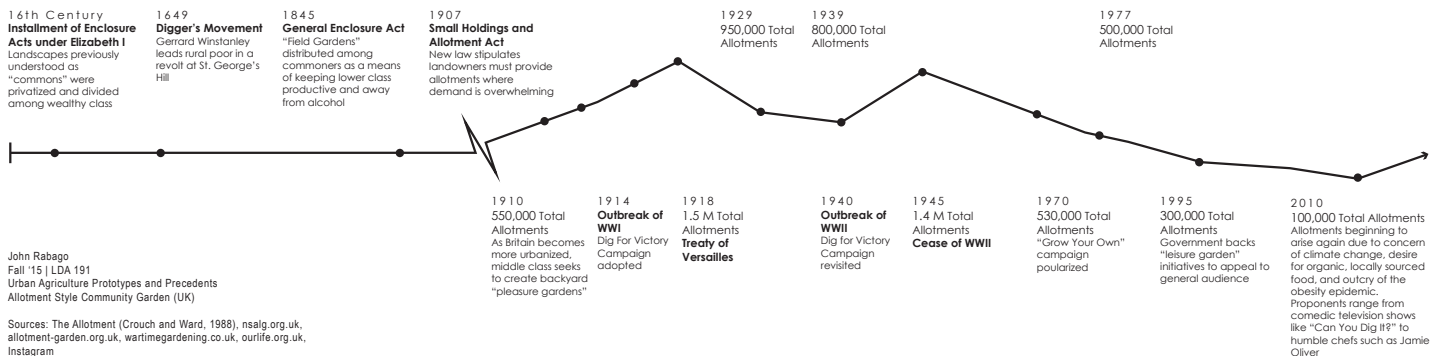
A key ingredient of organic farming, the process of composting simply requires a heap of organic matter and waiting for the materials to break down into humus after a period of time.

Benefits and Outcomes

- Ability to Source Food - Gardeners are knowledgeable of where their food comes from, and how it was grown.
- Recreation & Physical Activity - Gardening is rigorous and demanding labor, and easily burns calories.
- Relaxation & Therapy - Allowing time for personal thought and intrinsic reflection, gardening promotes a salubrious mind.
- Education/ Exposure - Working in the garden makes one mindful of natural organisms, systems, processes, and builds a strong vocational skillset.
- Promotion of Wildlife Habitat - The garden is home to many critters and creatures, providing a haven for biodiversity essential in the production of delicious food.
- Community Growth & Identity - Working alongside family, friends, and neighbors in a garden setting helps build trusting relationships.

Aesthetic and Appeal

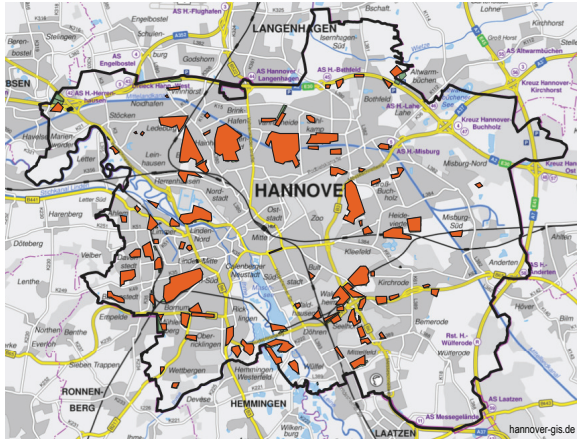
The allotment is described as a "horticultural slum", not so much designed, but strewn together by a multitude of upcycled and repurposed materials. The allotment provides a communal hub, a space not only for food production and gardening, but a destination for engagement, education, recreation, and relaxation. Described in Crouch and Ward's *The Allotment*, these spaces are "a collective undertaking, conceived through shared labour, and containing many idiosyncratic elements. The plot-holders thus create their own landscape."



THE ALLOTMENT - CAN YOU DIG IT?

FURTHER INSIGHT ON ALLOTMENTS THROUGH CASE STUDIES

City of Hannover Allotments Germany



Reasons for Implementation

- Desire for **recreational activity**
- Hopes of providing **quality spaces for children**
- Reconstruction needs** of post-war Germany

Results of Implementation

- Fresh and local **produce**
- Beautification** of surrounding city
- Network of enjoyable **green space** throughout city
- Enhancement of surrounding **ecological processes**

Germany's Urban Gardening Framework

Federal Union

(Bundesverband Deutscher Gartenfreunde)

Germany's Federal Allotment Garden Act of 1919 sets the main framework for the allotment system in the country, and garners strong nation-wide support

District Association

(Bezirksverband Hannover der Kleingärtner)

Caretakers of common spaces on allotment grounds

Local Government and Associations

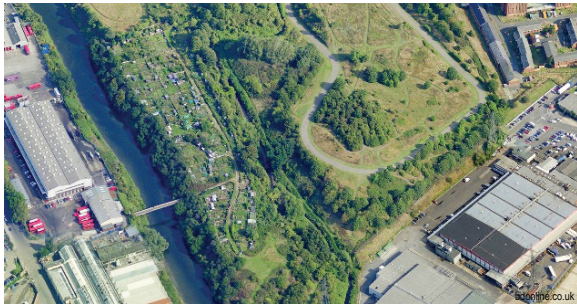
(Hanover Department of Environment and Urban Greenspace)

Represents member interests, trains experts to help with horticultural questions, and maintains common garden areas

The City of Gardens

Germany's greenest city, Hannover boasts a number of parks and gardens, viewing these spaces as community assets. More impressive, however, is its attitude towards the ubiquitous "Good Food" movement. With over 20,000 allotments spread in a circular form throughout the city (seen above), Hannover prides itself on its ability to supply its citizens with fresh, home grown produce. Comprising 5% of Hannover's total green space, these allotments not only provide food, but act as green infrastructure and public space.

Manor Garden Allotments London, United Kingdom



Reasons for Implementation

- Lack of fresh, **wholesome foods**
- Need for **recreational activity**
- Lack of communal **pride and identity**

Results of Implementation

- Fresh, locally sourced **food**
- Civic **engagement** and communal **pride**
- Improvement in **physical health and well-being**

Main Actors of the MGA

Major Arthur Villiers

Claimed that the land would be held "in perpetuity" by East-Enders before his passing

Manor Gardening Society

Caretakers of common spaces on allotment grounds
Issuer of tenancy contracts

Plot Holders of East-End London

For over 100 years, these tenants shared food and stories as an allotment community



The Mistreatment of East London

At the beginning of the 20th Century, philanthropist Major Arthur Villiers initiated the development of a small community garden in East London after noticing the lack of a sufficient supply of healthy food and recreational activity in the area. Eighty individual allotment style plots were installed, which were held by a tightly-knit community and passed down through generations of urban gardeners. Despite this historic significance, the 2007 Olympic Planning Committee and the London Development Agency unfortunately chose to demolish the prized allotments and relocate the gardeners to a different settlement in town. In place of the gardens now is the Queen Elizabeth Olympic Park.

John Rabago
Fall '15 | LDA 191
Urban Agriculture Prototypes and Precedents
Allotment Style Community Garden (UK)

Sources: hannover.de, young-germany.de, urbanallotments.eu,
londongardenstrust.org, cityfarmer.org, npr.org

URBAN FARM MARKET GARDEN

Small plots, at a scale larger than a home garden, which are cultivated with organic farming methods and its functions are associated with social and environmental goals, which harbor a huge potential to develop an alternative way to earn money.¹ It is the commercial production of fruit, vegetables and flowers that are then sold locally.



Figure 1. Neolithic garden showing the cultivation of the land
<https://i.pinimg.com/originals/2015/08/neolithic.jpg>

NEOLITHIC AGE

10000 BCE-3000 BCE

Agricultural Revolution

Women would farm by cultivating seeds around their home creating a new type of economy (trading/selling).³ Domestication of maize, beans, pigs, goats, cattle and sheep. Domestication of maize, beans, pigs, goats, cattle and sheep.

HISTORY

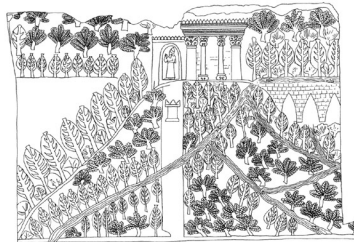


Figure 2. Garden at Nineveh, drawn from a fragment of relief sculpture of Assurbanipal now in the British Museum, showing the garden described by Senacherib. The corner of Senacherib's palace is just visible top left.
Author's drawing: © Stephanie Duller

ANCIENT AGE

3000 BCE- 476

Mesopotamia: Babylonians and Assyrians planted garden in cities and temples with fragrant trees and edible fruits to feed the kings.⁴ The rich looked down upon vegetables, they believed they were a meal for the poor.⁵

MEDIEVAL AGE

476- 1492

Influence of Arabic vegetable gardens where trade was important for the economy. Monasteries cultivated aromatic gardens as well as edible garden for their own consumption.⁶



Figure 3. Medieval Herb Garden
<http://www.medievalart.com/wp-content/uploads/2011/06/Medieval-herb-garden.jpg>



Figure 4. Modern Garden: Mount Vernon, George Washington
<http://www.dispatch.com/content/graphics/2012/10/02/1a-vernon-art-67c4f4e-11a-vernon-4.jpg.jpg>

MODERN AGE

1492- 1789

Development brought cultivation of agricultural plots outside the city and mostly in the homes of the wealthy merchants. Warmer climate brought an increase in harvest.



Figure 5. Contemporary Market Garden
<http://backtothebasics.ie/wp-content/gallery/market-garden-west-cork/market-garden-west-cork-04.png>

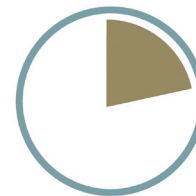
CONTEMPORARY AGE

1789- Present

There was a disconnection with nature in the city. With the increase of urban development the traditional market farms, which consisted of 10+ acres, became smaller (garden markets) to adapt to the growth of the city. In the early 19th century, families would cultivate in their garden to provide food and a source of salary. The houses in the US had fairly large gardens, which influenced many to cultivate in their garden. During the 20th and 21st centuries there was an increase of people farming in their own garden to alleviate their economic needs. Some had the idea to bring the essence of farming into the city.⁸ Market Gardens become an important part of urban agriculture.

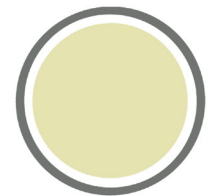
PROFIT

25%



Selling to wholesale market

100%



Selling direct to consumer

The market gardens can sell and trade their produce, which can include community trading, bartering and exchanging. They can sell their produce in farm stands, farmer's markets and local restaurants. The goal of a Garden Market is to operate gardening as a business and make profit locally. It demands monetary and time investment.²

YEAR LONG PRODUCTION

Different crops : Different Seasons

Spring

peach, spinach, radish, carrots and lettuce can be cultivated

Main season

Where crops like tomatoes, potatoes, corn, beans, cucumbers, onions, and summer squash grow

Fall

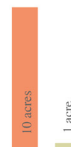
Spinach, carrots, winter squash, cabbage and rutabaga can be produced

INVOLVEMENT



- 2 Homes in poor countries practice market gardening. The size of the operation and the
- 3 crop market will determine the labor needed. Once the produce is ready for market, a community is necessary. The produce is usually sold locally.

PHYSICAL ATTRIBUTES



Market Gardens in the city are usually less than one acre in size due to zoning and policy legislation.⁸ They are small enough that most production can be done with shovel, rake, hoe and water hose. Market Garden's size can vary from 1-10 acres.

REQUIREMENTS

The first is to select an appropriate location that meets the legal, functional, landscape and accessibility requirements. Choose organic soil or compost, install a drip irrigation system, cultivate in less than a 5% slope

To promote energy saving, local food production and accessibility to food in underserved areas of cities. Advocates healthy eating at every income level, it shares prosperity and educates others about global issues of food. It can also help revitalize the neighborhood by attracting new development.

URBAN FARM/ MARKET GARDEN

Anne and Eric Nordell's Beech Grove Farm

Trout Run, Pennsylvania
(Rural setting north-central Pennsylvania)

Physical Attributes

6-acre market garden; each field divided into 12, half-acre plots 120 x 20 yards.⁹ Utilization of on-farm resources, a two person operation, and debt-free by minimizing costs. The Nordells have made a firm decision not to use irrigation. Instead, they seek to conserve existing soil moisture. This is largely done by minimizing the depth of tillage.¹⁰

Certified organic market garden

Since 1988, it distinguishes them at the farmers' market, allows them to sell to local stores, and helps educate growers and consumers. The Nordells only compost and apply manure generated by their own four horses.

