Quantifying Urban Agriculture: A Case Study from Baltimore

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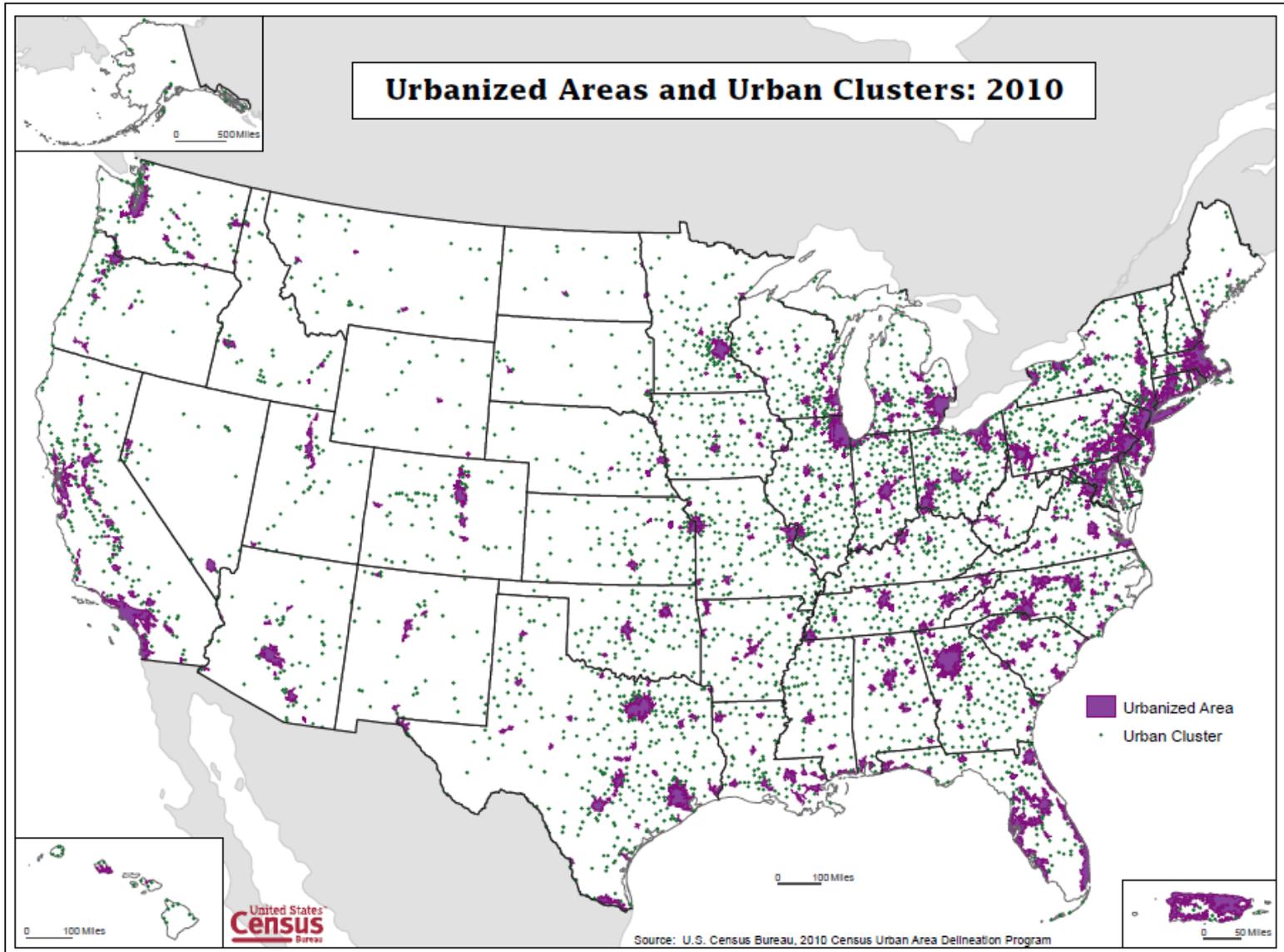
