

# Starting a Farm in Your City: Transforming Vacant Places



October 2012 | First Edition

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## ABOUT DELTA'S GO-GUIDES

The Green Economy is full of exciting opportunities, but the path isn't always obvious or easy. Delta knows, because we have been there since the beginning, and we have the experience and know-how to get you from where you are to wherever you want to go. Delta's GO-Guides identify green opportunities in growing industries and provide hands-on, practical guidance to help businesses, government entities, communities and individuals take the next steps toward success.

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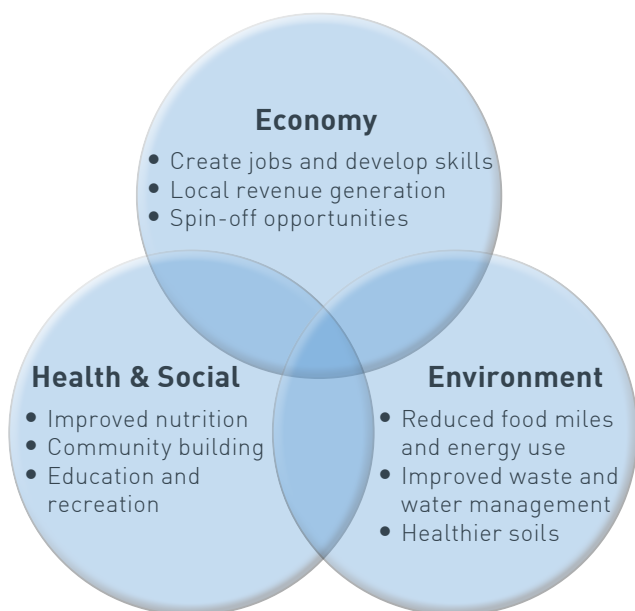
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## PART I: DEFINING URBAN AGRICULTURE

Over the last decade, urban agriculture has emerged as a powerful movement addressing a range of issues from food security to community revitalization to economic development. In broad terms, urban agriculture is the raising, cultivation, processing, marketing, and distribution of food and food products in a town, city, or metropolitan area.

**Figure 1: The broad benefits of urban agriculture**



Adapted from Southeast Fall Creek Urban Agriculture Strategy.  
Source: <http://ecourbia.org/papers/SEFCUrbanAgricultureStrategy.pdf>

Growing food in cities has numerous social, economic and environmental benefits, as shown in Figure 1. Though backyard plots and community gardens provide many benefits, this Guide is focused on the more entrepreneurial forms of urban agriculture. The defining characteristics of entrepreneurial urban farms are their scale and intensity of operations, as well as their unique role in transforming the urban landscape. Urban farms have proven to be an effective model for reusing vacant and underutilized spaces, including brownfields. Agricultural enterprises generally require less capital and time than many other commercial or industrial reuse options, and the benefits to the community are immediate. The pervasiveness of neglected properties in low-income communities around the region, especially following the economic downturn, coupled with the rise in demand for high-quality local food, presents an interesting and viable business opportunity for urban entrepreneurs.

The U.S. Department of Agriculture estimates that local food sales via direct-to-consumer and intermediated channels totaled \$4.8 billion from over 107,000 farms in 2008, representing 1.9 percent of total U.S. farm sales and 5.5 percent of all farms (Low & Vogel, 2011). Furthermore, small- and medium-sized farms accounted for 95 percent of local food sales. While efforts have been made to document the contribution of individual urban farms to this movement, no comprehensive statistics have been gathered to date. Nevertheless, the USDA expects local food production to continually increase as demand from the consumer market steadily rises. Since most of these markets are based in larger cities, entrepreneurs and nonprofit organizations have begun to test various methods and models for urban food production.

This Guide will help you understand the basic options and key considerations in starting an urban agriculture enterprise, and provides resources for further reading along the way.

## 1.1 Methods of Urban Agriculture

Farming generally conjures images of pastureland and open spaces. Urban farming, by contrast, occupies smaller, intensively-managed plots, including on rooftops and inside buildings. Indoor farming is nothing new, as greenhouses have existed for centuries. However, many urban areas offer unique opportunities to develop thriving farms in existing buildings with access to utilities, roads, and other infrastructure.

### Indoor farming

Indoor farming has some distinct advantages, including: controlling the environment that enables year-round crop production; minimizing pests, weather variances, and land contamination; much-reduced crop failures; the ability to grow without chemicals; and a 70 to 95 percent reduction in water use (Despommier, 2010). A primary advantage to indoor farming, depending on potential barriers such as access to water, pest management and space, is that production can be managed within a closed system. Concerns around land contamination and potential costs for remediation or changing zoning can be avoided by growing indoors.

Barriers to successful indoor farming enterprises include: stunted growth of plants when nutrient and light exposure are not closely monitored, and the challenges associated with finding a location that provides the basic needs for indoor production, such as access to water, necessary utilities, ventilation and space. Various indoor farming methods include:

- Hydroponic farming, a method of growing in a controlled system using a nutrient based solution without soil. It delivers all the benefits discussed above.
- Aeroculture, another soil-less system where plants are suspended above misters that spray a nutrient based solution onto the roots.
- Aquaponics, a food production system that combines aquaculture and hydroponic growing to create a closed system that recycles fish waste to provide nutrients for plant production.
- Fungiculture, or mycoscaping, a method of growing edible mushrooms from inoculated kits within various mediums, such as wood logs and straw beds.
- Vertical farming, an approach to indoor farming that uses multi-level growing systems.



Source: Plant Chicago. Available at: <http://www.flickr.com/photos/plantchicago/6793661854/in/photostream>



Source: <http://recoverypark.org/>

### **Case Study: RecoveryPark Aquaculture – Detroit, Michigan**

In April 2012, RecoveryPark Aquaculture was awarded a \$1 million grant from the Erb Family Foundation. The grant will support the development of a new enterprise to raise tilapia and grow produce at a former industrial space and a 20-acre site owned by Detroit Public Schools.

The project will initially employ 20, and hopes to scale up to 200. Producing 5 million pounds of fish annually at full scale, RecoveryPark would be the largest indoor, recirculating aquaponics operation in the U.S.

For more information: <http://recoverypark.org/projects/aquanourish-farms/>

## **Outdoor farming**

Outdoor growing methods are more traditional than their indoor counterparts. The primary advantage to outdoor agriculture is that it provides greater sunlight and ventilation than indoor growing methods. Some of the challenges to outdoor growing include exposure to extreme variability in weather patterns and pests. Soil quality can vary greatly, from soil that simply needs compost and organic amendments to soil that is contaminated with toxic substances that require expensive clean-up or protective barriers and raised beds made of newly purchased soil. In most urban environments, spatial constraints will also be a key limiting factor. There are several methods of outdoor farming:

- Intensive in-ground or raised bed growing is a method that seeks to maximize food production through dense plantings of multiple crops. Although intensive growing is often associated with large-scale monocultures that rely on fossil fuels and chemical inputs, there are ways to sustainably practice this method. Through crop diversity and integrated pest management, intensive farming in cities generally emphasizes total output over individual crop yields.
- Greenhouses are structures designed to extend the growing season. Constructed with glass or hard plastic, they can trap enough solar radiation to allow photosynthesis to occur without an artificial light source. Some crops require additional heat, however.
- Hoop houses are a type of greenhouse named for their semi-circle shape. Generally made of metal pipe and plastic sheeting, they are significantly cheaper and more portable than greenhouses.
- Rooftop farms combine intensive raised bed growing and greenhouse methods, providing additional benefits in reducing urban heat island effects.
- Apiculture, or commercial beekeeping, can provide a supplemental revenue stream through the sale of honey and derived products.