History

Anne and Eric Nordell have been operating a self-contained, regenerative farming system and making a living doing it. They have been doing this for the past 30 years.



Photo by Steve Vanek, Northeast Organic Network (NEON)
Anne and Eric Nordell harvesting garlic
<http://www.neon.cornell.edu/focalfarms/photogal/bchgrove.html>

Year 1	spring	rye
	summer	bare fallow
	fall	oats and peas (winter kill)
Year 2	spring	early crops
	summer	clover
	fall	clover
Year 3	spring	clover
	summer	bare fallow
	fall	rye and vetch
Year 4	spring	rye and vetch
	summer	late crops
	fall	rye

Template shows the sequence of a 4 year rotation of the crops in the market Garden. Provided by: <http://www.newfarm.org/features/1204/nordell/>



Photo by Steve Vanek, Northeast Organic Network (NEON)
Eric Nordell and researcher Chuck Mohler.
<http://www.neon.cornell.edu/focalfarms/photogal/bchgrove.html>

Les Jardins de La Grelinette

Quebec, Canada
(Peri-urban setting) close to Montreal

Physical Attributes

10 acre property- 1.5 acres of raised beds
This is a cold climate and a zone 5 plant hardiness area. The family cultivates 1½ acres (including one greenhouse and two hoop houses). The farm also has a standard garden layout that contains smaller sized plots called 'field blocks' with uniformly sized raised beds.

Their sales method is a direct exchange between producers and consumers, CSA (community supported agriculture). They sell 40% of their products locally at the grocery store, restaurants, and a farmers' market.¹¹

History

10 years of establishment. Founded by Jean-Martin Fortier and his wife, they cultivate using bio-intensive growing methods. The farm grosses more than \$100 000 per acre, with operating margins of about 50%, enough to financially sustain the family.¹¹



Picture found: <http://lagrelinette.com/a-propos/visite-des-jardins/>



Picture found: <http://lagrelinette.com/a-propos/visite-des-jardins/>

SOURCES

- Morán, Alonso N., and Hernández A. Aja. Historia De Los Huertos Urbanos. De Los Huertos Para Pobres a Los Programas De Agricultura Urbana Ecológica (2011). Web.
- Bachmann, Janet. "Market Gardening: A Start Up Guide." ATTR: National Sustainable Agriculture Information Services (2009). Print.
- Zaragoza Lorén, Javier. Verde Que Te Quiero Verde: II Jornadas de Agricultura y Alimentación. Los Huertos Urbanos (2011). EUPLA/COITA Conference
- Dalley, Stephanie. "Ancient Mesopotamian Gardens and the Identification of the Hanging Gardens of Babylon Resolved." Garden History 21.1 (1993): 1. Web.
- "Ancient Roman Homes - Domus, Insulae, Villa - Crystalinks." Ancient Roman Homes - Domus, Insulae, Villa - Crystalinks. Rome Index. Web. 5 Oct. 2015
- "Ejercicio 1." Ejercicio 1. Web. 5 Oct. 2015. <<http://almis22.blogspot.com>>
- López, Montse. "Verduras Ecológicas Para Salir De La Crisis." LA VANGUARDIA. 12 July 2012. Web. 5 Oct. 2015. <<http://www.lavanguardia.com/local/20120713/54323669166/verduras-ecologicas-crisis.html>>.
- Morán, Alonso N., and Hernández A. Aja. Historia De Los Huertos Urbanos. De Los Huertos Para Pobres a Los Programas De Agricultura Urbana Ecológica (2011). Web.
- Holzhueter, Kyle. "A Truly Regenerative Agriculture." Rodale Institute. Web. 5 Oct. 2015. <<http://www.newfarm.org/features/1204/nordell/>>.
- "Horse-Powered Market Garden." Horse-Powered Market Garden. Web. 5 Oct. 2015. <https://www.ruralheritage.com/back_forty/market_garden.htm>.
- "Bienvenue Sur Le Site Des Jardins De La Grelinette." Les Jardins De La Grelinette À St-Armand, Québec. Web. 5 Oct. 2015. <<http://lagrelinette.com>>.

THE COMMUNITY ORCHARD

ALEX CROFT
LDA 191
FALL 2015

What is it?

This type of urban agriculture can be defined as a collection of perennial fruit and/or nut trees planted within a public space that is not managed for private profit but instead is cared for by some community of people. These types of gardens are most commonly planted in abandoned lots, schools, church yards, or public parks and function as a shared resource. Although these are not privately owned orchards, they don't belong to the general public but rather a particular "community" of people who invest their time, money, and labor in the orchard. Financial support often comes from required membership fees, grants, or donations from local businesses. The people involved tend to be a particular community whether it is the residents of a neighborhood, students at a school, or members of a church. The dimensions of a community orchard depend upon how much land is available, the type of trees, and the maintenance costs.

Why have a community orchard?

Different community orchards have different goals and missions varying from community empowerment to recreation and entertainment. Other reasons include:

- +access to healthy, organic produce
- +address issues associated with food deserts in underprivileged neighborhoods
- +educate young people where their food comes from
- +create a space for community gathering within a neighborhood
- +job training for folks who are interested in organic food production

A brief history

Dating back to the early 1990s, the community orchard movement began in England. Citizens concerned about a lack of greenspace, healthy eating, and the destruction of local history pushed to adopt neglected, privately owned orchards in danger of abandonment. Money was then raised by a group of interest to purchase or lease the orchard. In 1992, an arts/environmental charity-group known as Common Ground strived to promote "local distinctiveness" through the historical preservation of unique heirloom cultivars. In present day U.S., community orchards are not an attempt to preserve an existing orchard but rather serve other purposes such as education, access to food, nutrition, aesthetics, and sanctuary.



source: <http://www.hollywoodorchard.org>

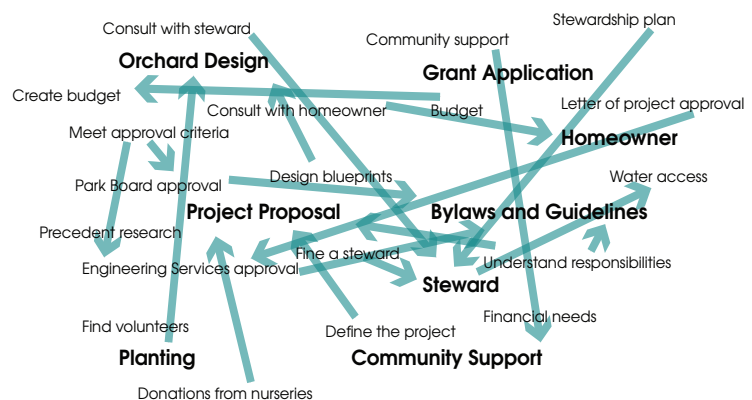


source: <http://www.darwin.nf.gov.au>

10 Steps to Starting a Community Orchard:

1. Develop a plan
2. Find a site
3. Get a contract/lease
4. Get money and materials
5. Find a source of volunteers
6. Design the orchard
7. Prepare and plant the orchard
8. Involve youth
9. Manage the orchard
10. Reassess the project

The complex relationship of factors and roles throughout the planning process:



PRECEDENTS

BROOKLYN CENTRE COMMUNITY ORCHARD

BACKGROUND

The Brooklyn Centre Community Orchard covers over 1/2 an acre of land overlooking the Cleveland Metroparks Zoo. Developed by the Brooklyn Centre Community Association, this site was once several abandoned parcels of land. As of 2009, the area is now being leased from the Norfolk Southern Railway after the community group pushed to eradicate the excessive garbage dumping, drug use, and other criminal activity that took place on the empty parcels. Run by volunteers and functioning on an honor system, the orchard is the home of apple, cherry, and peach trees.

REASONS FOR IMPLEMENTATION

Provide **fresh, healthy fruit** for a neighborhood known as a food desert

Reconnect people with the source of their food

Reclaim lost lands and traditions

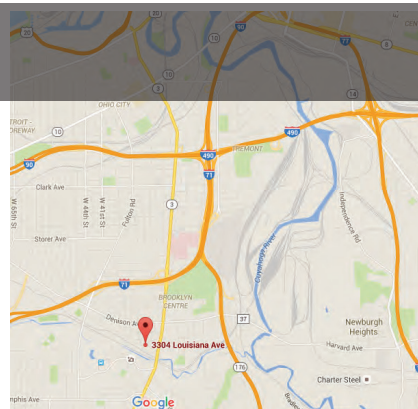
Improve the quality of life for fellow residents

FUNDING

A grant from Re-Imagining Cleveland



REIMAGINING CLEVELAND



source: <http://www.npi-cle.org>

SABIN COMMUNITY ORCHARD

BACKGROUND

The Sabin Community orchard was born in 2010 through a partnership between the Sabin Community Association and the Portland Fruit Tree Project. About 40 plants and 15 trees, including apples, figs, plums, persimmons, and Asian pears, are grown on this site between 18th and 19th avenues on a public right of way owned by Portland Bureau of Transportation. This site is one of several community orchards in Portland with the mission of providing access to affordable and nutritious food to low income neighborhoods

REASONS FOR IMPLEMENTATION

Increase **equitable access** to healthy food

Strengthen communities by empowering neighbors

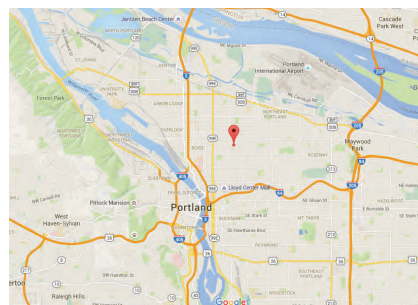
Provide **educational demonstrations** for both adults and children

Give opportunities for **community leadership**



FUNDING

Donations raised by the NPO, Portland Fruit Project



source: <http://www.portlandfruit.org>

Food Forest

BOYA YE
LDA191
FALL2015



History and People involved the Oldest landuse, the Widest practice

TROPICAL

The Amazon rainforest, rather than being a pristine wilderness, has been shaped by humans for at least 11,000 years through practices such as forest gardening and terra preta.

MEDITERANEAN

A botanical forest garden in the Sharon region in Israel harbours more than seven hundred and fifty species of trees from locations all over the world.

TEMPERATE

Robert Hart coined the term "forest gardening" during the 1980s. Hart began farming at Wenlock Edge in Shropshire with the intention of providing a healthy and therapeutic environment for himself and his brother Lacon.

WHAT IS FOOD FOREST?

"Rows of trees are not food forests. They are instead what is described as an orchard."

"Rows of trees with some other plant underneath are not food forests, they are orchards with under-plantings."

Originated in Prehistoric times, Food Forest is the art and science of putting plants together in woodlandlike patterns that forge mutually beneficial relationships. A food forest may not necessarily have all seven layers, but it does have multiple layers, and even more importantly, it is a virtually self-sustaining living ecosystem.

THE SEVEN LAYERS:

1. Canopy layer* consisting of the original mature fruit trees.
2. Low-tree layer* of smaller nut and fruit trees on dwarfing root stocks.
3. Shrub layer* of fruit bushes such as currants and berries.
4. Herbaceous layer* of perennial vegetables and herbs.
5. Rhizosphere* or 'underground' dimension of plants grown for their roots and tubers.
6. Ground cover layer* of edible plants that spread horizontally.
7. Vertical layer* of vines and climbers.

HOW TO MAKE A FOOD FOREST?

"A Food Forest is built to emulate a real forest — only we fill it with the food plants and trees that we want.

Real forests don't need any work, they self-maintain.

Less work, more food, all natural! Why would you do anything else?"

ANY SIZE: A small one can be a 30' by 50' embankment at your backyard. A big one can be as big as the Amazon Forest!

ANY LOCATION: It works in almost any climate. It has a long history of over 1,500 years in the tropics.