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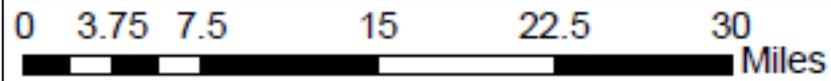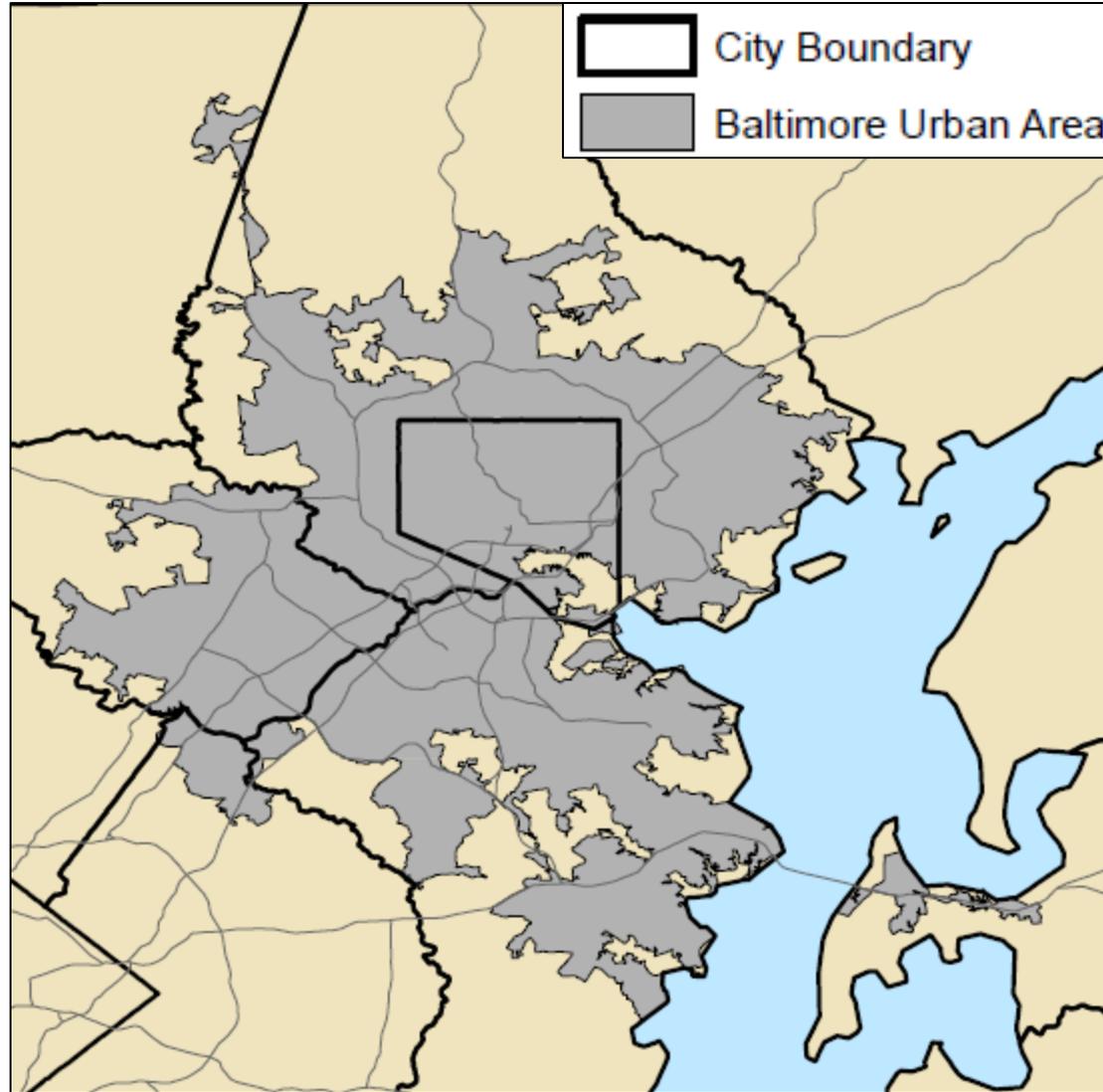
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What Is Urban?