## **1.2 The Importance of Compost**

Compost is organic matter that has been broken down into humus which is used as a soil amendment or fertilizer to provide necessary nutrients to the growing medium. The U.S. EPA estimates that compostable products make up 27 percent of the United States waste stream, so the potential supply is large. Instead of sending organic matter to the landfill, it can be transformed through composting into a nutrient-rich product. Though the process can take three months to two years, composting provides the base growing material for all outdoor and containerized indoor methods (Allen, 2012). Since composting is a necessary partner to both indoor and outdoor growing

methods, it is important to consider how it can be integrated into your model. There are different methods of composting; the one you choose will depend on end use, space requirements, growing cycles and market demand and other factors.

- Anaerobic composting does not allow any air flow and requires little to no maintenance. A primary downside to this method is that it can take years to breakdown the organic matter, though outdoor static piles in the Midwest require approximately nine months.
- Aerobic composting allows for air flow and requires daily maintenance to ensure bacteria and living organisms can survive in order break down the organic matter. This type of composting can be indoors or outdoors, but in cold weather the composting process slows dramatically.
- Vermicomposting uses worms to break down the organic matter and requires some maintenance to ensure the worms have enough organic material. If you start with pre-composted material, the worms will need approximately twelve weeks to digest all the material. Worm bins must be indoors in regions with harsh winters as the worms cannot survive harsh temperatures. The process will create solid worm castings and liquid fertilizer or “compost tea,” that are both high value niche products.
- Anaerobic digestion is a process where microorganisms break down organic materials in the absence of oxygen to produce biogas that can be used as a source of energy. Unlike other outdoor and vermicomposting methods, anaerobic digesters can accept any material. The process also creates methane that can be used to heat your indoor operation and provide electricity to the grid.



Source: Vanessa Roanhorse, Delta Institute

Whether or not the composting is done indoors or outdoors will depend in large part on the local zoning and state laws around the production of organic matter. Most cities allow for household-scale composting, but many have restrictions on commercial or externally-sourced operations. Furthermore, animal or human byproduct composting is generally prohibited.

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## PART II: WHAT TO CONSIDER BEFORE YOU BEGIN YOUR FARM

There are several factors that will help you decide the right approach for your urban agriculture project. Growing food in an urban environment impacts local food, job and community markets. After considering the methods of production, you should think about how they relate to your goals, and whether they support those goals or limit your ability to achieve them.

### 2.1 Desired Outcomes

The USDA has created a site called Start2Farm to help beginning and current farmers, which outlines the “4 P’s” for new farmers to identify the company and organizational assets ahead of developing a business plan.

#### **Purpose**

- What do you want to cultivate?
- What type of urban agriculture method do you want to establish (e.g. in-soil cultivation, raised-beds, warehouse, greenhouse, hydroponics, aquaponics, apiculture)?
- Will your farm be a community-based, non-profit enterprise that will engage community members?
- Will your farm be a for-profit enterprise that will provide a personal revenue stream?

#### **Plan**

- What skill sets do you bring to this business or will you rely on the expertise of others?
- Will you rely on the expertise of others to address possible environmental and/or remediation issues associated with your site?
- Do you have access to the human resources necessary to engage in managerial, marketing, and operating strategies to establish your business?
- Do you need financial assistance to obtain any expertise for your team?
- Do you hope to break-even, generate a profit, or will you rely on supplemental funding to sustain your operations?
- Do you have the necessary parcels or buildings that you will need, or are you in the process of securing a site?
- What scale of operation can be managed (consider land needed, space, staff capacity)?



## Product

- What is the broad product range (e.g. food grown directly for market, value added food production, community processing kitchens, aquaculture, animal husbandry)?
- Will your farm supply products to a specific institution or enterprise, such as a school or restaurant?

## People

- Who is your consumer?
- What are your market outlets (e.g. selling at farmers markets, to neighborhood residents, to restaurants, to supermarkets and smaller grocery stores, to health food stores, or through community-supported agriculture or box scheme programs)?

## 2.2 Selecting an Enterprise Model

Once you have identified your farm enterprise, you will start thinking about which ownership and production model you would like to pursue. The model will provide the outline for your business plan and assist you to identify your consumer market.

### 2.2.1 Mission-Driven Model

This model is defined by the impact a project will have within the local community, including social and environmental gains estimated by education, neighborhood stabilization, healthy food and community development.

Nonprofit urban agriculture models tend to rely on partnerships between nonprofits, local governments and educational institutions in order to pool resources to achieve shared goals. Mission-driven models are predominantly supported by grants or in-kind and volunteer contributions, and most do not rely upon revenue from food production but rather value the social benefits they create.



Source: Ben Helphand, NeighborSpace

- Community gardens are small scale farms or aggregated plots serving a community, neighborhood or group of organized individuals. Community gardens provide produce primarily for personal or shared use, often donating a portion of their harvest to local food banks and people in need. This is often the only type allowed by local zoning codes and ordinances. In Chicago, for instance, only “incidental” sales are allowed and more entrepreneurial farms cannot operate in residential or open space areas.
- Institutional gardens are small to large scale farms on public or private owned properties, such as parks, churches, schools, hospitals or office buildings. These gardens typically exist for educational, health and



Source: Ben Helphand, NeighborSpace

community purposes. Institutional gardens provide produce primarily for the community or donation. Institutional gardens are also not a revenue-driven model, but they may contribute significantly to reducing expenditures on fresh produce for their stakeholders (e.g. cafeterias and food banks). Again, local zoning codes and ordinances often do not allow commercial farming.

### 2.2.2 Commercial Model

The commercial model is usually a large-scale production of a crop with intent to sell to wholesale and to distributors in national and international markets. Commercial farming focuses on intensive production and revenue generation. This model primarily exists in rural environments due to the large land requirements. Commercial growing in urban environments is possible, but because of the cost and difficulty of acquiring large parcels of land, many commercial models decide to innovate in their production so that it uses less land space, while maximizing footage both horizontally and vertically.

- Micro-farming models focus on planting crops on between two to five acres of land. Often, micro-farming will require little to no large equipment needs and tends to rely upon human labor for production. One example of micro-farming in an urban environment is “Small Plot Intensive (SPIN) Farming is a non-technical, easy-to-learn and inexpensive-to-implement vegetable farming system” that focuses on organic growing and assists those interested in organic farming commercially on only an acre or less available for production (SPIN Farming, 2012).
- Niche markets cultivation model focuses on non-traditional production markets, such as growing mushrooms (fungiculture), keeping bees (apiculture), cheese-making and even some animal husbandry, such as raising chickens for eggs or goats for milk.
- Large scale commercial model is the traditional way in which people tend to think about farms: multiple acres of land with a single or small number of crop varieties.

### 2.2.3 Social Venture, or Hybrid Model

The hybrid model combines objectives and incorporates commercial and mission-driven models. This model can be a social venture, or a venture that uses established business principles to address systemic issues of social, environmental, or economic sustainability. These enterprises tackle the challenges of urban farming by creating value within a community through job development and education, while expanding the economy through revenue-driven production.