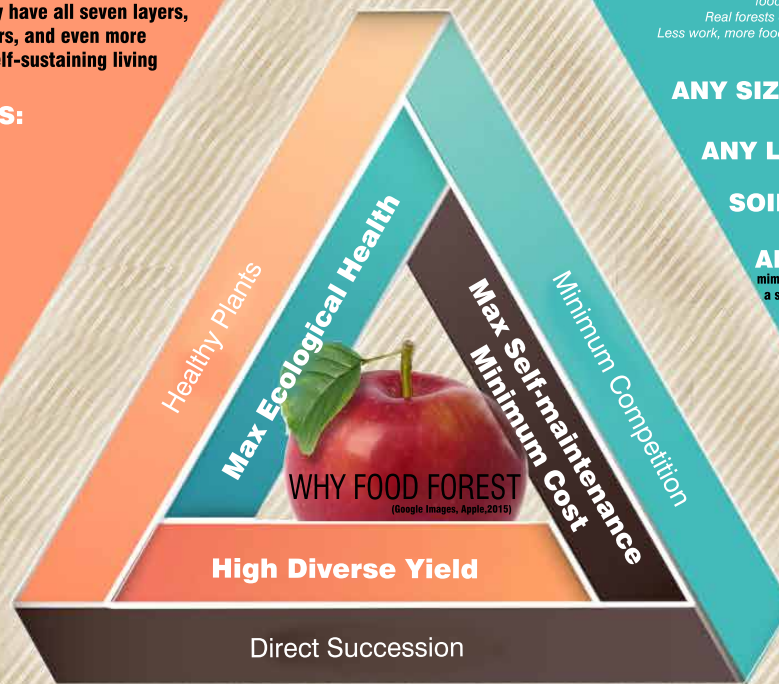
SOIL & WATER: Self-renewing soil fertility from the plants remains, and sustainable water demand

AESTHETICS: A three dimensional structure, mimics the structure and function of forest. Forestry garden in a shady site, higher yield under good sunny site. You will get the natural beauty.

LONGEVITY: By far the most resilient ecosystem. It works just as the nature towards disturbance..

FUNDING:

Due to its self-sustainability and high productivity, food forest can rely mainly on farm income-sales from produce and other products. Other sources can be State and local funds for local business, and local donation and fundraising events from the community.



DESIGN & MANAGEMENT

Architecture

Contrary to the prevailing wisdom on forest gardening, vegetation layers are only one of the architectural features important in forest garden design. Soil horizon structure, vegetation patterning, vegetation density, and community diversity are also critical. All five of these elements of community architecture influence yields, plant health, pest and disease dynamics, maintenance requirements, and overall community character.

Social Structure

Select plants and animals that will create a food web and guild structure in design. For example, the vast majority of solar energy captured by natural forest food webs ends up going to rot. We can capture some of this energy for our own use by growing edible and medicinal mushrooms, in shady conditions. Design resource-partitioning guilds by including plants with different light tolerances. We can build mutual-support guilds by ensuring that pollinators and insect predators have nectar sources throughout the growing season.

Underground Economy

In Nature, when plants die off, they stay in place. Don't uproot annuals that have finished, cut the stem at soil level. The roots rot away to create thousands of intricate air and water channels in the soil. The tops of the chopped plants create a natural sheet compost system like the forest floor.

Preserve your soil, build paths. Stepping in your garden beds compacts the soil, closing all the air and water channels, making it harder for water and air to reach plant roots, which impairs the growth of plants.

Succession

Plant succession is nonlinear and occurs patch by patch within the ecosystem. Disturbances of various kinds are a natural part of every successional process—windstorms, fires, insect attacks, and human intervention. Most of our developed tree crops are species adapted to such midsuccession environments. Highest yielding forest gardens are therefore most likely to contain, not the dense tree canopies of late succession forests, but lush mixtures of trees, shrubs, vines, and herbs all occupying the same space in patches of varying density and character.

Citation:

Crawford, Martin 2010. Creating a Forest Garden: Working with Nature to Grow Edible Crops. Totnes: Green Books.
Douglas, J. Sholto and Hart, Robert A. de J. 1985. Forest Farming. Intermediate Technology.
Hart, Robert A. de J. (1996a). Forest Gardening: Cultivating an Edible Landscape. White River Junction, VT: Chelsea Green.
Hart, Robert A. de J. 1996b. Beyond the Forest Garden. Gale Books.
Whitefield, P. 2002. How to Make a Forest Garden. Hampshire: Permanent Publications.
<http://permaculturenews.org/2011/10/21/why-food-forests/>
"Unnatural Histories - Amazon". BBC Four.
https://en.wikipedia.org/wiki/Forest_gardening



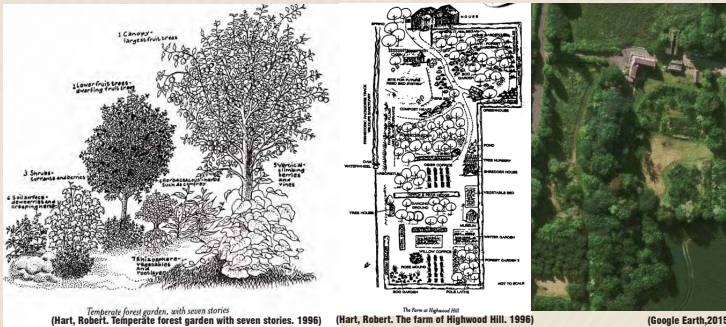
(Indigoigo, Food Forest Layers, 2015)

Food Forest

"It came to me that, if one could devise an integrated system of land use consisting mainly of perennial plants-fruit and nut trees and bushes together with perennial vegetables and herbs-as well we a diet based on this mix, the task of achieving self-sufficiency would be vastly simplified. This is how I discovered agroforestry"

-Robert Hart, Forest Gardening

THE WENLOCK EDGE



Hart, Robert A. de J. (1996a). Forest Gardening: Cultivating an Edible Landscape. White River Junction, VT: Chelsea Green.
Hart, Robert A. de J. 1996b. Beyond the Forest Garden. Gaia Books.

LOCATION: Wenlock Edge, Shropshire, Britain

FOUNDER: Robert Hart

CONTEXT: Stretch up to the edge of the woods that clothe the top of Wenlock Edge, the farm was originally carved out of the open fields of the medieval village community. The communal lands were equitably laid out to enable each of the villagers to have his share of the different types of land that the parish comprised: grain fields, upland, pastures, and lowland meadows

PHYSICAL ATTRIBUTE: The model forest garden is one-eighth of an acre. It consists of a main Forest Garden-literally the centerpiece, The Ante Forest Garden-contains plants requiring full sunlight and acid soil, The Home garden, Where it all begins, The Patio Garden, The Wildlife Sanctuary, Osier Coppice, The Arboretum, The Circle-Dancing Area, The Winter Garden, and The Bog Garden.

EXPERIMENTS: 1 Use of Perennial herb with deep roots tapping the minerals in the subsoil. 2 Design a system of organic irrigation.



(Robert Hart pictured in his forest garden, July 1997)

THE BEACON FOOD FOREST



(Beacon Food Forest. The 7 acre full site plan. 2015)

Beacon Food Forest, <http://www.beaconfoodforest.org/project.html> 2015

LOCATION: Seattle, Washington, U.S.A

15th Ave S. and S. Dakota St. Seattle WA to the west of Jefferson Park, Shropshire, Britain

ORGANIZATION INVOLVED:

the Beacon Food Forest -Beacon Food Forest Steering Committee
Seattle Dept. of Neighborhoods
Beacon Hill community

CONTEXT: This is public utility rate payer land and houses a city water reservoir. The BFF is adjacent to, but not within Jefferson Park which is maintained by Seattle Parks and Recreation Department (Parks). The Beacon Hill neighborhood community is very diverse, where local public elementary school translates its newsletter into 50 languages.

HISTORY: The Beacon Food Forest (BFF) started in 2009 as a result of a permaculture design course final project.

PHYSICAL ATTRIBUTE: 7 acres of public lands

The BFF site is west facing sloped land on top of Beacon Hill. Extensive sediment and soil tests on the soil were made. The site is centrally located and visible in the community surrounded by a public park, business district, public middle school, high school, community center, day care centers, veterans hospital and within the Urban Village zone on Beacon Hill.

"Finding allies is essential to creating a large scale urban agriculture project."

-BBF



(Community Work, 2015)

THE PICASSO FOOD FOREST



(FRANCESCA RIOLO. The Picasso Food Forest. 2015)

(FRANCESCA RIOLO. The Shrub Layer. 2015)

LOCATION: Parma, Italy

ORGANIZATION: Fruttorti di Parma

CONTEXT: The Picasso Food Forest is the first experimental site of a public urban food forest in Parma, and maybe in Italy. Started in December 2012, the project aims to create a public food forest whose fruits will be available to the inhabitants of Parma. A "public park", to use more common terms, in which trees and plants do not only provide aesthetic functions, shade and oxygen but will also provide food for the people living in the urban context and wildlife habitat.

PHYSICAL ATTRIBUTE: The site covers an area of about 4500 m2 and has the shape of two rectangles oriented in the form of a L. The area is essentially flat and it's located at sea level. The Picasso Food Forest is located in a hardiness zone 8, characterized by hot summers and cold and rainy winters. It is experiencing often unusual droughts or rainy periods at different times of the year.

PUTTING IT IN URBAN: Located at the edge between the urban sprawl and the area once dedicated to agricultural use, and it is characterized by a soil typical of the lands of the Po River Plain. As the urban context doesn't allow the introduction of tall trees for nitrogen fixation, smaller shrubs are being introduced in the Picasso Food Forest such as sea buckthorn, gumi and Siberian Pea tree that also provide edible fruits and seeds. These perennial plants are then complemented by annual beans such as broad beans, chickpeas, peas and running beans that seem to do well when seeded around trees with not much soil preparation or follow up care. At the moment the Picasso Food Forest hosts over 140 different plant species and varieties.



(Site Context, 2015)

RIOLO, <http://permaculturenews.org/2015/02/09/picasso-food-forest/>, 2015

Pollinator Garden

Brief History

At the end of the twentieth century, many researchers were concerned about the pollinator population and the services they provide in the United States. One third of every bite of food we take is thanks to pollinators, which include bees, wasps, butterflies, beetles, hummingbirds, and bats. These insects and animals are responsible for global biodiversity and the food supply across the country. Without these creatures we would live in a world with less fruits, vegetables and nuts. Although their job is simple and occasionally happens unintentionally, human activity has drastically altered the amount of pollination that occurs every year. With research and data scientists have gathered, they have pinpointed some causes of pollinator declines: habitat loss, agricultural and grazing practices, pesticides, and introduced species. Earlier this year, the Obama Administration released a national strategy to conserve and protect pollinators. The strategy aims to protect pollinators by having federal agencies study the use of pesticides and land-use practices that can harm pollinator populations. It is also encouraged that there be more pollinator gardens in federal offices across the country. The problem is severe and it must be addressed to stabilize the food security of the country, avoid economic disparity in agriculture, and to protect the environment.



Ruby throated hummingbird



Mexican long-nosed bat



Bumble bee

Benefits

A pollinator garden is a source of pollen and nectar for pollinators during the growing season. By harvesting a garden that targets pollinators in urban settings, people may learn to understand the link between human and pollinators. Similarly, this encourages others to help the health of bees, butterflies, birds, and bats. Creating a space for them enhances the chance of increase in their population and among other plants across the country. Moreover, we can ensure that we will have fruits, vegetables, nuts, chocolate, and coffee, if people make an effort to keep our pollinators healthy and safe. Without pollinators, these food sources will not be produced. Pollinators also play a crucial role in the economy of the United States, contributing about 24 million dollars to the economy. Although the relationship between pollinators and humans is sometimes overlooked, it is a vital relationship for the well-being of the environment, the economy of the country and pollinator dependent food that is grown every day.

What You Can Do

Financial Support

Anyone can help when it comes to building a pollinator garden from individuals, schools and businesses. Gardens come in different sizes and some might need more financial support to keep the garden flourishing. There are multiple ways to obtain the money to pay for the garden. People can fundraise, apply for grants, and/or ask for donations. Depending on the size of the garden, people can get financial help from federal agencies and/or non-profit organizations. Some financial assistance programs provide funding for State, local and private organizations that intend to conserve species and protect habitats. However, this should not discourage people from creating small gardens that they can afford. Everything helps.

Sources
<http://www.fws.gov/pollinators/>
<http://www.kidsgardening.org/node/11941>
<http://www.esa.org/ecoservices/poll/body/poll.scie.decl.html>
<http://www.whitehouse.gov/the-press-office/2014/06/20/fact-sheet-economic-challenge-posed-declining-pollinator-populations>

Longevity

Pollinator gardens can last many years with the right maintenance and flower palette. Choosing the appropriate flowers can extend the garden's lifespan. Having a diverse plant selection will allow different pollinators to collect pollen during their respective season and life cycle. Plant native flowers when possible to accommodate native species. They have coevolved and benefit from each other and sometimes are solely dependent.

Size and Location

Select a sunny area with little to no strong winds. Water accessibility is important during the first weeks until the plants establish. Having access to water is important, but there should also be a water source available.

To accommodate the species' nesting needs, provide areas for ground and wood nesting. As for size, pick a right size that is manageable for you. Some may decide to plant on their window, planters, front or backyard, roadsides, and even acres of meadows; however, anything and everything helps.

