



Soil and Materials Engineers, Inc.

GROWING GREEN ON BROWNFIELDS

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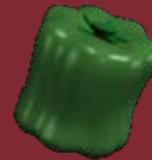
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consultants in the environment, geosciences and materials

OVERVIEW

- What is Urban Agriculture
- Technologies
- Benefits
- Obstacles



URBAN AGRICULTURE

The production, distribution and marketing of food and other products within the cores [urban] and edges [peri-urban] of metropolitan areas. Urban agriculture is a complex activity, addressing issues of food security, neighborhood development, environmental sustainability, land use planning, agricultural and food systems, farmland preservation, and other concerns.

North American Urban Agriculture Committee
Community Food Security Coalition



URBAN AGRICULTURE

The growing of plants and the raising of animals for food and other uses within and around cities and towns, and related activities such as production and delivery of inputs, and the processing and marketing of products. [Urban agriculture encompasses] a variety of production systems, ranging from subsistence production and processing at the household level to fully commercialized agriculture.

(van Veenhuizen 2006)



URBAN GARDENING VS FARMING

- **Urban gardens**

- Subsistence or small market
- Household, neighborhood/community, municipal, non-profits
- $\leq 1 - 2$ acres

- **Urban farms**

- Commercial or market (non-profits)
- Corporations, non-profits
- $> 1 - 2$ acres



URBAN / PERI-URBAN AGRICULTURE

- Small/medium farms
- Household gardens
- Market gardens
- Community gardens
- Institutional gardens
- Roof/backyard gardens
- Guerilla gardens
- Orchards



URBAN/PERI-URBAN AGRICULTURE

- Bee keeping
- Poultry
- Animals (pigs, goats, sheep, cattle, ...)



- **Product processing facilities**

- Cleaning
- Packaging
- Canning
- Freezing

- **Product distribution facilities**

- Markets (retail, wholesale, co-op, community, farmers, ...)
- Food stands
- Mobile vending



- **Food preparation facilities**
 - Community kitchens
 - Shelters
 - Restaurants



UA TODAY AND TOMORROW

■ Today

- 15% of world food grown in urban areas
- Typical food transportation : 1000 – 2000 miles

■ Tomorrow's potential

- Cleveland, OH – 3000 acres vacant
- Trenton, NJ – 900 acres vacant (18% of land)
- Detroit, MI – 40 sq. miles vacant (30% of land)
- Foodshed = 200 miles



TECHNOLOGIES

- **Dirt farming/gardening**
 - Row farming
 - Greenhouses
 - Raised beds
- **Hydroponics**
- **Aquaponics**
- **Aeroponics**



BENEFITS

- **Education and life skills**
 - Children
 - Adults
 - Socially marginalized populations (poor, homeless, unemployed, rehab)
- **Health and nutrition**
 - Access to variety of fresh foods year round
 - Reduced exposures to pesticides and other contaminants
 - Food security



FOOD SECURITY

Reliable availability of and one's physical and economic access to food that meets dietary needs and preferences.



■ Environment

- Reuse, secure, improve brownfields
 - » Reduce exposure risks
 - » Reduce blight
- Restore urban vegetation (greenspace)
- Support sustainable practices
 - » Reduce transportation impacts (fuel, GHGs, ...)
 - » Production and use of composting
 - » Storm water runoff reduction
 - » Reuse infrastructure, buildings and material resources

BENEFITS

- **Economic**

- Local commerce
- Jobs
- Self reliance
- Tax revenue

- **Social**

- Enhanced community cohesion
- Neighborhood regeneration and stabilization
- Improved quality of life
- Improved land values



■ Developmental

- Contamination
 - » Metals (As, Cd, Pb, Hg, ...) and PAHs – UDA
 - » PCBs
 - » Site-specific contaminants related to past uses
- Soil quality
- Site preparation (demolition, rehabilitation, ...)
 - » Structures (above and below grade)
 - » Utilities
- Processing, distribution and marketing infrastructure

- **Developmental (cont.)**
 - Financial
 - » Initial capital
 - » Business management skills
 - Land assembly
 - Long term tenure rights and title issues
 - Conflict between supporters of “social” and commercial urban agriculture

OBSTACLES

- **Governmental**

- Zoning
- Taxation structure
- Land acquisition(from community)
- Permit approvals in bureaucracies
- Not considered appropriate/viable use of land
- Not typically an economic or community development priority



OBSTACLES

■ Operational

- Economic viability
- Site security
- Recruiting, training and retaining staff
- Long learning times (endurance)
- Management and planning skills
- Cash flow (25-50% costs covered through sales)
- Managing multiple parcels/sites
- Product processing, distribution and marketing

THE FUTURE

- **Bright**
- **Years of hard work and dedication by pioneers is now producing results, interest, and an expanding movement**
- **Interest in larger scale commercial enterprises is growing**
- **Scale is increasing**
- **Major obstacles will be governmental and economic**





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