Urban agriculture enterprises can be profitable when the emphasis is on production. However, these enterprises also provide associated social benefits including use of volunteer labor and productive re-use of urban land. Delta Institute's work in this area identified two frameworks that support production goals without requiring significant administrative resources. The first framework involves payments to farmers to produce food for a specific market on his or her own land. The second framework expands community supported agriculture production through an increase in purchased shares, where an enterprise contracts with an existing farm and receives shares in return.

These two frameworks show how social venture farms work. In both cases, farmers are induced to produce more food by the guarantee of a willing buyer. In return, they provide various social benefits, potentially including: training of a volunteer workforce; training of paid workers from low-income communities; providing fresh and healthy food to underserved communities; and aesthetic and economic revitalization of brownfield sites.



Source: <http://www.greenspiritfarms.com/index.html>

### **Case Study: Green Spirit Farms - New Buffalo, Michigan**

Plants are germinated and grown indoors 24/7 all year round at Green Spirit Farms (GSF) in southwest Michigan. Plants at GSF grow 20 percent faster than conventional methods and, depending on the crop, GSF achieves between 6 and 16 harvests each year. GSF harvests as much produce in 40,000 square feet as is grown on a traditional 100-acre farm with fewer resources and less risk. The vertical growing stations can use 90 percent less water than a traditional farm. Efficient induction lighting is used to reduce energy use and improves crop yields by emitting the light spectrum that is optimal for plants. This lighting also keeps the passive heating within each Rotary Garden at 72 to 78 degrees significantly reducing the need for additional heating and cooling within the building.

GSF sells its produce to restaurants, at farmers markets and in grocery stores.

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## PART III: STARTING YOUR FARM

Building and growing your farm will require the same skills and passion you bring to your home garden, as well as business skills. Establishing scaled-up, self-sufficient enterprises will also require you to navigate complex land use regulations, site remediation requirements, and financing protocols. In building and growing your farm it is important to keep your focus on what it is that inspires your enterprise, and the unique approach you will bring to it.



Source: Vanessa Roanhorse, Delta Institute

### 3.1 Self-Assessment

Before diving too deep into any single aspect of your farm, conduct a self-assessment to formalize your vision. Some entrepreneurs may know precisely which farming methods and enterprise models they want to establish. Others may have a more general vision that will be carried out based on local factors like the availability of a particular site, exposure, sunlight, or a variety of other dependent variables. Be mindful of what has driven your pursuit this far, and try to identify how to achieve that, although your ideas may change. Your initial self-assessment can address a range of issues and take many forms (narrative, sketch, etc.) and can build out your thoughts on the four Ps, described in Section 2.1, above. Most importantly, be mindful that urban farming requires hard

physical and mental work, as well as persistence, patience, and money. These are challenges can be successfully met head-on, but will require vision, drive, and passion.

It is not necessary to have answers to all of your questions at this point, and the more you learn more questions will arise. In the initial stages it is not necessary to have all of the tools you need to begin building your farm. It is more important to formalize your vision so that you can begin to acquire the tools you will need to realize it. The self-assessment is an important step, but it is in preparation of all the work that exists between the time you generate your idea, and when you plant your first crop. This is known as “pre-development,” and is significantly more work than many urban farmers anticipate. The point of this step is to reflect on the enterprise models described in Section 2.2, identify the resources you have available today, link them to the goals you identified for your farm, and begin bridging the two.

### 3.2 Business Planning

This Guide is not intended to walk you through a linear process and does not provide the tools to do so. Its intention is to provoke the questions you will need to address to confront the challenges you may face as an entrepreneur

and farmer. The business planning process described here is not linear, but iterative. This section is intended to give you a sense of how to develop a plan that will endure the unanticipated challenges of building a successful enterprise, and how to adapt your plan to fit on-the-ground market or natural conditions.

As you complete your initial self-assessment and consider the different production methods, you should have a sense of your strengths, and awareness about areas of uncertainty or where more resources are needed to achieve your goals. The next step is to develop a formal business plan, which will serve many useful purposes as you establish your business. Broadly, it will formalize your goals and aspirations, and serve as a map that will guide you from where you are now to where you hope to be in 3 to 5 years. Your business plan will be an essential tool if you seek resources including land, loans, grants, or other financial assistance. It is critical to engage funders and other stakeholders in your enterprise at the earliest possible stage. This stage often presents challenges that may not have been fully anticipated, but by investing the time and energy into addressing the issues and questions below, and taking the time to formalize your ideas and expectations, you will find yourself much more prepared to tackle the next steps, as well as to address challenges as they arise down the road.

The rest of Section 3 will identify essential elements to include in your business plan, questions for thought, and additional resources to consult as you go forward.

### **3.2.1 Telling Your Story**

The purpose of your pre-development work, including your business plan, is to lay the groundwork for a successful enterprise, which includes identifying objectives and consistently reevaluating how they can best be achieved. In addition to the functions of a traditional business plan, you should think about how the plan fits into the narrative of your farm.

Your narrative should consider the unique contributions your products make to the market, the contributions that you hope to make as a business, neighbor, and community member, and how this vision links to your business plan. This narrative is critical to engaging stakeholders. You may wish to consider developing an elevator pitch, or a short summary about your farm and its financial, social, and environmental value. This narrative will attract funders, elected officials, neighbors, and community members, and can be useful in harnessing the value of crowdfunding.

In addition to your elevator pitch, you should consider other mediums as part of your engagement strategy including web and social media platforms. Once you develop your narrative and the identity of your enterprise, you should begin building relationships and engaging with your community.

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### 3.2.2 Essential Elements of a Business Plan

The following overview describes the sections most business plans include. This overview is adapted from the Urban Farm Business Plan Handbook, written for the Department of Housing & Urban Development-Department of Transportation-Environmental Protection Agency's Partnership for Sustainable Communities by U.S. EPA Region 5. The handbook provides a more in-depth description of the sections with questions relevant to each. It also provides an extensive set of user-friendly worksheets that put the questions into context, and give you an opportunity to put ideas, goals, figures, and numbers on paper, and will provide a strong foundation for writing the final business plan.

- An Executive Summary: You should write this last, drawing on the circumstances you described for your business in subsequent sections of the plan. The most important information to include here is the most basic: who, what, where, when, why, and how for the main components of our plan: organization, management and key personnel; target markets and sales strategies; operations; and finances. This should reflect, and complement, your elevator pitch.
- Organization and Management Description: This section should describe the structure of your business, its ownership, and management. In this section, describe the following aspects of your business, and how they will change over 3-5 years:
  - Structure of your organization (Section 2.2)
  - Structure of ownership
  - Structure of management
  - Administrative costs
  - How is compensation determined?
- Marketing Strategy: Your strategy should show that you understand the market, product, competitors, and customers. In this section, discuss the following aspects of your marketing strategy, and how they will change over 3-5 years:
  - Customer demographics (geography, age, income, family composition and household size)
  - Impact of broader market conditions and consumer willingness to pay
  - Unique attributes of your produce
  - Your specific products, and why they are competitive
  - Farm to table handling, implications for freshness and quality
  - Pricing strategy and comparison to your competitors

