Urban Agriculture in the Context of Food Insecurity in Philadelphia, PA

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ABSTRACT

Increasing urbanization, decline in agricultural sectors, and obstacles to equitable food allocation have rendered dire consequences of food insecurity in urban areas. Food producers have grown in size and distance from consumers, leaving many communities in food desert areas. However, the trend of urban agriculture has been touted to help mitigate these negative impacts in addition to providing valuable economic and social spillover effects. While there is less concrete literature on the benefits of food-producing green spaces in cities, there is ample research on the impacts of general greenspaces to urban residents. This research will seek to fill that gap by identifying the state and trends of both food insecurity and urban agriculture in Philadelphia, in order to examine how they might converge.

Key words: urban agriculture, food systems, food insecurity

What are the benefits of urban agriculture projects?

- Decreases distance to fresh food options in food deserts
- Promotes community & economic development
- Helps revitalize neighborhoods and combat urban blight by restoring vacant and derelict lots
- Promotes healthy diets, exercise, and community involvement

Where are food deserts located in Philadelphia?

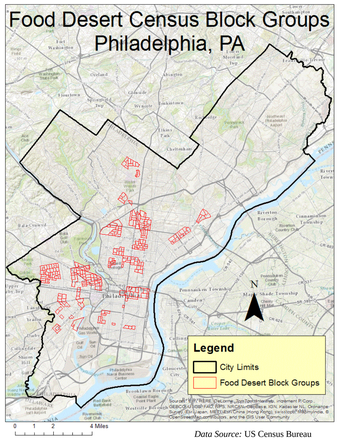
- Analyzing transportation accessibility and proximity to grocery stores
- Identifying census block groups that are further from grocery stores, and have lower averages of transportation accessibility
- Examining demographic and economic trends in these neighborhoods

Where are successful urban agriculture projects located in Philadelphia?

- Sites that have some element of self-sustaining revenue-generation
- Projects that have been in existence for at least two years
- Examining demographic and economic trends in these neighborhoods

Examining Food Desert and Urban Agriculture Trends in Philadelphia

What trends are present in neighborhoods classified as food deserts?

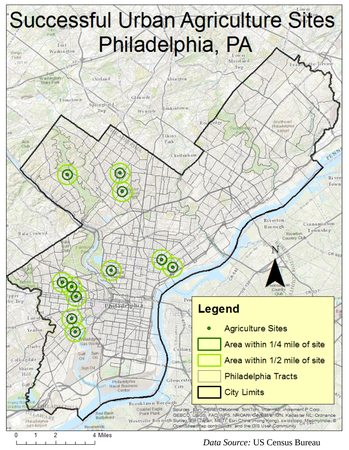


Variables analyzed in ArcGIS and SPSS:
- Car ownership
- Household income
- Race and Ethnicity

According to **Mann-Whitney U-tests**, the difference between Census block groups that were identified as food deserts and those that were not were statistically significant; with food desert Census block groups having:
- **Higher** percentages of minority residents
- **Lower** percentages of car ownership
- **Lower** median household incomes.

	Minimum Value	Maximum Value
Minority Proportion	14%	100%
% Without Car Access	31.27%	64.85%
Median Household Income	$12,088.00	$57,676.00

What trends are present in neighborhoods close to urban agriculture sites?



Variables analyzed in ArcGIS and SPSS:
- Household income
- Poverty & unemployment
- Home values
- Vacancy rates
- Immigration rate
- Home tenure rates
- Race and Ethnicity

According to **t-tests**, the difference between Census tracts that were identified as being close to an urban agriculture site and those that were not were statistically significant; with urban agriculture Census tracts having:
- **Higher** rates of poverty & unemployment
- **Higher** vacancy rates
- **Higher** rates of minority populations
- **Lower** immigration rates
- **Lower** home tenure rates
- **Lower** median household income

What has changed over the past ten years?

Table 1. Statistically significant rates of change in census tracts within ¼ mile from urban agriculture sites. Philadelphia, PA.

Variable	Percent Change not within ¼ mile change	within ¼ mile change	level of sig.
White	-5.8%	1.9%	.000
Black	1.0%	-4.1%	.087
Hispanic	3.2%	1.6%	.027
Vacant Units	-.03%	-1.9%	.010
Owner occupancy	-4.5%	-6.3%	.000

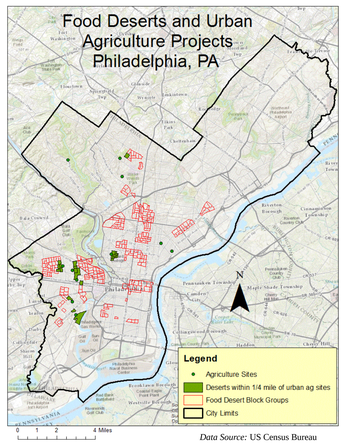
Table 2. Statistically significant rates of change in census tracts within ½ mile from urban agriculture sites. Philadelphia, PA.

Variable	Percent Change not within ¼ mile change	within ½ mile change	level of sig.
White	-6.4%	1.0%	.000
Black	1.5%	-4.0%	.000
Hispanic	3.2%	2.10%	.008
Vacant Units	.16%	-1.9%	.015
Owner Occupancy	-4.3%	-6.4%	.039
HS diploma or less	-5.2%	-8.0%	.025

According to **Rate of Change** tests, several positive changes have been experienced within urban agriculture neighborhoods.

- Vacancy rate has **decreased** by 1.9% (as compared to only -.03% in non-urban ag tracts) within ¼ and ½ mile of urban ag sites
- Residents with only High School diplomas or less have **decreased** by 8% (as compared to only 5.2% in non-urban ag tracts) within ½ mile of urban agriculture sites

How can urban agriculture projects be leveraged to ameliorate food insecurity in Philadelphia?



Presently, only **21 of 245 food desert block groups** are within ¼ mile of urban agriculture projects.

While current successful urban agriculture projects are located in neighborhoods in need of economic and community development, they do **not** necessarily correspond with food desert block groups.

DISCUSSION

T-tests show that neighborhoods containing urban agriculture in Philadelphia tend to be those in dire need of community and economic development. However, **rates of change** demonstrate that positive change has occurred over some of these indicators in the past decade. With this being said, the city may be able to continue leveraging urban agriculture projects in order to beautify the city, improve overall quality of life, and decrease residents' distance to fresh food options by increasing development of urban agriculture sites throughout neighborhoods in need of revitalization, and paying careful attention to the locations of these sites with respect to food deserts.