Design Elements & Aesthetics

One element is the plant selection you will be using for the garden. As mentioned before, using native plants is always better. Plant flowers that differ in shape and color in clusters to attract pollinators. Avoid choosing hybrid flowers. Depending where and who will be using the garden, the design elements and aesthetics will differ from garden to garden. For example, for educational purposes one might

think of pathways and sitting areas, but also consider the needs of the pollinators. This garden may be formal but others might look informal with a more natural, untouched look.

Soil & Water

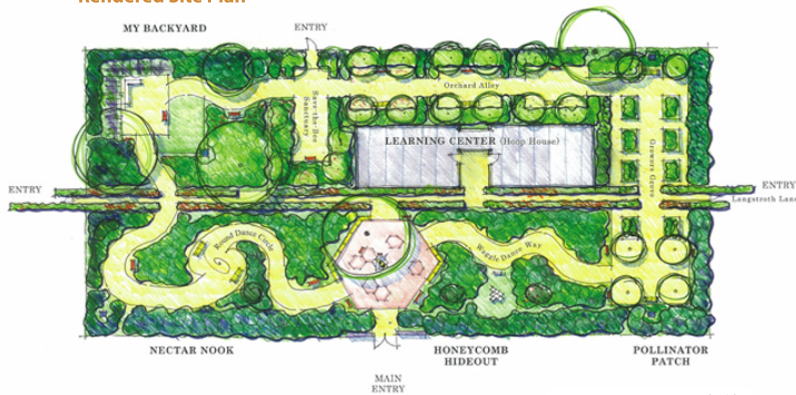
The best soil is the native soil found in the site. However, if soil has to be purchased, choose medium to dry and partial to full sun soils. These soils are well-drained sandy-loam, loam, and clay-loam. Water is required from some pollinators, like butterflies. Providing some sort of pool can benefit many pollinators. For example, mud puddles can provide material so wasps and bees can build their homes, and are a mineral source for pollinators. Although the garden will need a substantial amount of water, it needs to be kept well-drained so it won't inundate.

Pollinator Garden

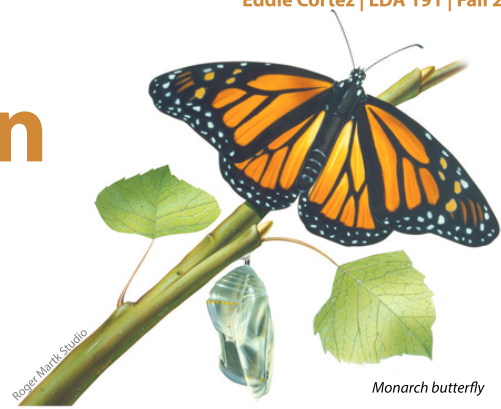
The Häagen-Dazs Honey Bee Haven

This garden was planted thanks to a donation from Häagen-Dazs during fall 2009. The goal is to provide nourishment to bees and raise awareness of Colony Collapse Disorder (CCD). Learning that pollination was an important component for their ice cream ingredients and the decline of pollinators, Häagen-Dazs wanted to support researchers to learn more about bee populations. The UC Davis Department of Entomology and the California Center for Urban Horticulture came together to bring Häagen-Dazs' vision come true. The garden was originally designed by a group of landscape architects from Sausalito after winning a competition. However, the design was altered by two Landscape Architecture students from UC Davis, but kept the concept of bee biology. The artwork in the garden was made by UC Davis students, residents and local schools. The Haven is run by volunteers and funded by donations.

Rendered Site Plan



University of California, Davis



Monarch butterfly



American Public Garden Association



MK Accounting, LLC

Pollinators' Garden at the Arboretum at Penn State

The Penn State Arboretum resides adjacent to the University Park campus and stretches 35 acres. The Arboretum was funded by Charles H. "Skip" Smith when he donated \$10 million dollars. The Pollinators' Garden features many native species, which also serves as research by Penn State Center for Pollinator Research. Some of Pennsylvania's native plants include, blue mist flower, New England aster, and mountain mist. Although the garden has been a successful, the Arboretum Staff and the Center for Pollinator Research are partnering to work with MTR Associates to expand the garden to three times its size. Since the existing plant selection is limited, the goal is to incorporate more native flowers to attract all the native pollinators from the area. The garden's expansion will include native biodiversity, a demonstration garden, illustrations showing the relationship between pollinators and plants, a garden featuring the economic value of pollinators, and space for undergraduate students to perform research. Funding will help develop the future of the Pollinators' Garden.



Pennsylvania State University



Nick Sloff

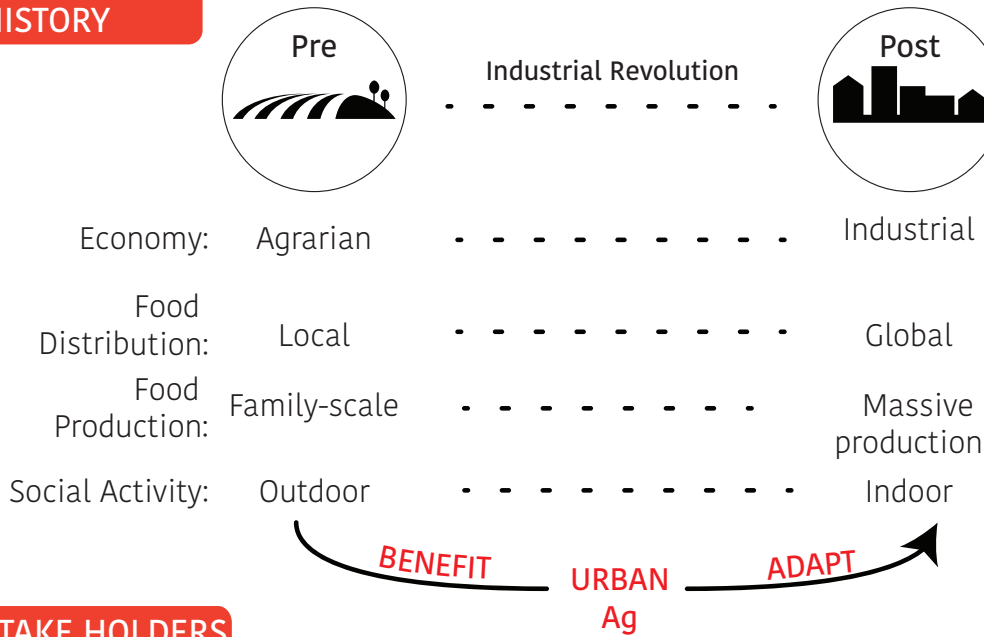


Pennsylvania State University

Sources
<http://hbggarden.ucdavis.edu/welcome>
<http://arboretum.psu.edu/gardens/gardens/grow/>
<http://arboretum.psu.edu/gardens/the-future/future-gardens/>
<https://localwiki.org/davis/Pollinator%20Garden>
<http://ento.psu.edu/pollinators/public-outreach/centre-county-pollinator-garden-network>

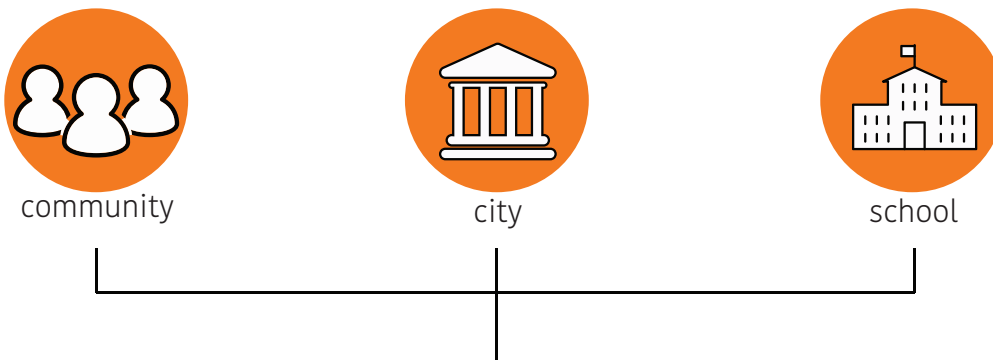
DEMONSTRATION GARDEN

BACKGROUND HISTORY



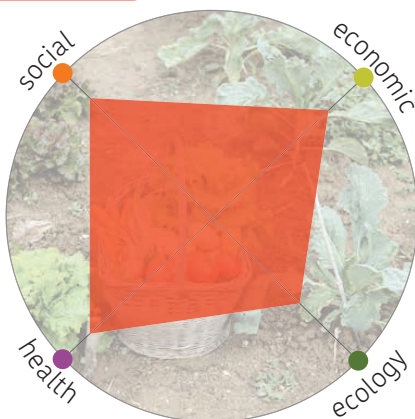
As a tool of education, research and promotion of urban agriculture, demonstration garden appeared after society was affected by side-effects of industrial revolution. In effort to bring back benefits of agrarian culture in to urban setting, community, city and school invest on demonstration garden to simulate and inform public about strategies to encourage urban agriculture through activities and workshops.

STAKE HOLDERS

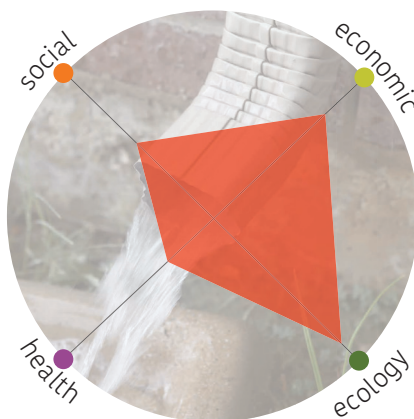


DEMONSTRATION GARDEN

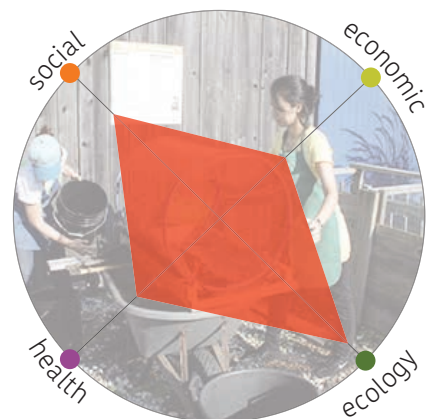
EXAMPLES



Edible Garden



Water Efficient Garden



Compost Garden

Precedents 1 Somerton Tank Farm

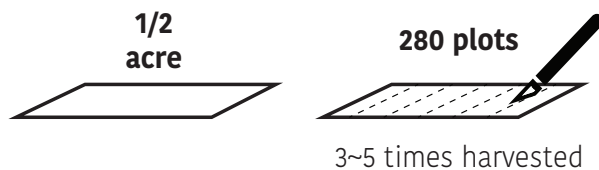
Neighborhood: suburban residential
in Philadelphia

Philadelphia Water Department
+
Oley Institution

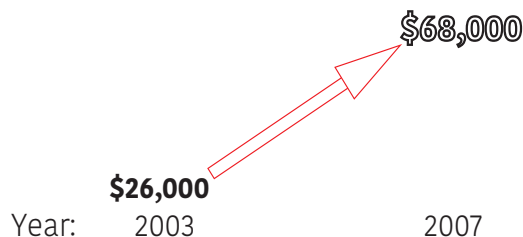
RESEARCH
Productivity & Financial Success

HOW?

SPIN(Small Plot Intensive) Farming



Meeting Economic Goals



Granted Fund by State
for Feasibility Study

OBJECTIVE

To determine the smallest site size and the minimal amount of labor needed to run a self-sustaining farm business

To project out total max revenue income from less than one acre



(Source: <http://www.somertontankfarm.org/gallery/>)

Precedents 2 Compost Garden

Urban residential
in Vancouver

Vancouver City Department
(Soil Waste, Water Design, Park, Health, Green Streets)

History: Land was secured by Mike Harcourt, when he was Mayor of Vancouver in 1980's for environmental education purposes

EDUCATE
Ecological & Health Benefit

HOW?

① Workshop on composting

- Outdoor bin and worm composting workshops for adults and children in both English and French
- Operation of a telephone hotline for residents of the Greater Vancouver Regional District, providing information on composting, bin distribution, and green waste programs
- On-site demonstration of composting technology and techniques waste programs
- On-site demonstration of composting technology and techniques waste programs
- Small structure demonstrating cob building techniques



② Food garden with organic methods

- Workshops on proper use of compost for edible gardening
- Inviting residents for harvesting



③ Rainwater harvesting

- Demonstration of rain water collection and storage systems



④ Volunteer program

⑤ Waste recycling experiment

- Demonstration of functioning composting toilet and experiments of recycling different kinds of wastes.