- Volume of produce you expect to sell
  - Advantages and disadvantages in relation to your competitors
  - Distribution channels
  - Product promotion, messaging, and marketing
- Operating Strategy: Your operating strategy should describe how you will manage your crops, the size and scale of the operation, the physical and human resources required for sustained operation, and any policy, regulatory, or compliance issues you will confront. In this section, consider discussing the following aspects of your marketing strategy, and how they will change over 3-5 years:
    - Production methods (Section 1.1)
    - Whether organic food and certification are part of your business
    - Necessary inputs - produced in house or purchased?
    - Management of weeds, pests, crop rotation, water and irrigation, waste disposal, etc.
    - Seasonal rotations
    - Amount of produce you expect to yield per crop in the first 3-5 years
    - Amount of land you need, amount of land available
    - Strategies for acquiring or controlling land
    - Environmental conditions/site remediation
    - Zoning or land use restrictions
    - Physical impediments
    - Structural changes your enterprise will require in 3-5 years
    - Services and/or utilities required (e.g. water, electricity, phone, internet)
    - Irrigation
    - Equipment, tools, and other supplies
    - Human resources (management and labor); daily tasks; skill sets
  - Financial Strategy: Your financial strategy should describe your anticipated start-up and operation expenses, income, profitability, fixed-asset value, potential funding sources and potential risks to your operation, and how they may change over the next 3-5 years:

- 
- Marketing, operating, and human resource expenses, including one-time or initial start-up costs
  - Projected income, include sales and loss from spoilage or other causes, as well as any and all other income from grants, etc.
  - Fixed assets you will purchase or build
  - Sources and amounts of funding to acquire these assets
  - Sources and amount of funding you depend on to sustain operating costs
  - Potential risks (e.g. crop failure, land use restrictions, natural disaster)
  - Financial risks (e.g. low sales volume, labor issues)
  - Likelihood of risks
  - Risk management plan

### **3.2.3 Revising the Plan**

Challenges and opportunities will certainly arise and it is important to maintain some flexibility in pursuit of your goals. Keeping your business plan current to reflect the circumstances you are navigating will help to maximize its value as a strategic planning tool, and to pursue funding and market opportunities.

## **3.3 Hands-On Training**

Many examples of successful urban farming operations in the region highlight the importance of a thorough planning process. Though you may not have access to an urban farming business plan until you write your own, the following programs provide in-depth training and serve themselves as potential enterprise models.

### **Growing Power Commercial Urban Agriculture Training Program**

At their Milwaukee headquarters, Growing Power offers a series of five weekend training seminars between January and May for people who want to establish commercial farming operations in their cities. The course consists of small class meetings and hands-on learning sessions that address participant's individual needs, providing in-depth training on business planning and intensive growing techniques. Over 600 individuals from across the country have completed the program since launching in 2008, and many have gone on to start urban farming enterprises. A subset of program graduates have also continued working with Growing Power to launch 16 Regional Outreach Training Centers in cities from Denver to Brooklyn. Growing Power also offers workshops year-round in Milwaukee and Chicago.



### **Angelic Organics Learning Center**

Through its Urban Initiative, Angelic Organics Learning Center offers a range of services to help build urban food system projects in Chicago and Rockford. AOLC offers hands-on workshops that cover topics including rooftop growing, urban livestock, season extension, and business planning.

### **Windy City Harvest**

The Chicago Botanic Garden partners with the City Colleges of Chicago to offer an Advanced Certificate in Sustainable Urban Horticulture, a 6-month instruction program followed by a 3-month paid internship at Windy City Harvest farms. Windy City Harvest also offers Saturday morning technical workshops in the winter and spring.

### **Land Grant University Extension Programs**

The Ohio State University Extension office in Cuyahoga County runs the Market Gardener Training Program, a 12-week intensive course offered each year to provide training on starting an urban farming business. Participants gain exposure to concepts including: basics of urban agriculture, small business development, and marketing. Those who complete the program are welcome to lease a quarter-acre plot on an incubator farm in Cleveland where they can develop their business. In its 7 years, over 175 participants who have gone on to develop 57 market gardens for fruit and vegetables, and 35 have gone on to develop other urban farming enterprises. Of these, 22 are now farmer's markets, farmstands, restaurants, and CSAs.

Michigan State University, along with its Extension service and local partners, is developing an urban farming research and training center, the "MetroFoodPlus Innovation Cluster @ Detroit." The project, announced in June 2012, will combine a large-scale demonstration site with hands-on and virtual training to "establish Detroit as a leader in innovation to promote economic development, land recovery and food security."

Though only Cleveland and Detroit currently have entrepreneurial Extension programs, Illinois, Indiana, Michigan, Ohio and Wisconsin all have well established Master Gardener programs that teach basic horticulture and composting in the urban environment.

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For more information:

**Growing Power Commercial Urban Agriculture Training Program:**

[http://growingpower.org/commercial\\_urban\\_agriculture.htm](http://growingpower.org/commercial_urban_agriculture.htm)

**Angelic Organics Learning Center:**

<http://learngrowconnect.org/urban>

**Windy City Harvest:**

<http://www.chicagobotanic.org/windycityharvest/>

**Land Grant University Extension Programs:**

<http://cuyahoga.osu.edu/topics/agriculture-and-natural-resources/market-gardening-and-urban-farming/market-gardener-training-program>

<http://www.msumetrofood.com>

<http://wimastergardener.org>

<http://www.hort.purdue.edu/mg/>

<http://web.extension.illinois.edu/mg/>

<http://mastergardener.osu.edu/>

<http://mg.msue.msu.edu/mg/home>

## PART IV: FINDING AND PREPARING YOUR SITE

Finding and preparing your farm site, whether indoors or outdoors, is an important part of the pre-development phase. The amount of time this will take may be difficult to estimate until you begin evaluating options. There are several important considerations about your site that may impact when you can start planting and farming. For any site, regardless of your method or model, it will be helpful to inventory your assets and barriers. Assets include having an existing professional network and organizational leadership, articulated goals, community and municipal support, and established markets. Most of these issues were likely addressed in your initial business plan and you have also identified or begun identifying sites for your farm. There will also be important physical considerations, such as:

- Is there access to water?
- Do you have permission to trim or remove trees or bushes?
- Is the site protected from wind?
- Is the site prone to flooding or water?
- Can you use the site long enough to justify the effort required? (Carpenter and Rosenthal, 2011)

While site assets are easy to identify, there are generally less observable barriers that must also be considered. These may include site contamination, extensive remedial actions, site control issues, and zoning or permitting restrictions. This section will address how you can leverage assets and anticipate barriers, focusing on and strategies to successfully navigate them as you find and prepare your site.

### 4.1 Right Site for the Right Use

Finding and securing your site is the most challenging aspect of establishing your farm. You may have to simultaneously navigate complex purchase or lease agreements, zoning and permitting codes, as well as environmental site assessments. Remember that this is not necessarily a linear process. Although you may be anxious to establish the farm, and may even face seasonal planting and harvest constraints, you should take time to ensure that the site you select aligns with the goals and objectives you identified in Section 2.1.

When selecting your site, there are a few features that will enhance the success of your farm. For example, outdoor sites should have adequate sunlight, southern exposure, and access to water. Indoor sites should have electricity, proper ventilation, and plumbing. Ensuring the right site for the

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right use may involve compromises or certain trade-offs. For example, you may find a greater availability of sites in high-traffic or industrial corridors. However, these sites are more likely to be contaminated and may require greater efforts for remediation and maintenance. If the concerns or risks about the sites available to you outweigh the identifiable benefits, you should remain flexible enough to find a different site. Ensuring you select the right site for the right use is a critical factor for success.

#### **4.1.1. Location, site and historic use**

After identifying a site, you want to evaluate the possibility of contamination, and the impact it may have on your product, accounting for crop, growing method, and availability for uptake. For example, the presence of soil contamination will have a relatively high impact for a farmer intending to grow a deep rooted crop, such as carrots, in-ground; in contrast, the same contamination may have relatively little impact for a farmer intending to grow tomatoes hydroponically or in raised beds.