Urbanized Areas and Urban Clusters: 2010

Source: U.S. Census Bureau, 2010 Census Urban Area Delineation Program

First Test City: Baltimore

What is a Farm?

- A farm is any place from which $1,000 or more of agricultural products were produced and sold or normally would have been sold during the year.
  - Examples, some special cases:
    - Christmas trees
    - "government payment" farms
    - "pasture only" farms (at least 100 acres)
    - nurseries and greenhouses
    - exotic livestock
    - large garden

- Point Farm: a farm that does not produce or sell $1,000 or more of agricultural products, but has the potential for that much production.

Farms vs. Urban Agriculture

- Each farmer is surveyed
- Total area may qualify as a farm, but individual plots may not
- Farm definition may not fully capture extent or importance of urban ag activity

http://www.fiveboroughfarm.org/urban-agriculture/

Agriculture Included

Urban Agriculture Defined

For the purposes of this project, Urban Agriculture includes:

- Minimum 36-square-foot area* of growing space

- Types of urban agriculture:

  - Urban Gardens

  - Private Gardens

  - Rooftop Gardens

  - Urban Farms

  - Other (such as hydroponics, livestock, beekeeping, etc.)

*
   any garden space that contains individual grow containers smaller than a 36 sqft container will be included in the study as long as the
   aggregate size is greater than 36 sqft.

First Test City: Baltimore

- 30,000 vacant properties
  - 16,000 vacant buildings
  - 14,000 vacant lots
- Permit Examples
  - Big City Farms has 1.5 acres in Sandtown
  - Real Food Farm has 1.5 acres in South City Park
- Online Presence
  - www.baltimoresustainability.org

Baltimore Permits

- **Bees:** Must have a permit with Office of Animal Control if have three or more hives; Must be registered with the Maryland Department of Agriculture
- **Chickens:** Must have a permit with Office of Animal Control; Must be registered with the MDA's Agriculture, Domestic Poultry, and Exotic Bird Registration Division.
- **Goats:** Must have a permit with Office of Animal Control
- **Rabbits:** Must have a permit with Office of Animal Control

MACE Identified Potential Areas of Agricultural Activity

Data sources:

- Social media, e.g., facebook, twitter, etc.
- Information on permits from city and state governments
- Lists available from various sources
- High definition satellite imagery

Goals and products:

- Developed algorithms that combine the information from these diverse sources to identify areas likely to have agricultural activity
- Provided GIS boundary files with the identified areas as well as name of business, if accessible, address, latitude and longitude