(Above picture, Source: <http://www.cityfarmer.org/CompostGarden150.pdf>)

MIN KYUNG SEO
LDA191 FALL 2015

SCHOOL GARDEN

School gardens are living laboratories where educational lessons are gained. Lessons towards the importance of food production, being healthier, nature awarness, and eductaional practices.

History

1592-1778

Early philosophers during the seventeen houndreds, provided a base for garden based learning. ideas of having a universal base of learning. The two philosophers are John Amos Comenius and Jean-Jacques Rousseau. Comenius born in the Czech, Republic from 1592 to 1670, he believed that education should be universal, optimistic, and as well innovative. To obtain this perfect balance he believed school gardens should be a part of every school, allowing childern the opportunity to be more innovative, by appreciating their overall surroundings. Rousseau born in Geneva, Switzerland from 1712 to 1778, he believed nature was a child's greatest teacher, in that knowledge gained from the natural world will serve as a foundation for later in life.

1891

Henry Lincoln Clapp, who was part of the George Putnam School, traveled to Europe to study school gardens. After his travels he returned to the states and then partnered with the Massachusetts Horticultural Society to create a garden at Putnam. School gardens were introduced in urban schools for aesthetic reasons rather than educational reasons.



<http://tclif.org/news/features/frances-griscom-parsons-and-new-yorks-childrens>

1904

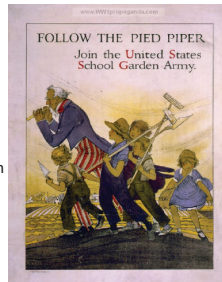
One of the pioneers of the school gardening movement was Frances Griscom Parsons. She created the first garden for children in New York City. The garden was established on a plot of land on the west side of Manhattan that had been set aside for public parkland. Surrounding the garden were warehouses, factories, slaughterhouses and tenements, and congested streets. The garden created was a way to reconnect and educate the childern of the natrual world that surrounds them.

1910

School Garden Association of America, civic and women's clubs, horticultural groups, and educational organizations joined in order to promote and supporting the school garden movement.

1914

The Federal government realized the importance of school gardens and created the Office of School and Home Gardening within the U.S. Bureau of Education. School gardens became a nationwide movement and



<http://www.ww1propaganda.com/sites/default>

1916

Over one million started to contribute to the production during the first world war. Childern from the ages of nine to fifteen put thier hearts and hands to contribute to the lack of food production.

1917

The United States School Garden(USSGA) was created. The USSGA was sponsored by the Federal Bureau of Eductaion. The USSGA was established to encourage gardening amoung school childern. The USSGA program required changes to be done in labor laws and educational codes.

1918

Youth gardening had become a national movement and caused every state in America had at least one school garden. To help schools develop their gardening curriculum The U.S. Departmentof Agriculture provided the schools with seeds, experise, course giudes, planting schemes, and banflants that illustrate what and when to plant.

1944 to Present

By the end of the war the the educational value of school gardens diminished becuae it had bcome more for production reasons then to educate the young childern. Not only was the educational purpose of a school garden was gone, so was the land in which these gardens are constructed. The rise in technology brought forth playgrounds and grass fields, thus schools become more focused on technology. A second wave of school gardens emerged with the birth of the environmental movement, with public concern of the environment led to the reemergence of school gardens. School thus, became once agian an important link for childern to understand the connection between the environment and their every day lifes. The spread of school gardens was led because of The American Horticultural Society symposium on school gardens and thier educational value.

Financial Support



Tries to improve on children's health and wellness through nutrition.



Encourages childern and their families to make informed food choices, at the same time strengthening the local communities.



Trains and informs educators in creating powerful and sustainable edible education programs for thier local schools and communities.



Serves alongside educators and community leaders and partner with schools to put in place a three-ingredient recipe for healthy kids, creating a nourishing environment for all students. Aslo, seeks to overcome health disparities that take an unfair toll on children of color and children growing up in low-income households.

These organizations provide awareness, knowledge, and finacial support when it comes down to establishing a school garden. Aside from these organizations the federal government and other non-profit organizations have also stepped in to support this movement. School gardens are managed schools themselves..

School Garden Attributes



School gardens require only a plot of land. Land from one acer of land or a simple planter bed. Gardens also provide a pleasant and quiet place of relaxation.

School Garden Benefits



Provides educational values and skills such as the importance of hard work, mathematical skills, and reading and writing skills.



Can contribute to a healthy community by childern taking what they learn in school home, thus influencing their families and community members.



Creates wildlife habitat for different pollinators and small animals.



Provides a base for character buidling, biulding strong self confidence, and mental health. The power of nature is said to heal sadness and encourage knowledge.



Provides access to healthy food and awarness towards the production of food.

SCHOOL GARDEN

Berkeley Edible School Yard

History / Context

In 1995, a once abandoned plot of land next to Martin Luther King Middle School, was seen as a perfect space to establish a school garden. The people involved in making the garden possible were landscape architects, chefs, gardeners, and teachers. The group of individuals shared their vision towards making the garden a reality. One specific person was an instrumental factor, she is Alice Waters. Waters is a chef and activist. Waters would pass by this abandoned lot and King Middle School and she would notice an unwanted need of care. The school looked outdated and in need of a small spark, that would ignite the school once again. Her vision was to create an outdoor kitchen, that would serve as a base for students to learn from and inspire the local community.

The kitchen became a reality when teachers, parents and community members came together to clear away garbage and cobwebs, and the school cafeteria that seemed outdated became the kitchen classroom. Many of the school's teachers became comfortable with incorporating hands-on learning and collaborating to generate garden and kitchen lessons and curriculum that would link the classroom to the outdoor kitchen. The science and math teachers would write lessons linking the garden to their curriculum. English teachers would contribute by hosting school celebrations, like Family Writing Night and the English Language Learners Dinner. The celebrations were a way to expand their reach to the broader community.

As of present day, the Middle school has produced 100 varieties of seasonal vegetables, herbs, vines, berries, flowers, and fruit trees. Also, the outdoor kitchen has left a legacy and it lives on till this day.



<https://edibleschoolyard.org/Berkeley/gardenkitchen>

Organizations Involved



In 1996, Alice created the Chez Panisse Foundation. This is a non-profit organization that had a vision of a public school curriculum that would include hands-on learning and provide healthy, fresh prepared meals as part of each school day.

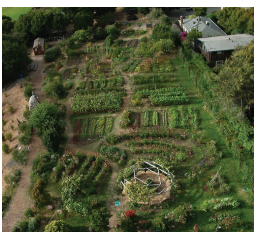


The School Lunch Initiative



Edible Schoolyard Affiliate

Physical Attributes



https://c1.staticflickr.com/1/106/314974980_aec77c67ed.jpg

A one acre plot of land, that sits adjacent to the Middle school. It was once a piece of land. Cleared trees and brush to place two 3,500-gallon cisterns in order to collect rain water. Planter beds both raised and on ground level.

The use of the cafeteria as a classroom. Grown vegetables from carrots, tomatoes, lettuce, herbs, berries, fruit trees, and flowers.

Benefits



Provides access to healthy food and awareness towards the production of food.

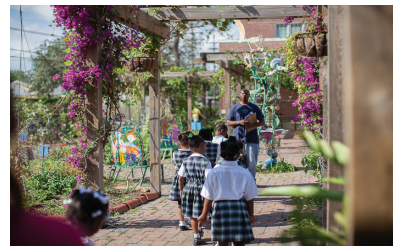


Provides educational values and skills such as the importance of hard work, mathematical skills, reading and writing, and the ability to cook and recognize healthy foods.

New Orleans Edible School Yard

History / Context

After Hurricane Katrina hit New Orleans, and impacted the whole city. Public charter schools were hit and after Katrina the city was trying to rebuild them. In December 2005, in an effort to rebuild the schools philanthropist Randy Fertel, a supporter of the New Orleans charter schools got together with Alice Waters. Waters is the founder and creator of the edible school yard in Berkeley CA. Fertel brought with him Waters' concept of an edible school yard to the charter schools. By April 2006, an idea to create a school garden emerged; it was thought to be a therapeutic method to heal the wounds Katrina left behind. This small idea was set to have major impacts because it was a clean slate to transform the campus all together. The garden was set to be made up of multiple gardens that would surround each campus. With the incorporation of school gardens a strong and vibrant community can be created among the children and family members also can help the children engage in more hands on learning while providing healthy meals.



<http://www.esynola.org/samuel-j-green-charter-school.html>

One charter school is the green charter school. This school is surrounded by nature being the garden. This was designed to remind the students the beauty of nature and an inspiration towards curiosity. The garden produces various vegetables, vines, and flowers.

Organizations Involved



Garden Club of America



Ruth U. Fertel Foundation



City Volunteers also helped with bringing the project together. Volunteers from local gardeners and community members.

Physical Attributes



<http://www.esynola.org/samuel-j-green-charter-school.html>

One third acre lot of land, the school garden is surrounded by residential. A green roof that allows for more edible food to be produced. Has set aside garden beds, the beds are at ground level. A trellis with vines growing connects the garden to the school. In the center a round community space with benches and flexible seating. Has a designated space for a butterfly garden.

Benefits



Provides access to healthy food and awareness towards the production of food.



Provides educational values and skills such as the importance of hard work, mathematical skills, reading and writing, and the ability to cook and recognize healthy foods.

References:

"Cornell University Agricultural Experiment Station." Research Farms. Cornell University, 2015. Web. 4 Oct. 2015. <<https://caes.cals.cornell.edu/farms>>.

"Crafting the Future of Agriculture and Forestry." Clemson University Experiment Station, Web. 04 Oct. 2015. <http://www.clemson.edu/public/experiment_station/index.html>.

Hillison, John. "The Origins Of Agriscience: Or Where Did All That Scientific Agriculture Come From?" Journal of Agricultural Education (1996): 8-13. Web.

"History of Botanic Gardens." Botanic Gardens Conservation International. BGCI, Web. 4 Oct. 2015. <<https://www.bgci.org/resources/history/>>.

"National Institute of Food and Agriculture." Home. US Government, 2015. Web. 4 Oct. 2015. <<http://nifa.usda.gov/>>.

"Private Industry Investing Heavily, and Globally, in Research To Improve Agricultural Productivity." US Government, 2012. Web. 05 Oct. 2015. <<http://www.ers.usda.gov/amber-waves/2012-june/private-industry.aspx#VHB0BNViko>>.

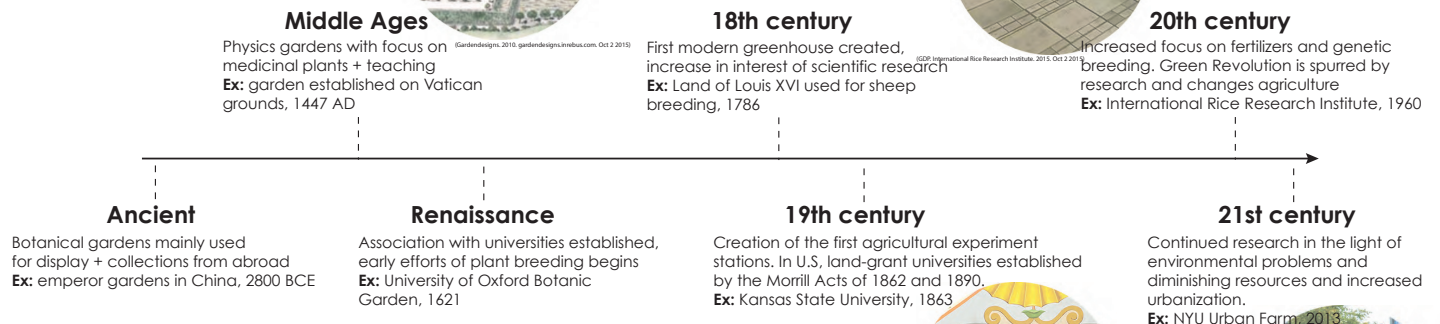
Rothamsted Research, 2015. Web. 4 Oct. 2015. <<http://www.rothamsted.ac.uk/>>.