To make sure that your site is appropriate for your method and model, you should collect as much information as possible about its context and historic use. Your own senses are vital to alert you to indicators of contaminants including odors and visual indicators, such as heavily trafficked areas. You may also be able to get additional information by interviewing people familiar with the history of the site, including neighbors or municipal workers. Another possible source of information is to discuss site history with the current owner. However, this may not be well received, particularly if the property is not for sale. There are additional avenues of research you can pursue to identify the prior use of your site:

- Maps and Images
  - The Sanborn Map created fire insurance maps for approximately 12,000 U.S. towns that show building footprints, gas lines, underground storage maps, pipelines, and other information at a scale of 50-feet to one-inch. These maps were created beginning in the 1860s and continue through the present. These maps may be available at city halls or public libraries. Many have also been digitized by Environmental Data Resources (Hersh 2012). See: <http://www.edrnet.com/environmental-services/sanborn-maps>
  - For areas where development is more recent, you may be able to assess land use changes using Google Earth Time Slider, which provides images from the 1970s to present though the timeframe varies with location. This tool allows you to observe changes in the built environment at adjustable scales (Hersh 2012).

- Public libraries and universities, or other organizations like historical societies, may also have access to historic photographs or aerial images that can provide information about historic land use.
- Cities often maintain comprehensive indices of property ownership. You may wish to make a formal inquiry about your site to your local property assessment or taxing body, property deed recorder, or elected official to identify whether your site was residential, commercial, or used for other purposes. These are extremely useful because they provide information tied to a specific address or parcel (Hersh 2012).

Understanding historic uses can help identify the contaminants that are likely to exist at your site, as shown in the table below.

**Table 1: Potential Issues Associated with Different Previous Land Uses (Crozier et al 2009)**

Type of Site	Potential Problems					
	Lead	Other Inorganic Pollutants	Organic	Compacted Soil	No Topsoil	Glass, Misc. Litter
Near coal-fired plant		X				
Highway corridor	X	X				
House demolition	X	X		X	X	X
Industrial site	X	X	X	X	X	X
Parking lot	X	X		X	X	X
Farmland		X	X	X		
Storage lot	X	X	X	X	X	X
Vacant urban lot						X

In addition to the information sources described above, you should also refer to information about existing contaminants. Databases are useful because they provide information about a specific site, but also about nearby land uses that may have impacted it. Unfortunately, there is not a single, comprehensive brownfield database, but the following databases may be useful.

- CERCLIS, also known as Superfund Site Information, CERCLIS “contains information on hazardous waste sites, potentially hazardous waste sites and remedial activities across the nation, including sites that are on the National Priorities List (NPL) or being considered for the NPL” (U.S. EPA, “Superfund Site Information”). If your site is listed on CERCLIS, or adjacent to a site on CERCLIS, you may want to consult a professional.
- EPA’s Toxic Release Inventory (TRI) database contains “data on disposal or other releases of over 650 toxic chemicals from thousands of U.S.

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facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment” (U.S. EPA, “Toxics Release Inventory”). This database provides information about sites where contaminants were released into the environment, and can provide context about your site, even when there is no indication that it was directly impacted.

- RCRA Online enables is an online database of outreach materials regarding the “management of hazardous, non-hazardous, and medical waste regulated by the Resource Conservation and Recovery Act” (U.S. EPA, “RCRA Online: A Quick Reference Guide”). This can be a valuable resource for learning about substances of concerns and pertinent regulations.

#### **4.1.2 Site control/ownership**

In many cities, there is a wealth of land suitable for farming including parks, schools, churches, neglected yards, institutional facilities, and often vacant lots and abandoned buildings. These sites may be privately held by individuals, businesses, or groups; publicly owned by various levels of government; or publicly owned by utilities or transportation districts (Carpenter and Rosenthal, 2011).

Securing land can be done in several ways including: an outright purchase; donations or gifts; through partnerships with land banks; or it may be leased or rented at low rates for temporary use from local governments. Whatever method you choose, it is important that the terms under which you control your site link to your business plan, and it is appropriate for your goals.

Acquiring land can require establishing creative models of ownership or access to land and often times the support of municipal, state or local governments that may agree to low cost leases, development restrictions, or statutorily allow access to certain organizations. Each of the options above confers a unique set of advantages, but also may impose limitations that you should consider as you navigate the process. For example, if the land is donated or farmed in partnership with another entity, are there restrictions on your activities? If you entered into a low cost lease with your city, are you at risk of losing your farm if the site can be sold? You should be aware of these risks, and adjust your site selection to accommodate your risk tolerance.

Whether you want to purchase, lease, or simply access others’ property, you should remember that when you initially contact the owner, there is no way of knowing how they will react. However, you cannot go wrong by seeming capable and prepared. Regardless of whether you connect in person, over the phone, or through social media, you should consider providing a letter of introduction that describes:

- Who you are
- How you want to use the land, with an emphasis on community benefit
- The monetary terms of your lease, whether you are requesting to farm rent-free or for at a reasonable rate
- An offer to pay for utilities and liability insurance
- An offer to provide documentation required for a legitimate business
- An offer to provide a more detailed proposal
- Details of professional references (Carpenter and Rosenthal, 2011)

If you receive a favorable response and are asked to provide a more detailed proposal, you can draw on your business plan. Owners will likely want to know details, who else will be accessing or working on their property, how you plan to maintain it, and your contingency plan for risks or hazards (Carpenter and Rosenthal, 2011). You may be able to adjust your approach depending on whether the owner is an individual, business, organization, or government agency. Regardless of this, however, you should be prepared to provide documentation about your ideas, and maintain copies of agreements between you.

#### **4.1.3. Zoning, land use regulations, and permitting**

The location and suitability of an urban farming site is also significantly impacted by zoning, land use regulations, and permitting policies. Many cities have not addressed agriculture in their ordinances, creating uncertainty around the legality of commercial farming, and affecting a project's viability. A small but rapidly growing number of cities across the nation have taken steps to directly address urban agriculture, 16 of which are described in the 2011 Turner Environmental Law Clinic survey. The survey provides important details about how Chicago, Cleveland, Detroit and Milwaukee, have recently adopted policies incorporating urban agriculture into their land use plans. Several other cities in the 5-state region have made similar changes to their zoning code, including: Bloomington (Indiana), Madison, and Toledo. Michigan recently exempted cities over 100,000 people from the Right to Farm Act, which prohibited local regulations of farm. Many cities have restrictions on the types of activities that can be undertaken in residential areas, such as certain types of composting. If you are trying to establish your site in a city without explicit exemptions or support for farming, please contact your local zoning or land use authority. Do not enter into a purchase contract or lease for a site unless you are certain it has the appropriate zoning or unless the contract or lease is contingent upon zoning approval.

Once you have addressed zoning and land use, the next step is to ensure that your enterprise and all marketed products conform to local, state, and

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federal codes. If you are planning to sell or widely distribute your product you will most likely need to obtain a business license and/or operating permit. However, some municipalities may allow for limited sales or distribution of products without licensure. Certain products such as compost, fish, or livestock will impose additional public health and environmental standards.

