Oasis in the Desert: Comparing the Distribution of Food Deserts to the Distribution of Community Organizations

Purpose

The goal of this study was to identify any accommodation gaps between food deserts in Pima County and sites that help to relieve food insecurity. Food deserts constitute the most food-vulnerable areas in a community, specifically regarding access to nutritious options. Thus, it is critical to understand how the various organizations working to increase healthy food accessibility are distributed throughout the community.

What is a Food Desert?

A food desert is a low-income area characterized by limited access to affordable, healthy food options, such as fresh fruits, vegetables, and other nutritious foods. The USDA defines a food desert in two parts, both by the income of an area and the geographical distance to a provider of healthy, fresh foods, such as a supermarket.

Low Income: The USDA uses multiple factors to define an area as low income:
- The poverty level is 20% or more OR
- The median family income is less than 80% of the statewide median family income OR
- In a metropolitan area, the median family income is less than 80% of the median family income of the surrounding metropolitan area

Low Access: A significant number (at least 500 people) or proportion (at least 33%) of the population lives 1.0 mile or more from the nearest supermarket, supercenter, or large grocery store in an urban area, or 10 miles or more in a rural area.

Food Assistance Sites by Category

Methods

In order to determine how thoroughly food assistance sites in Pima County are distributed among food deserts, the following procedure was implemented:

- Identified ten different food assistance organizations that work in Pima County.
- Obtained the coordinates of 139 food assistance sites operated by these organizations. For the purposes of this study, a food assistance site is a location that increases the amount of fresh, healthy food in the community.
- Categorized the food assistance sites into six broad types: Farmer’s Market, Food Bank and Distribution, Community Garden, Farm and Garden Education, Produce Distribution, and School.
- Used ArcGIS to map the distribution of food assistance sites relative to the distribution of food deserts in Pima County.
- In this study, a food desert is a census tract that the USDA defines as low income and low access. The USDA food access data is available at https://www.ers.usda.gov/data/

Why Does This Matter?

Organizations share a common belief that socioeconomic identity should not define diet.

- According to the 2010 Census, 130,313 people in Pima County live in a food desert. Right now, neighborhood determines access to proper nutrition.
- Allowing food insecurity is not merely a matter of education—access is key.
- Individual agency and empowerment are critical—but not just providing meals, but giving individuals the tools to acquire/reduce their own fresh food.
- Tucson is a UNESCO World City of Gastronomy. Who benefits from this designation?

Results

- The average food desert population is 4645 people.
- Of the 139 food assistance sites mapped, 31 (22%) fall within food deserts.
- The category with the most sites is Farmer’s Market.
- The category with the most sites is School (40%).
- All of the School Sites are run by the Community Food Bank.
- 43% of food deserts contain at least one food assistance site.
- 30% of food assistance sites have at least one food assistance site.
- 52% of urban food deserts have at least one food assistance site. On average, each food desert has 2.6 sites.
- The Community Food Bank operates 44% of the total food assistance sites.

CATEGORIES

- Farmer’s Market Sites: Includes those that accept SNAP benefits and those that do not.
- Food Bank and Distribution Sites: Includes food pantries, food box distributors, and meal providers.
- Community Garden Sites: Includes gardens that require a fee to join and gardens that cater to underserved populations.
- Farm and Garden Education Sites: Includes school garden programs and urban farms.
- Produce Distribution Sites: Includes organizations that sell 60 pounds of rescued produce for ten dollars.
- School Sites: Includes school pantries and after-school snack and meal programs. Each service offers children fresh fruits and vegetables, and other nutritious options

Organizations on the map

The distribution map includes sites from ten organizations that strive to increase the amount of healthy, fresh food in Pima County. Each organization serves a slightly different mission, but together they produce a more sustainable, economically empowered community.

Note: The organizations mapped do not include all food assistance programs affiliated with the government or the University of Arizona. This study was specifically looking at nonprofit and grassroots efforts to increase access to nutritious foods.

Conclusion

- This study reveals that a large majority of the mapped food assistance sites (78%) do not fall within food deserts. Of those that do, a majority of them are operated by one organization, the Community Food Bank.
- The study also suggests that some duplication exists between similar organizations. There are several areas where sites of the same type are positioned close together, while the surrounding area is fairly sparse.
- However, there is not enough information about each site to draw conclusions about how effectively the different organizations assist individuals living in food deserts. More research needs to be conducted to determine how each site interacts with the surrounding community. Questions for further study include:
  - How many people does each site serve? How many of these individuals live in food deserts?
  - Are there areas that are not deemed food deserts but still demonstrate a high level of need? Do some of the sites not in food deserts target these areas?
  - What other factors, besides income and distance, affect how much access an individual has to nutritious foods?

- At this stage, the research is not prescriptive. However, the access maps can be provided to relevant groups in order to give them insight into how their work functions within the broader network of food assistance organizations in Pima County.

In conclusion, this study demonstrates that mapping food assistance sites can be a useful tool for identifying areas of need and for planning future assistance programs.