Research Farms + Gardens

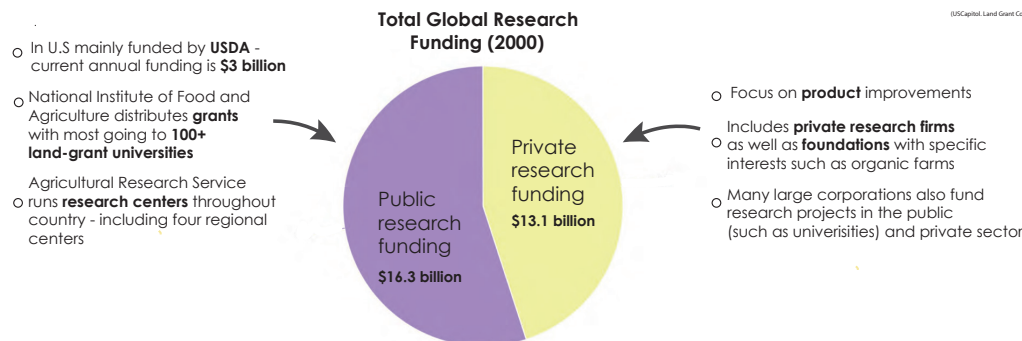
Alexandra Arjo
Info sheet

LDA 191 - Fall 2015

History + examples



Structure + finance



Description

Resources

- Often **resource intensive** in both land, water + chemical use
- In addition to crops, also use of greenhouses, livestock centers, processing plants, orchards, forests, etc.

Biofuel Trials at The University of Wisconsin



Land

- Usually similar to non-research farms with **multi-acre crop** production
- In addition to crops, a variety of other agriculture pursuits such as **livestock** research
- Use of **different** ecosystems, soil types, watershed zones to tailor research for farmers' and others' needs
- Often attached to an institution but **not urban** or in the context of a non-research community

Aesthetics + Benefits

- Not intended for aesthetic or community reasons
- Universities also use research farms for **teaching** purposes
- Interests tied into the private sector and **increasing profits** though some research focuses on climate change + other environmental problems
- Convergence of science + data and natural processes (**order vs. chaos**)

References:

MIT CityFARM, MIT Media, 2014, Web, 4 Oct. 2015, <<http://mitcityfarm.media.mit.edu/>>.

Iowa State Research Farms, Iowa State University, Web, 4 Oct. 2015, <<http://farms.agsiastate.edu/farms>>.

"Center for Agroecology & Sustainable Food Systems," Center for Agroecology & Sustainable Food Systems, UC Santa Cruz, 2015, Web, 04 Oct. 2015, <<http://cafs.ucsc.edu/>>.

Research Farms + Gardens

Alexandra Arjo
Precedents

LDA 191 - Fall 2015

Traditional Farming

Iowa State University farms, Iowa

Public university with 34 farm sites throughout Iowa



(Bloomberg Research Farm, Aerial view of Iowa State University research plots, 2013, Iowa State University, Oct 2 2015)

Structure: **9,660** acres of farm land + livestock + other facilities

Focus: research and production of **large-scale** crops such as corn and soybeans, crop **breeding**, effect of fertilizers

History: established in **1856** with the creation of the Iowa Agricultural College and Model Farm

Funding + involved organizations: Federal/state funding, Committee for Agricultural Development, a non-profit corporation

Example Project: published paper on summer cover crop influence on Fall vegetable production

UCSC "The Center", Santa Cruz, CA

Public university run organic farm + garden

Structure: **30 acre farm** + 3 acre garden with a variety of **crops** + greenhouses and laboratories next to UCSC campus

Focus: **organic** and **sustainable** farming/gardening, **hands-on** teaching in addition to research projects

History: established in **1967** as a student garden, is now the Center for **Agroecology** and **Sustainable Food Systems**

Funding + involved organizations: UC Santa Cruz, private donors, federal/state funding

Example Project: 700 pg annually updated "**how-to**" manual on **organic** farming + gardening using practices from The Center



(Larimer, Gary 2014 UC Santa Cruz Newscenter, Oct 2 2015)

MIT CityFARM, Cambridge, MA

Experimental indoor university urban farm



(MIT CityFARM, 2014, <http://mitcityfarm.media.mit.edu/>, Oct 2 2015)

Structure: all **indoor, hydroponically** grown plants using both natural and artificial light

Focus: experimental growing in an **urban** environment while **conserving** resources

History: established in **2013**

Funding + involved organizations: MIT, private companies (General Mills, Pentair, etc.)

Example Project: using existing design of the building to capture natural light

Non-traditional Farming

What is a Food Bank?

A food bank is a type of non-profit organization that supplies food free of charge to people in need. Apart from rent and transportation, food is the next largest portion of a household's costs; for people or families struggling to make ends meet, food budgets are often cut first. Food banks aim to provide access to food, support low-income households towards achieving financial independence, and establish venues for civic engagement in which community members come together to support those in need.

Since food banks prioritize storage capacity, these facilities tend to have large space. Food bank facilities are often warehouses or repurposed buildings; due to few requirements, the buildings that host food banks are diverse. Additionally, organizations can greatly range from local groups that serve a specific community or city to extensive networks across the country. In larger organizations, the term "food bank" refers to departments who collect surplus food, while a "food pantry" refers to the groups who distribute food to the needy, on the other hand, smaller organizations often take on both roles as collector and distributor. Due to the variety investigated here, "food banks" will refer to the latter framework.

Donors



Community Food Drives



US Department of Agriculture



Wholesalers & grocery stores



Other local organizations

Food Distribution

1. At the food bank
2. Elementary schools
3. Low-income housing
4. Senior complexes
5. Garden classes

Provision Spectrum

Types of Food Provision

pre-packaged lunch bag

prepared, plated meal

pre-packaged emergency bag (lasts 3-5 days)

choices from all available supplies

History

Colonial Era

Villages and towns recognized an **informal obligation to aid the needy** from the earliest of colonial times when family and neighborhood support was insufficient.

1930 Famine spreads across the United States, the **Great Depression** persists through the late 1930's

1940 Responding to local municipalities' inability to deal with widespread famine, Franklin D. Roosevelt's New Deal initiates the **(AFDC) Aid for Families with Dependent Children Program** for surplus food distribution

1970 John van Hegel founds the **first food bank** in Arizona; Hegel conceived the idea while volunteering at a local Saint Vincent de Paul where an impoverished mother expressed her frustration to acquire safe, healthy food for her children

1980 First European food bank in France

2000 Clinton Administration converts welfare to a **transitional program**. AFDC reformed as (TANF) Temporary Assistance for Needy Families which requires recipients to find a job in 24 months and provides aid for a maximum of 5 years within one's lifetime

2010 Today, 1 in 7 Americans remain food insecure and receive support from over 60,000 food banks across the country

Intended Benefits

- A. Food Access
- B. Income Support
- C. Civic Engagement



A.



B.



C.



John van Hegel, the founder of the first food bank



Expansion of Saint Mary's Food Bank (1983)
(<http://www.firstfoodbank.org/learn-more/our-history>)



Sysco Warehouse repurposed as food bank (2011)
(<http://www.firstfoodbank.org/learn-more/our-history>)

Sources

<http://www.feedingamerica.org/about-us/how-we-work/food-bank-network/>
<http://www.firstfoodbank.org/learn-more/our-history>
<http://www.hungernwnc.org/about-us/history%20of%20food%20banking.html>
<http://www.ssa.gov/history/pdf/histdev.pdf>
http://www.fns.usda.gov/fdd/fdd-history-and-background#1960s_and_1970s

Elizabeth Godkin
Fall Quarter 2015 LDA 191

Precedents

River City Food Bank

Organized by **River City Food Bank** in Downtown Sacramento

3-day food supply including important non-perishables like peanut butter, tuna, eggs, and dairy products; families with small children can also receive diapers, baby food and formula

Programs River City Food Bank offers cooking classes, outreach for CalFresh, snacks for students (distributed at schools), and breakfast for seniors. River City Food Bank's Virtual Drive is an online portal for donations incremented by the costs of specific food items. These monetary donations stretch further with the organization's volume shopping discounts and merchant relationships to help purchase non-perishables and healthy foods such as cheese, dairy, eggs, meat and fresh produce for holiday community meals

History Founded in 1968 by the River City Community Services under the humble mission, "No one should be hungry". River City Food Bank was originally based in Saint Paul's Episcopal Church, and moved in to their most recent location at R & 28th Streets in Downtown Sacramento.



Virtual Food Drive webpage
(<http://rivercityfoodbank.org>)



Original location at Saint Paul's Episcopal Church
(<http://rivercityfoodbank.org>)

Food Bank for NYC

Organized by **Food Bank** throughout the five boroughs of New York City

3-5 day food supply of mixed fresh and packaged goods, designed to provide nutritionally balanced meals; clothes distribution available at some locations

Programs Food Bank for NYC operates a food assistance network with multiple programs. Their emergency food programs includes 620 food pantries, 195 soup kitchens, and 45 shelters. Another suite focuses on youth, these programs include after-school and summer activities, low-income daycare centers, and a program focused on healthy snacks and meals. Additionally, senior centers offer hot, nutritious meals as well as social services and recreational activities. Rehabilitation, income support, and nutrition education services are also provided.

History Food Bank for NYC was originally founded as Food for Survival in the Bronx in 1983. Since, the organization has greatly expanded and now has locations throughout the five boroughs of New York City. As an advocate for equity, the organization periodically releases studies on hunger in the city and throughout the country.



Prepared meal distribution
(http://www.foodbanknyc.org/content/foodbank_nyc.jpg)



Food pantry shopping
(http://www.foodbanknyc.org/content/foodbank_nyc.jpg)

The Green Barn

Organized by **The Stop: Community Food Centre** in Wychwood Park, Toronto

For three-day supply of food including fresh produce, milk, eggs and whole grains, once per month

Programs The Green Barn functions as a multi-faceted space that facilitates cooking, gardening, and education. The series of programs include a pre-registered six-week community kitchen course, a garden devoted to particular ethnic communities with large local populations (Chinese, Tibetan, South Asian, Somali, Italian, Latin American, Polish and Filipino), compost demonstration, and a year-round weekly farmer's market.

History Formerly, the barns were a century-old streetcar repair facility that had long been unused. In 2008, Artscape opened Wychwood Barns to create a space for a dynamic mix of art, culture, food security, urban agriculture, environmental and other community activities. Today, the Wychwood Barn Community Association hosts artists live/work spaces, non-profit organizations, indoor and outdoor gardens, a community-run gallery, and a "covered street" event space.



Demonstration garden at The Stop
(<http://www.thestop.org>)



"Covered street" event space at Wychwood Barns
(<http://www.thestop.org>)



Community dining area at The Stop
(<http://www.thestop.org>)

Sources

<http://www.rivercityfoodbank.org/>
<http://www.foodbanknyc.org/>
<http://thestop.org/>
<http://www.torontoartscape.org/artscape-wychwood-barns>

Elizabeth Godkin
Fall Quarter 2015 LDA 191

URBAN AQUACULTURE

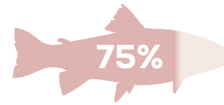
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Aquaculture

the cultivation of aquatic animals and plants in controlled or selected environments for commercial, recreational, or public purposes

Urban Aquaculture

the culture of aquatic organisms within the confines or shadows of a city, offers many benefits and opportunities that extend beyond food production, job creation and revenue generation



Percentage of the world's fish species either fully exploited or depleted (FAO, 2010)



Fish farms now supply less than half of all fish consumed (FAO, 2010)

General Timeline



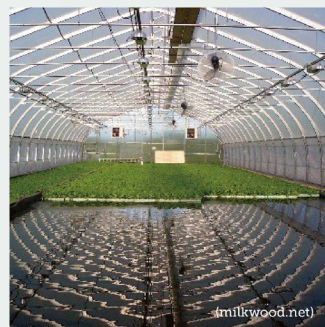
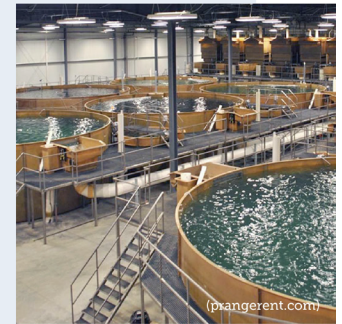
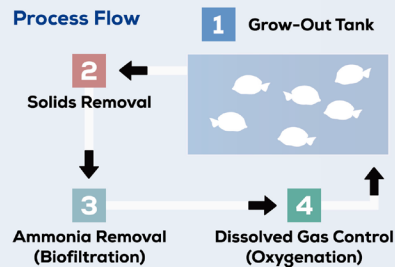
Recirculating Aquaculture Systems (RAS)

operate by filtering water from the fish tanks so it can be reused within the tank. This dramatically reduces the amount of water and space required to intensively produce seafood products. The steps in RAS include solids removal, ammonia removal, CO₂ removal and oxygenation.