## 4.2 Developing a Pathway to Reuse

Once you have thoroughly investigated your site and determined that it is appropriate for your method and model, you should begin a more formal ESA process. This involves moving beyond what you can infer from your site's context and historic use toward a determination about what contaminants exist, whether they require remedial action, and whether you can remediate appropriately without professional assistance. To determine what course of action is in the best interest of your business, consider the following question:

- Did you find contamination or evidence of potential contamination?
- If the contaminant(s) impact your method and model, can you farm your site after remediation?
- Are you financially and technically capable in your personal or business capacity of remedial action sufficient to satisfy all stakeholders (e.g. landowner, city, investors, customers)?

If you answered yes to all of the questions above, you may proceed with assessment and remediation. If you answered no to any of the questions above, you should consult a professional to conduct a formal environmental site assessment. Do not enter into a purchase contract or lease for a site unless you are certain that the site does not need further environmental assessment and remediation, you have characterized the environmental problems on the site and have the financial and technical resources to assess them, or unless the contract or lease is contingent on resolving any environmental issues satisfactorily.

### 4.2.1 Phased Environmental Site Assessment

There are two phases of a more formal ESA process. Phase I involves a site review by an environmental professional to determine potential or existing contaminants. If potential or existing contaminants are revealed at that phase of the assessment, a Phase II assessment will be conducted to identify specific contaminants and impacted areas. After your site assessment, any remedial actions you take will depend on a number of factors including cause of contamination (prior use), type of contamination, and crop you plan to grow and the growing method you select. Different site uses and even the existence of different contaminants are associated with different risk factors.



So, when do you need to go through a site remediation process, and when can you just start your garden and watch it grow? There is some ambiguity in differentiating between what is required of urban farmers and best practices that promote healthy food. Generally speaking, the barriers to site assessment and remediation are likely to be higher on publicly owned land as opposed to privately rented lots. This is not to suggest that private rentals allow farmer to cut corners on food safety. Rather, agricultural entrepreneurs should be mindful that there may be trade-offs involved in what are frequently favorable terms of lease for publicly owned parcels.

For the most part there is no simple or straightforward way of determining relationships of necessity and sufficiency between factors causing contamination and specific remedial actions (e.g. “if it was zoned X, then remedial action is Y”). Assessing whether and what type of remediation is necessary is complicated because in many places standards for urban agriculture do not exist. For example: at present there are no clear standards for soil contaminant levels that address plant uptake of contaminants; nor are there clear standards on appropriate extent of contamination at urban farming sites.

However, there are clear best management practices (BMPs) that can guide your decision making. Additionally, U.S. EPA Region 5 (Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin) Community and Land Revitalization Branch is working with stakeholders on a national committee to learn more about establishing urban agriculture enterprises. This group has developed a set of interim guidelines that expand on the information contained in this section. In short, if there are applicable existing standards or BMPs, you should follow them. If there are no standards or BMPs, consider it an opportunity to demonstrate the best practice in your community.

Beyond BMPs, all of the states in the Great Lakes region administer formal, voluntary cleanup programs (VCPs) to coordinate brownfield remediation between state and federal authorities. VCP is an umbrella term for various voluntary programs, though different states refer to and structure their programs differently. These involve a variety of financial and technical incentives.

#### **4.2.2 - Safe soils and growing conditions**

If you answered yes to all of the questions in 4.2 or underwent the ESA phases, then it is time to prepare your site for growing. Now you need to assess your site’s suitability for producing healthy food given the known contaminants, and determine to what extent, if any, the site requires remediation or a change in growing methods (e.g. raised beds). You should not be deterred by the presence of potential contaminants. While it makes the development process more complex, it is part of what makes urban farming a transformative process. Contamination is common at urban sites, though not

all land uses and contaminants are associated with the same risk factor.

Making decisions about farming practices that protect human health, you should consider many factors, including: soil contaminants and human contact with soil during farming and gardening; applying amendments, pesticides, or other inputs; and availability of contaminants for uptake by plants, and any associated health risks.

Regardless of whether the historic use of your site implies it is high- or low-risk for contamination, U.S. EPA recommends testing soil at every site to assess: 1) its quality as a growing medium, and 2) for contaminants that can have a potential adverse impact on human health. According to the interim guidelines: “Most states set guidelines for soil cleanup with risk-based standards based on anticipated reuse of the property. Residential clean-up levels are the most restrictive, so if contaminant levels are below residential use levels, it is safe to assume your site is safe for gardening and will be protective of human health” (U.S. EPA “Brownfields and Urban Agriculture: Interim Guidelines for Safe Gardening Practices”).

To find out about standards in your state, contact the relevant authority directly, or visit the U.S. EPA Brownfields and Land Revitalization Program website, selecting the State Brownfields Program, or visit [http://www.epa.gov/brownfields/state\\_tribal/state\\_map.htm](http://www.epa.gov/brownfields/state_tribal/state_map.htm).

Ask your state contact to recommend a soil testing laboratory. If they cannot direct you to one, you can mail samples from your site to the university labs that can provide information about toxins and other soil quality parameters.

The Pennsylvania State University Agricultural Analytical Services Lab can provide information about soil toxicity. See Table 2 below for some available tests of soil toxicity parameters.

**Table 2: Available Tests for Soil Toxicity Parameters**

Test	Cost	Parameters
Total Sorbed Metals Test	\$65	Determines the total sorbed levels of cadmium, copper, nickel, chromium and zinc in soils by EPA method 3050B + 6010.
	\$160	Determines the total sorbed levels of contaminants listed above plus arsenic, mercury, molybdenum and selenium by EPA method 3050B + 6010.

The University of Massachusetts Soil and Plant Tissue Testing Laboratory can provide information about other soil quality parameters. See Table 3 for soil quality parameters and costs.

**Table 3: Available Tests for Soil Quality Parameters**

Test	Cost	Parameters
Routine soil analysis	\$10	Extractable and estimated total lead, pH, buffer pH, extractable nutrients (P, K, Ca, Mg, Fe, Mn, Zn, Cu, B), extractable aluminum, cation exchange capacity, and percent base saturation
Soilless greenhouse media	\$15	pH, water, saturated media, electrical conductivity, and nutrient content (P, K, Ca, Mg, Fe, Mn, Zn)
Standard compost testing	\$25	pH, extractable nutrients (P, K, Ca, Mg, Fe, Mn, Zn, Cu, B), extractable aluminum, equivalent base percentages, organic matter, total nitrogen, C/N ratio, nitrate-N, ammonium-N, electrical conductivity, percent moisture, bulk density

The results will determine your course of action because, as described above, there are not standards for urban farms and gardens. However, lead concentrations should always be below 400 ppm in growing beds and 1200 ppm on pathways and other areas of the site. If concentrations are above these limits, you can amend the soil with compost and retest. Compost can reduce the bioavailability of contaminants, or the likelihood that they will be taken up by plants.

Whether you are concerned about soil quality after testing, or you simply want to minimize risk exposure to your crops, there are several techniques you can employ:

- Raised beds or containers minimize exposure to contaminated soils, minimize compaction, and improve drainage. This method is optimal for untested soils or on sites with persistent concerns about soil quality.
- Geotextile barriers are various types of fabric covering contaminated soil that are in-filled with quality soil and compost in order to limit the mobility and uptake of contaminants.
- Clay caps and mud mats function similarly to geotextile barriers, but involve laying several inches of clay or mud over contaminated soil that are in-filled.

Indoor growers will face a different set of challenges from the ones described above. However, they are equally responsible for maintaining safe growing conditions. When considering a site, you should have the building thoroughly inspected by a third party before sale or lease. In addition to some of the considerations described above, indoor farmers will have to address:

- Mold is caused by excess moisture and can live in soil and on plants. If it becomes a problem at an indoor farm it can potentially threaten the entire operation as well as human health. If you can determine and repair the source of excess moisture you should contact a professional immediately.