Advantages

- 1 Maximized production on a limited supply of water
- 2 Complete environmental control year-round
- 3 The flexibility to locate production facilities
- 4 Complete and convenient harvesting
- 5 Quick and effective disease control

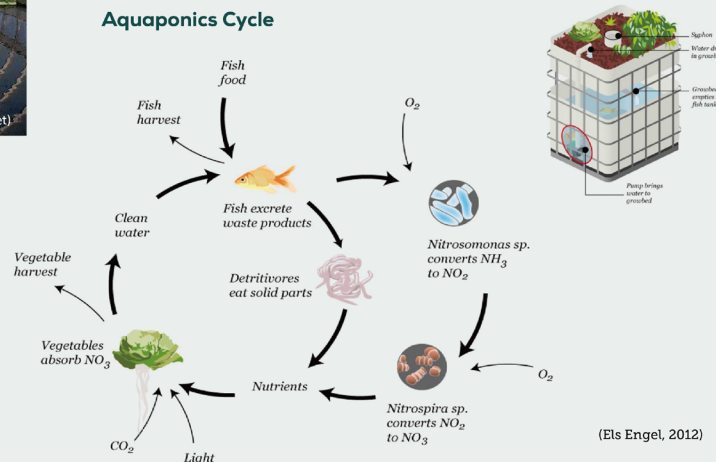
Process Flow



Aquaponics

refers to any system that combines conventional aquaculture with hydroponics (cultivating plants in water) in a symbiotic environment. In an aquaponic system, water from an aquaculture system is fed to a hydroponic system where the by-products are broken down by nitrification bacteria into nitrates and nitrites, which are utilized by the plants as nutrients, and the water is then recirculated back to the aquaculture system.

Aquaponics Cycle



Backyard Aquaponics vs. Commercial Aquaponics

Advantages

- 1 Efficient Food Production (less inputs, more harvests)
- 2 Organic Quality (no pesticides, herbicides, and fertilizers)
- 3 Water Conservation (recirculate water, less pollutions)
- 4 Land Conservation (make better use of vacant land)
- 5 Locally Production (reduce the costs of transportation)
- 6 Job Opportunities (solve the issues of unemployment)
- 7 Large Markets (bring economic benefits to inland region)
- 8 Community Participation (yard sale, farmers' market)
- 9 Tourist Attractors (provide an additional revenue source)

URBAN AQUACULTURE

LDA 191 FALL 2015 SHUYANG WANG

OYSTER-TECTURE Brooklyn, NY 2010

Organization Involved

SCAPE Studio, Stevens Institute of Technology

Background Context

Prior to urban development, an incredible geographical signature of a series of islands was out in the harbor. A matrix of salt marshes and beaches served as natural wave attenuation for the upland settlement. Oyster Reefs once covered 25% of New York Harbor and were capable of filtering all of the water in the harbor in a matter of days. Nowadays, the harbor has dredged and flattened, went from a rich, three-dimensional mosaic to flat muck. The Gowanus Canal is particularly smelly because of sewage overflow and contamination.

Design Concept

Harness the biological power of oysters and other aquatic organisms, and enable neighborhood fabrics that welcome the water to develop further inland. First, oyster can accept algae and detritus in one end, and output cleaner water in the other end, as a bio-filter, to purify water quality. Second, oysters gradually agglomerate into palisade reef structure that would then attenuate waves, protect new settlement patterns, and become the bedrock of harbor ecosystems.

Physical Attributes

An armature for the growth of native oysters and marine life is designed for the shallow waters of the Bay Ridge Flats just south of Red Hook. This living reef is constructed from a field of piles and a woven web of "fuzzy rope" that supports oyster and mussel growth and rebuilds a rich landscape mosaic.

Benefits Associated

A watery regional park for the New York Harbor creates an amphibious public space providing recreational, educational, and job opportunities. A sustainable and livable new urban landscape would be reformed.



AQUACULTURE-WETLAND ECOSYSTEM(AWE) Pomona, CA 1998

Organization Involved

LACSD, California Department of Fish and Wildlife

Background Context

In the arid, stark, and heterotrophic urban environment of Los Angeles County, water resources are valuable and precious. However, human output a large amount of waste and pollutant with high nutrient loadings into water body from overuse of fertilizer and pesticide, industrial discharge, and transportation emission. As a result, the ecological balance is disturbed. Wildlife such as black-crowned night herons and rails lost their vital habitats. Human are facing the issues of soil erosion, farmland shrinking, and food crisis. Further more, wastewater will impact coastal ecosystems through runoff.

Design Concept

Grow water hyacinth, which has the ability to control water quality by absorbing nitrogen, heavy metals, and suspended particles from wastewater in aquaculture ponds. Edible vegetable such as Chinese water spinach was then planted into the hyacinths bed, and as it established, water hyacinths were removed for composting.

Physical Attributes

The experimental ecosystem comprised a wastewater supply tank, aquaculture ponds and an artificial wetland.

Benefits Associated

This aquaculture system can simultaneously accomplish irrigation, aquatic food production, inorganic nitrogen removal, and ecosystem restoration in a sustainable and environmentally friendly way.



RESOURCE YARD

DEFINING CHARACTERISTICS

A **resource yard** is a facility that hosts a variety of different materials for community members to purchase for personal use or even donate their old materials for others to utilize. While many locations offer only reused and recycled materials, other facilities focus on specializing in specific resources such as soil, fertilizer, tools, or construction materials.¹

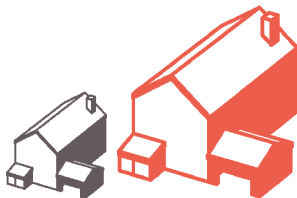
SIGNIFICANCE

RESOURCE YARDS & URBAN AGRICULTURE?⁶



In the process of initiating an urban farm, community garden, food forest, private garden, or any other system of **urban agriculture**, various resources are needed to jumpstart the beginnings of the operation. These resources include tools, soil, compost, fertilizer, seeds, water, irrigation systems, and other construction materials which can all be found and purchased at **resource yards**. Therefore, not only do workers, volunteers, organizations, and financial supporters play a key role in urban agriculture, but resource yards also provide significant mechanisms for individuals and communities to begin their projects.

LOCATION



SIZE & LOCATION⁷

Size of resource yards vary greatly by location from 1 acre to 3 acres in total.

Location of resource yards reside mostly in warehouses, industrial yards, or large lots.

Sources and Additional Information

- 1 <http://conservationcenter.org/resource/>
- 2 <http://www.buildingresources.org/index.html>
- 3 <http://www.916rockyard.com/>
- 4 www.shutterstock.com
- 5 www.woodendnursery.com

- 6 <http://www.sustainablecitiescollective>
- 7 <http://urbanore.com/>
- 8 <http://conservationcenter.org>
- 9 <http://conservationcenter.org/resource/>
- 10 <http://www.sustainablecitiescollective.com/big-city/133921/data-farming-demonstrating-benefits-urban-agriculture>



INVOLVEMENT



PEOPLE INVOLVED⁸

Neighbors and Local Residents purchase and donate materials

City and Government Officials grant permits and licenses

Yard Staff and Employees manage resource yards

Support Organizations provide funding and collaboration

FINANCIAL

FINANCIAL SUPPORT⁹

Financial support for resource yards come largely from donated material from local neighbors and residents as well as sales revenue from customer purchases. Grants from supporting organizations and city permits also financially contribute to yards.



BENEFITS

COMMUNITY BENEFITS¹⁰



ACCESS TO RESOURCES
Local residents have convenient access to necessary materials



REUSE MATERIALS
Local residents can donate old but still usable resources



LANDFILL DIVERSION
Reusable materials can be donated instead of going straight to landfills as waste



CONSERVATION
Conserving existing resources by reusing materials



JOB GROWTH
Creating local jobs for staff and workers at resource yards



ECONOMIC STIMULATION
Stimulating the local economy through small businesses

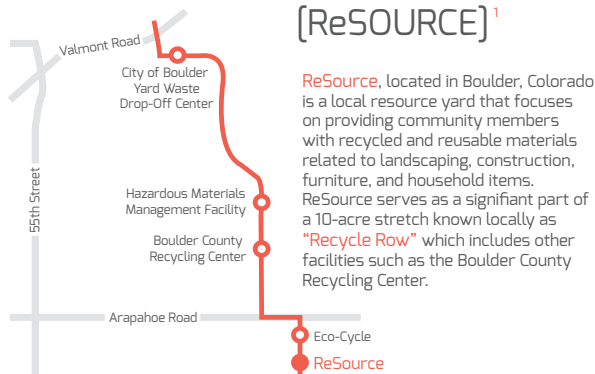


MEGAN MA
LDA 191 2015

Image of Building Resources in San Francisco (<http://www.buildingresources.org/index.html>)

RESOURCE YARD PRECEDENT STUDIES

PRECEDENT 1



HISTORICAL PRESCENCE



RETAIL FOR SALE



ORGANIZATIONS INVOLVED



Organizations in collaboration with ReSource include the Center for Resource Conservation (CRC), Boulder County, and the City of Boulder.

COMMUNITY IMPACT

Provides funding for the CRC's **water and energy** departments

Accepts about **5,000 donations** of usable materials per year

Diverted **3,364,000 pounds** of materials from local landfills

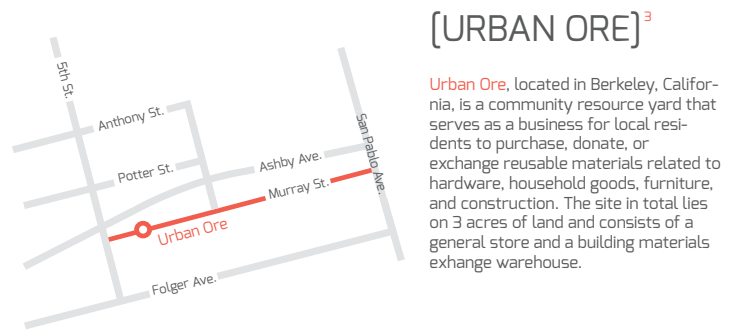
Created about 30 **local jobs** in total

Saved **11,409,407 gallons** of water

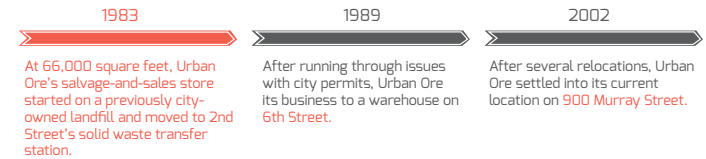
AREAS OF THE FACILITY



PRECEDENT 2



HISTORICAL PRESCENCE



RETAIL FOR SALE



AREAS OF THE FACILITY



PRECEDENT 2

[SGL MATERIALS, INC.]⁴



SGL Materials, located in Sacramento, California, is a small scale resource yard that serves primarily as a business platform for local residents to purchase landscaping materials such as mulch and soil. The 1 acre site consists of a general store and a same-day delivery system.

RETAIL FOR SALE



Sources and Additional Information

- <http://conservationcenter.org/resource/>
- http://www.dailycamera.com/ci_17863936
- <http://urbanore.com/>
- <http://www.916rockyard.com/>

FARMERS' MARKET DESCRIPTION

NIKO TIAN
LDA 191 FALL 2015

"WHAT IS A FARMERS' MARKET?"



Auf dem Vogelmarkt
women offering horse and wild birds,
18th-19th century
(Kunstauktionen, 2010)

HISTORY & BACKGROUND

The current concept of a farmers' market is similar to past concepts, but different in relation to other forms – as aspects of consumer retailing, overall, continue to shift over time. Similar forms existed before the Industrial age but, were often part of broader markets, where suppliers of food and other goods gathered to retail their wares.

Trading posts began a shift toward retailers who sold others' products more than their own. General stores and grocery stores continued that specialization trend in retailing, optimizing the consumer experience, while abstracting it further from production and production's growing complexities.

Modern industrial food production's advantages over prior methods are largely based on modern cheap, fast transport and limited product variability. But transport costs and delays cannot be completely eliminated. So, where distance strained industrial suppliers' reach, where consumers had strong preference for local variety, farmers' markets remained competitive with other forms of food retail.

Recently, consumer demand for foods that are fresher (spend less time in transit) and foods with more variety—has led to growth of farmers' markets as preferred food-retailing mechanisms. (MSGU, 2010)

SIZE & LONGEVITY

<http://www.usda.gov/wps/portal/usda/usdahome>

Farmers markets **vary in size and shape**.

Some are just a few vendors who gather a few days out of the year, monthly. Some involve hundreds of vendors and take place every week of the year.

Most farmers' markets are operated on a **seasonal basis**, opening in the spring and closing in the fall. There are year-round markets and they are generally found on the West Coast, southeast and southwest United States.

Peak harvest season is usually peak market season, and some markets are only open in the prime summer months. In 2010, about 15% of all farmers markets were open in the winter months, and the average seasonal farmers market in the U.S. is open for approximately four and a half months of the year. However, you can expect to see more markets open for business in late spring through early fall, as markets aim to provide customers with products for more months of the year. (USDA, 2012)

PURPOSE AND BENEFITS

To farmers

By selling in an outdoor market, the cost of land, buildings, lighting and air-conditioning is also reduced or eliminated. Farmers may also retain profit on produce not sold to consumers, by selling the excess to canneries and other food-processing firms. At the market, farmers can retain the full premium for part of their produce, instead of only a processor's wholesale price for the entire lot.

- less transport
- less handling
- less refrigeration
- less time in storage

To consumers

Consumers often favor farmers' markets for:

- reduced overhead: driving, parking, etc.
- fresher foods
- seasonal foods
- healthier foods
- a better variety of foods, e.g.: organic foods, pasture-raised meats, free-range eggs and poultry, handmade farmstead cheeses, heirloom produce heritage breeds of meat and many less transport-immune cultivars disfavored by large grocers
- a place to meet neighbors, chat, etc.
- a place to enjoy an outdoor walk while getting needed groceries



Freiburg's Farmers' Market
(Tian, 2015)



St. Jacobs Farmers' Market in Ontario, Canada
(Caulfield, 2011)

To communities

Among the benefits often touted for communities with farmers' markets:

- Farmers' markets help maintain important social ties, linking rural and urban populations and even close neighbors in mutually rewarding exchange. market traffic generates traffic for nearby businesses
- buying at markets encourages attention to the surrounding area and ongoing activities
- by providing outlets for 'local' products, farmers' markets help create distinction and uniqueness, which can increase pride and encourage visitors to return.

Reduced transport, storage, and refrigeration can benefit communities too:

- lower transport & refrigeration energy costs
- lower transport pollution
- lower transport infrastructure cost (roads, bridges, etc.)
- less land dedicated to food storage

OPERATION & DEVELOPMENT

To fulfill that objective a farmers market defines the term local, regularly communicates that definition to the public, and implement rules/guidelines of operation that ensure that the farmers market consists principally of farms selling directly to the public products that the farms have produced. **Some states have even established their own formal definitions which specify market characteristics in more detail.** The number of farmers markets in the United States has steadily grown to more than 8,100 registered in the USDA Farmers Market Directory in 2013 (FMC, 2015).

FINANCIAL SUPPORT & MANAGEMENT

<http://www.usda.gov/wps/portal/usda/usdahome>

A wide range of organizations **initiate, organize, and manage** farmers' markets, including farmers' groups, community groups, local governments, etc.

Some markets are **strictly managed, with rules for pricing, quality and vendor selection**. Others are much more relaxed in their operations and vendor criteria. While the usual emphasis is on locally-grown food products, some farmers' markets allow co-ops and purveyors, or allow farmers to purchase some products to resell.

Farmers' markets also may **supply buyers from produce stands, restaurants, and garden stores** with fresh fruits and vegetables, plants, seedlings and nursery stock, honey, and other agricultural products. Although this is on the decline, in part due to the growth of chain stores that desire national distribution networks and cheap wholesales prices—prices driven down by the low cost of imported produce. (USDA, 2012)

FARMERS' MARKET PRECEDENTS

NIKO TIAN
LDA 191 FALL 2015

The Farmers' Market in Freiburg, Germany



Freiburg's Farmers' Market
Market under cathedral at noon
(Tian, 2015)

--- One of the Most Famous and Successful
Farmers' Market in Europe

<http://www.livablecities.org>

Time: Every morning from 7:30 a.m. to 1:30 p.m.,
except Sunday

Place: the Plaza of the Münsterplatz Cathedral

Size: the whole market contains about at least
500 stands and carts.



Los Angeles' Farmers' Market
the coolest street in Los Angeles, Joe Satran
(Village, 2015)

HISTORY AND BACKGROUND

The market started when a dozen nearby farmers began to park their trucks on a field to sell fresh produce to local residents. The cost to rent the space was fifty cents per day.

In 1870, Arthur Fremont (A. F.) Gilmore and his partner, who relocated to Los Angeles from Illinois, bought two sizable farms, one of which was the 256-acre (1.04 km²) dairy farm at this corner. Gilmore gained control when the partnership dissolved later. (LA Farmers' Market Manual, 2008)

INTRODUCTION

Freiburg has one of the most extensive and successful farmers' markets in Europe, which takes place on the large Münsterplatz that encircles the cathedral. At least half of the market, on the north side of the cathedral, consists of local farmers and gardeners selling their own produce.

While the market takes place every morning from 7:00 a.m. until 1:00 p.m., Saturday is the busiest day, when the square is filled to overflowing. Around the edge of the Münsterplatz are many outdoor cafes, inns and restaurants which, from mid-morning on, provide light refreshment and traditional fare. By noon during fine weather every table and chair is occupied. Many have been shopping, others come because this is the liveliest place to meet friends.

SPECIALITY AND FUNCTION

The market has a very festive spirit, with its colorful umbrellas and overflowing baskets of fruit, flowers and vegetables. For the Freiburg citizens, this is an important weekly social ritual, an opportunity not only to buy the best and freshest produce of the region, but more significantly, to meet friends and acquaintances. Many people, including city officials, business people, university professors and students can regularly be found at the Saturday market. This farmers' market plays a very important role in Freiburg's social life. (City of Vision, 2015)



Freiburg's Farmers' Market
Market under cathedral in fall
(UConn DEP, 2015)

The Farmers' Market in Los Angeles, United States

Time: Everyday from 8 am to 9 pm,
seven days a week

Place: permanent installation at the corner
of 3rd Street and Fairfax Avenue in
the Fairfax District of Los Angeles
and located at the south of CBS
Television City.

Size: the whole market contains more
than 100 restaurants, grocers, and
tourist shops



Los Angeles' Farmers' Market
the alleys within the market and
permanent food stalls
(Village, 2015)

INTRODUCTION

The Farmers Market features more than 100 restaurants, grocers, and tourist shops, and is located just south of CBS Television City. Unlike most farmers' markets, which are held only at intervals, the Farmers' Market of Los Angeles is a permanent installation and is open seven days a week. The dozens of vendors serve many kinds of food, both American cuisine from local farmers and restaurants and Los Angeles' variety of local ethnic foods from the many immigrant communities of Los Angeles, with many Latin American and Asian cuisines well represented.

It is located at the corner of 3rd Street and Fairfax Avenue in the Fairfax District of Los Angeles. It is adjacent to The Grove outdoor shopping mall; an electric-powered streetcar runs between the two sites.

The market is a destination for foodies in search of the market's ethnic cuisines, its specialty food markets, and its prepared-food stalls. A sign that reads "Meet Me at Third and Fairfax" displays at the front of the Farmers Market. (USDA, 2010)

FOOD HUBS

Helping small to mid-sized food producers meet the demands of their local wholesale markets

Urban Agriculture as a Business Model

According to the USDA, food hubs are a subset of “food value chains” which are innovative business models with values in collaboration, transparency, and the intersection of financial success and social benefit.

Food Hubs have a specific mission of supporting local food production and bringing consumers and producers together in the marketplace.

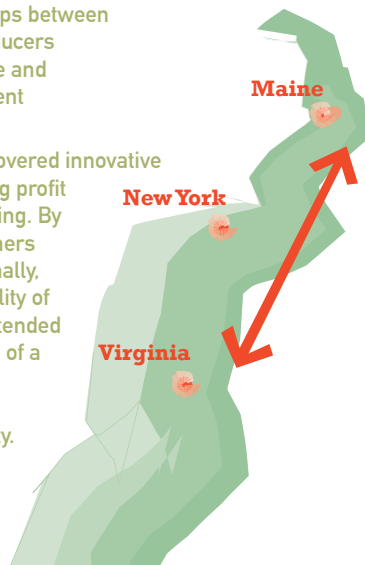
Functions

As locally based entities, food hubs may provide different services based on the needs of their local food producers and community members.

Services include:

- Market Access to Local Food
- Educational Resources
- Transportation Coordination
- Brokerage
- Building Relationships between Consumer and Producers
- Technical Assistance and Business Development

Food Hubs have discovered innovative methods of increasing profit through market sharing. By teaming up with farmers spread apart latitudinally, the seasonal availability of a produce may be extended to meet the demands of a wholesale market accustomed to year-round availability.



Understanding Local

'Local' has many flexible meanings that depend on the product, region, and system that enables the product to reach consumers.

The 2008 Farm Act defines 'local' as within 400 miles from the products origin.

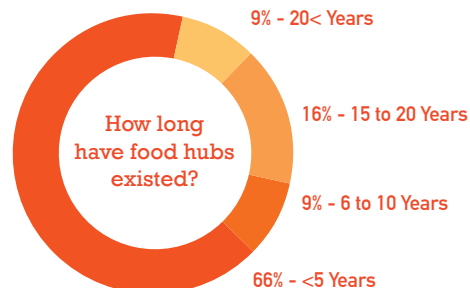
Structure & History

Food Hubs exist throughout the United States in the form of non profits, cooperatives, for-profit organizations, multi-structured organizations, food technology startups, and websites.

Despite their many organizational structures, food hubs have a strong history in community-based organizations that emerged in the 1970s to address specific community needs related to food access and production.

Longevity

While many young food hubs survive on outside funding such as, donor support and grants, they also strive to become self-sufficient as a means of long-term survival.



Resources

Matson, J., Sullins, M., & Cook, C. (2013). The Role of Food Hubs in Local Food Marketing. USDA Rural Development Service Report, (73). Retrieved from <http://www.rd.usda.gov/files/sr73.pdf>

Matson, J., Thayer, J., & Shaw, J. (2015). Running a Food Hub: Lessons Learned from the Field. USDA Rural Development Service Report, (77). Retrieved from http://www.rd.usda.gov/files/SR_77_Running_A_Food_Hub_Vol_1.pdf

Robyn Huey // LDA 191 Fall 2015

food-hub.org

Type: Virtual Food Hub
Location: Northwest U.S.



FoodHub was launched in February 2010 by Ecotrust, a community-based organization in Portland, Oregon.

The website functions as an online marketplace that enables all members of the food industry to participate and support local food production.

Within 5 years, FoodHub consists of 6,103 members of whom 39% are buyers, 38% are sellers, 20% are

associates, and 3% are wholesale distributors.

Sellers include farmers, ranchers, dairiers, breweries, wineries, and fishermen. Buyers may include restaurants, food assistance programs, school districts, and specialty retailers. Associates may include farmers markets, transportation providers, research institutions, and government agencies.

Minnesota Food Association

Type: Non Profit Food Hub
Location: Minneapolis-St.Paul



Minnesota Food Association - Big River Farms, YouTube.
Minnesota Food Association, 14 Sept. 2010. Web.
<https://www.youtube.com/watch?v=pJqgKbLXJlk>

MFA formed in 1983 as a grassroots coalition of urban and rural individuals with a mission to build a sustainable food system based on social, economic and environmental justice through education, training and partnerships.

In 2005, MFA launched the Big River Farms Training Program in response to the need for a safe, physical space to provide hands-on training for immigrant and socially-disadvantaged farmers.

By 2007, a market for small immigrant farmers to sell fresh produce directly to community members emerged in the form of the Big River Farms CSA (Community Supported Agriculture).

MFA, through financial support from donors, has helped over 140 farmers. Many establish their own small business enterprises and have access to wholesale vendors, such as Chipotle and Whole Foods, through the help of MFA.

Red Tomato

Type: Multi-structured Food Hub
Location: Northeast U.S.



Logistics -- Our Local Food Blind Spot: Michael Rozyne at TEDxManhattan. Perf. Michael Rozyne. YouTube. Tedx Talks, 20 Mar. 2014. Web.
https://www.youtube.com/watch?v=BDO_UIEh0eY

Red Tomato was established in 1996 as warehouse and distribution operation in Plainville, Massachusetts. It evolved into a nonprofit and today is trusted by small farmers to manage the planning, logistics, marketing and sales of their products.

The organization is mission driven with a commitment to fair trade, sustainable materials, and traditional agriculture. Red Tomato has also served as a public advocate and educator of sustainable food systems.

Their network includes for-profit organizations, farmer-owned brokers, and distributors. 50% of their income comes from marketing and logistics services with the rest of funding provided through donor gifts.

Red Tomato has a network of over 50 farmers from 9 states. Through collaboration with over 300 market institutions and restaurants, Red Tomato has enabled the selling of over 100 diverse products amounting to over \$25 million in produce sales. The organization operates with a staff of 10 employees.