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- Asbestos is a mineral occurring in materials that were commonly used for constructing or insulating buildings. When materials that contain asbestos are disturbed, particles can become airborne and available for inhalation. Exposure can cause significant health problems. Lead paint is a common source of lead contamination in and around homes and other buildings constructed prior to 1978 when it was banned for use in housing. The paint source may have degraded to lead contaminated dust. Children are highly susceptible to lead exposure, which can result in serious health complications including neurological damage.
  - Indoor air quality (IAQ) issues can also threaten indoor operations, and may be associated with or exacerbate mold issues. Low IAQ can also be associated with other sources of pollution that release gasses or particles into the air, including oil, gas, kerosene, coal, wood, asbestos, radon, and pesticides. Ventilation is critical to farming to your farm and crops because too little of it allows pollutants to accumulate.

## Case Study: Windy City Harvest – Chicago, Illinois

Planning for Windy City Harvest began almost 10 years ago. The concept was to create an urban agriculture social venture that could earn enough income to support the business operations over time and, with the help of grant funds, provide job training opportunities for residents of Chicago's North Lawndale neighborhood. Planning for Windy City Harvest was financed by a local foundation and initially staffed by the Delta Redevelopment Institute. Windy City Harvest was originally planned to be an independent nonprofit organization that used the talents and resources of a number of partner organizations, including the Chicago Botanic Garden (CBG) as the horticultural expert, to provide key services. The original site identified for Windy City Harvest was a 4-acre site. This site was comprised of privately owned and city owned land. A full set of plans for the Windy City Harvest farm were developed for this site including architectural plans and environmental assessment and remediation plans. The site included an old armory building, which was to be redeveloped into a community and teaching center and would include greenhouses and hoop houses for production as well as outdoor raised bed gardens.

After the initial planning phase, Windy City Harvest organized a board, hired an Executive Director and began operations as a separate organization. Negotiations for the original site stalled and an alternative 15-acre site was purchased on the west side of Chicago. A new set of comprehensive plans for the Windy City Harvest farm was created for this site. Unfortunately, after purchasing this site it was apparent that there were lingering environmental problems, including underground oil tanks. The costs for remediation and construction skyrocketed into the tens of millions. It became clear as the 2008 recession deepened that it would be impossible to raise these funds and that the expanded scope of the project was out of keeping with the times.

The Executive Director of Windy City Harvest left and the CBG took over ownership of Windy City Harvest and invited some members of the Windy City Harvest board to join the CBG board. The physical and capital development of the 15-acre site was put on hold. A pilot program that began in 2007-2008 at a satellite of Daley College (a City College of Chicago) enrolled 16 students in a 9-month certificate program that included a 3-month internship. This program, at Arturo Velasquez Institute, used an underutilized greenhouse and outdoor planting beds, as well as an adjoining classroom. The certificate program was approved by the Illinois Community College Board in January 2009 for 31 continuing education credits.

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At the same time, the CBG turned to a new strategy of piecing together smaller production sites across Chicago in order to support the production training activity required for an effective training program. This revised plan brought with it new collaborations with organizations and businesses such as Cook County departments, a mixed income housing developer, a food distributor, a commercial aquaponics start-up, retail food sellers and a restaurant/food service company. These relationships have helped create a more resilient training and development model needed to build a local food system. Some examples of this new strategy are:

- In 2009 the State of Illinois used federal stimulus money to fund the CBG to establish a garden operation at the Cook County Sheriff's Boot Camp, an alternative sentencing facility for incarcerated young males. This provided approximately 2 acres for raised bed production, extended season hoop houses, an on-site composting operation and a 6,000 gallon indoor aquaponics system.
- The development of a transitional jobs program, annually employing 30 graduates of the Sheriff's Boot Camp program, now called the Vocational Rehabilitation Impact Center.
- The establishment of a new 1.5-acre intensive production site just north of the VRIC on land licensed directly from Cook County
- The development of a 50-basket per week supply of fresh produce for distribution at Women, Infant and Children's (WIC) centers in Chicago
- A close working relationship with Midwest Foods, a major local distributor of local, sustainably grown produce.

Though Windy City Harvest had to depart from its initial strategy when faced with brownfield redevelopment costs far exceeding potential revenue sources, the CBG has been able to demonstrate safe growing techniques and generate revenue on vacant and underutilized sites throughout Chicago. Since 2008, earned income has steadily grown from under \$10,000 to over \$72,000 while providing training to over 100 individuals. In August 2012, the USDA awarded the program a \$750,000 Beginning Farmer & Rancher Development Program grant to expand the training curriculum to include six more industry-specific certificates and assist 6 new farmers with beginning commercial operations on incubator sites over the next 3 years.

## PART V: SEEDING AND SUSTAINING YOUR ENTERPRISE

By now, you've undoubtedly spent a lot of time planning your enterprise, and considering all of the various components of the process, including your methods, operating model, business plan, policy environment, and reuse pathway. Once you begin farming, however, be assured that you will be challenged and rewarded each day. It is difficult work and there are often setbacks that will require dedication and perseverance. One of the significant challenges you may face, particularly in the early stages, is attracting enough capital to sustain operations and eventually grow. The good news, though, is that you can start farming with little more than ambition, the right site, and the right tools. This means that you don't have to wait for investors, grants, or other funding before you get your hands dirty. As Sections 1-4 of this Guide discuss, starting to plant and grow food is the reward that comes after a long and detailed planning process. And although starting an urban farm may be less time- and capital-intensive than other start-ups, it can be challenging to develop customized products or scale up your operations. These endeavors will require sustained, dedicated financial resources.

In order to ensure financial resources over the long term, it is important to be flexible. Keep your objectives in mind, and continually update your business plan to link it to your objectives. If you want to attract capital to scale-up your farm, your business plan will be critical to demonstrating that you targets. If you are running a social venture, you can anticipate that produce sales will not be sufficient to sustain your day-to-day operations and to support broad social objectives. As a result, funding from federal, state, local, or private sources will be needed to support broader objectives. You should be able to provide some metrics that demonstrate a social outcome. For example, if your farm is designed as a job training program, you should be able to provide information about how many people were trained, and how many found employment; if it is intended as an environmental program, you should be able to show how many brownfield sites were remediated, and how that impacted surrounding communities. Remember though, that obtaining external funding is secondary to demonstrating some success, even narrowly defined.

### 5.1 Sources and Types of Funding

The Small Business Administration offers a comprehensive search tool that allows you to input information about yourself and the business you want to establish, and it will identify sources of loans, grants, and seed and venture capital that you may be eligible for. This tool aggregates funding opportunities from across government agencies based on the criteria you enter. You can access this tool on the Small Business Administration homepage, and clicking on "Find Grants and Loans," or visiting <http://www.sba.gov/content/search-business-loans-grants-and-financing>.

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It is important to understand the basics of financing, and the points below give an overview of financing tools and mechanisms. Appendix 1 offers a snapshot of current federal financing opportunities.

- Loans may be made from a variety sources including local development banks, credit unions, or government agencies. Loans are generally made for a specific purpose and carry terms that define conditions under which the loan will be structured and repaid. For example, the interest rate can vary based on a variety of factors or indices, including the federal funds rate or the bank prime rate, and whether or not the debt is secured by underlying real assets or property.
- Grants, unlike loans, are financing tools that do not have to be repaid and as such are a highly desirable financing tool. As a result, grant applications may be competitive, complex or cumbersome, and made for narrowly defined purposes to qualifying recipients that incur strict compliance and reporting duties. However, the work you put into securing and reporting expenditures of a grant is the only cost of borrowing you will incur, because it is essentially 'free money'.
- Tax credits are specific amounts of money deducted from the overall amount that a tax-paying individual or business owes a taxing body (federal, state, municipal government). For urban farming, tax credits may be offered to subsidize associated costs (e.g. tools, water) or subsidize desirable outcomes (e.g. food production, brownfield redevelopment).
- Crowdfunding is an emerging form of mechanism through which groups of donors can contribute small sums to support enacting or scaling up an idea. Because this is an emerging tool, there are few platforms for connecting innovators and donors. However, existing platforms, such as kickstarter and IndieGoGo, offer limitless potential for innovative urban farmers.

The do-it-yourself ethic is key to urban farming. While these financial considerations may seem daunting, this Guide is intended to prepare you for the range of challenges and rewards you will encounter as an urban farmer. Having read and reflected on the Guide in its entirety, you should be well prepared to compile competitive funding applications drawing on your passion, skills and expertise. The important part is to start now using the resources you have today.



## APPENDIX A: PARTIAL LIST OF FEDERAL FINANCING SOURCES

(Current October 2012)

### Environmental Protection Agency

#### **EPA Brownfields Program:**

[http://www.epa.gov/swerosps/bf/grant\\_info/index.htm](http://www.epa.gov/swerosps/bf/grant_info/index.htm)

"Grants and Funding" page will have a current list of fall programs offered. See below for a list of examples of what may be offered.

#### **EPA Brownfields Revolving Loan Fund Grants:**

<http://www.epa.gov/brownfields/rlflst.htm>

Financial and technical assistance for brownfields activities directed to the pursuit of four main goals: protecting human health and the environment; sustaining reuse; promoting partnerships; and strengthening the marketplace.

#### **Environmental Workforce Development and Job Training:**

<http://www.epa.gov/brownfields/job.htm>

Annual Environmental Workforce Development and Job Training grants allow nonprofit and other organizations to recruit, train, and place predominantly low-income and minority, unemployed and under-employed people living in areas affected by solid and hazardous waste.

#### **Brownfields Site Clean Up Grants:**

[http://www.epa.gov/brownfields/cleanup\\_grants.htm](http://www.epa.gov/brownfields/cleanup_grants.htm)

Provide up to \$200,000 per site to carry out cleanup activities at brownfield sites contaminated by petroleum and hazardous substances, pollutants, or contaminants. Cleanup grants require a 20 percent cost share.

#### **Local Government Reimbursement Program:**

<http://www.epa.gov/oem/content/lgr/>

EPA may reimburse local governments for expenses related to the release of hazardous substances and associated emergency response measures and may provide up to \$25,000 per incident to local governments that do not have funds available to pay for response actions.

#### **Brownfields Tax Incentives:**

<http://www.epa.gov/brownfields/tax/index.htm>

EPA program that makes environmental cleanup costs "fully deductible in the year incurred, rather than capitalized and spread over time." Started in 1997, but expired December 31, 2011.

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**The Kansas State University Center for Hazardous Substance Research:**

<http://www.tabez.org/>

The Kansas State University Center for Hazardous Substance Research has created a tool to assist with submitting Technical Assistance to Brownfields grant applications.

**United States Department of Agriculture**

**Community Food Projects Competitive Grants Program:**

<http://www.nifa.usda.gov/fo/communityfoodprojects.cfm>

The CFGCGP funds projects designed to: 1) meet the needs of low-income people; increase community self-reliance providing for their own food needs; and promote responses to food, farm and nutrition issues. 2) meet specific state or local needs for infrastructure development/improvement; long-term planning; innovative marketing that benefit agricultural producers and low-income consumers.

**Beginning Farmer/Rancher Development Program:**

<http://www.nifa.usda.gov/fo/beginningfarmerandrancher.cfm>

BFRDP provides support for training, education, outreach, and technical assistance initiatives for beginning farmers or ranchers. BFRDP prioritizes partnerships and collaborations involving NGOs and community CBOs with expertise in new agricultural producer training and outreach.

**Small Business Innovation Research:**

[http://www.nifa.usda.gov/funding/rfas/sbir\\_rfa.html](http://www.nifa.usda.gov/funding/rfas/sbir_rfa.html)

SBIR grants provide pre-development funds for technological advances in aquaculture and small-to-medium farm operations.

**Department of Housing and Urban Development**

**Brownfields Economic Development Initiative:**

[http://portal.hud.gov/hudportal/HUD?src=/program\\_offices/comm\\_planning/BEDI](http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/BEDI)

BEDI grants target projects emphasizing economic development projects and expansion of economic opportunities for low-and moderate-income persons through job creation and an increase in the local tax base.

**Community Development Block Grant Program:**

[http://portal.hud.gov/hudportal/HUD?src=/program\\_offices/comm\\_planning/communitydevelopment/programs](http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitydevelopment/programs)

CDBGs provide communities with financial resources to address community development needs.

## Department of Commerce

### **EDA Local Technical Assistance Program:**

<https://www.cfda.gov/?s=program&mode=form&tab=step1&id=44c7e7b36bff91c8a17f06fa257507f8>

EDA administers three technical assistance programs (National, Local and University Center) that promote long term economic development in distressed regions with high unemployment and low per capita income.

### **EDA Public Works and Development Facilities Program:**

<https://www.cfda.gov/index?s=program&mode=form&tab=step1&id=f860a3b8eeae5e8f25a41e38e511a72c>

Public works grants support the construction or rehabilitation of public infrastructure or facilities to attract or retain private sector investment, jobs, and competitiveness.

## Small Business Administration

### **Certified Development Company/504 Loans:**

<http://www.sba.gov/content/cdc504-loan-program>

SBA offers a variety of loan for specific purposes, and may be a valuable resource for urban farmers. Interested applicants should visit the SBA site to determine whether their particular enterprise qualifies for SBA loans.

### **The Program for Investment in Micro-Entrepreneurs, or PRIME:**

<http://www.sba.gov/about-sba-info/prime-program>

PRIME provides assistance to organizations helping low-income entrepreneurs who lack sufficient training and education to gain access to capital to establish and expand their small businesses.

### **New Market Venture Capital:**

[http://archive.sba.gov/aboutsba/sbaprograms/inv/nmvc/INV\\_NMVC\\_INDEX.html](http://archive.sba.gov/aboutsba/sbaprograms/inv/nmvc/INV_NMVC_INDEX.html)

The SBA entered into agreements with six New Markets Venture Capital Companies (NMVCCs), for-profit investment funds with working to promote economic development and the creation of wealth and job opportunities in their self-designated Low-Income (LI) geographic Areas.

### **New Market Tax Credits:**

The New Market Tax Credit Program attracts investment capital to low-income communities by permitting individual and corporate investors to receive a tax credit against their Federal income tax return in exchange for making equity investments in specialized financial institutions called Community Development Entities (CDEs).

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# Delta

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Delta Institute is a center of innovation that creates market opportunities to build regional economies that are job rich and inclusive. In partnership with business, government and local communities, Delta tackles the hard problems using creative approaches to find cost-effective sustainability that values natural resources, energy efficiency and waste stream reductions.

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Green Opportunities in Growing Industries