Satellite vs. Aerial Resolution

0.5-m Satellite

15-cm Aerial

Potential Urban Agriculture in Baltimore

Confidence
- HIGH
- LOW
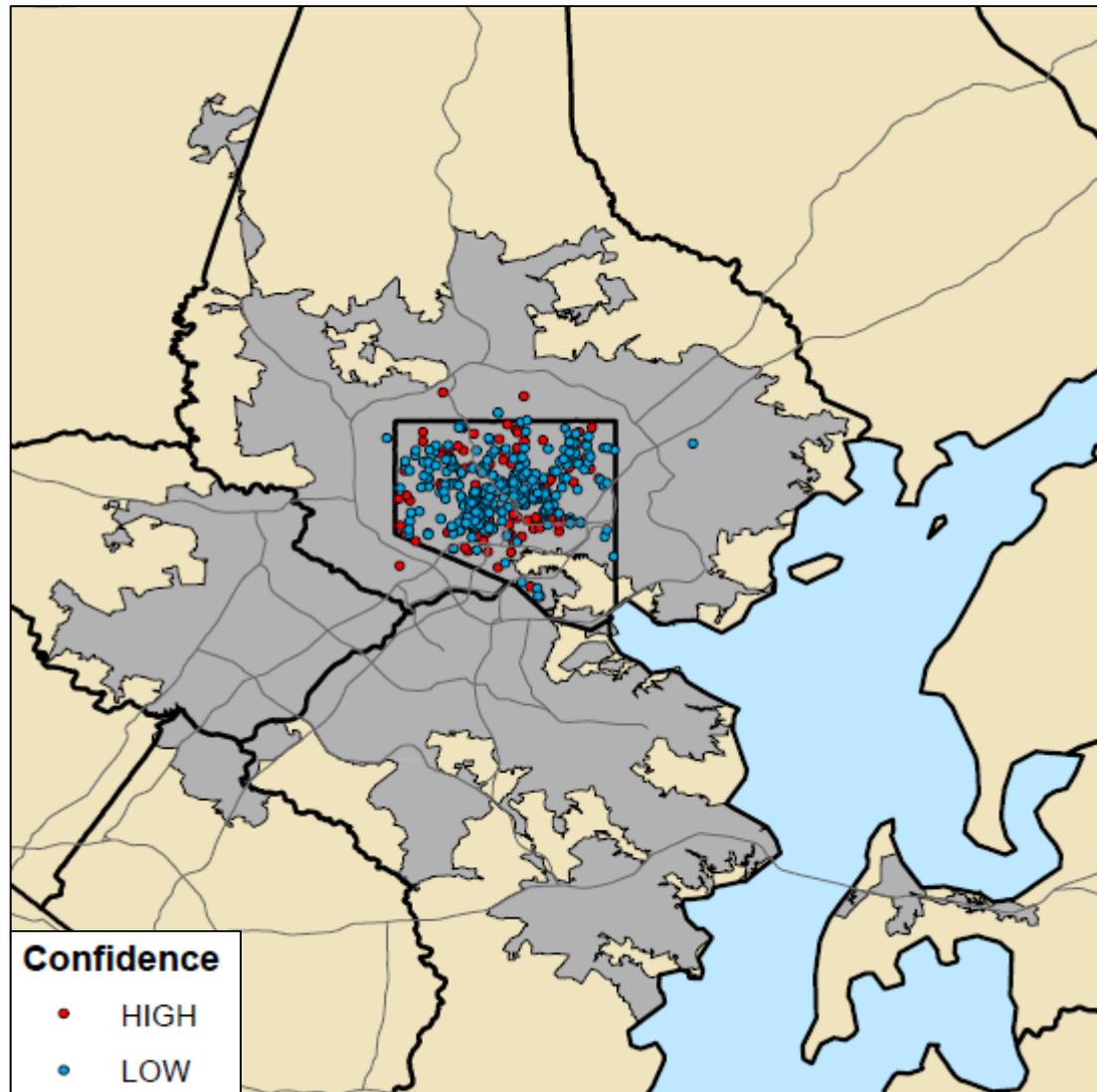
Major Steps To Be Completed

✓ Questionnaires developed

✓ OMB Approval

✓ Addresses assigned to agricultural activities

✓ Record linkage to identify any duplicates

✓ Draw sample of 266

✓ Conduct field survey (identify areas as non-agricultural, agricultural but not a farm, farm)

• Summarize results for internal use

Preliminary Results

What Did MACE Miss?

On the NASS List Frame, consider those with an operation in Baltimore County and a City of Baltimore zip code.

- – 51 Verified Farms
- – 76 Potential Farms

MACE identified 505 potential areas of agricultural activity, of which

- – 2 Verified Farms
- – 10 Potential Farms

What Was Missed?

2013 List from the City of Baltimore of urban agricultural sites

- 159 non-school garden sites
- 1 on the NASS list frame
- 89 on the MACE list

The Sample

- 266 areas of potential agricultural activity randomly selected from 505 potential agricultural areas

- In community gardens, efforts were made to sample the plots within a garden. Twelve (12) plot interviews were conducted from 6 community gardens.

- 188 of 266 sites (71%) completed interviews

- 73 of 266 sites (27%) operator could not be found

- 5 of 266 sites (2%) interview refusals

Presence of Agricultural Activity


52% Ag

43% No Ag

5% Unknown
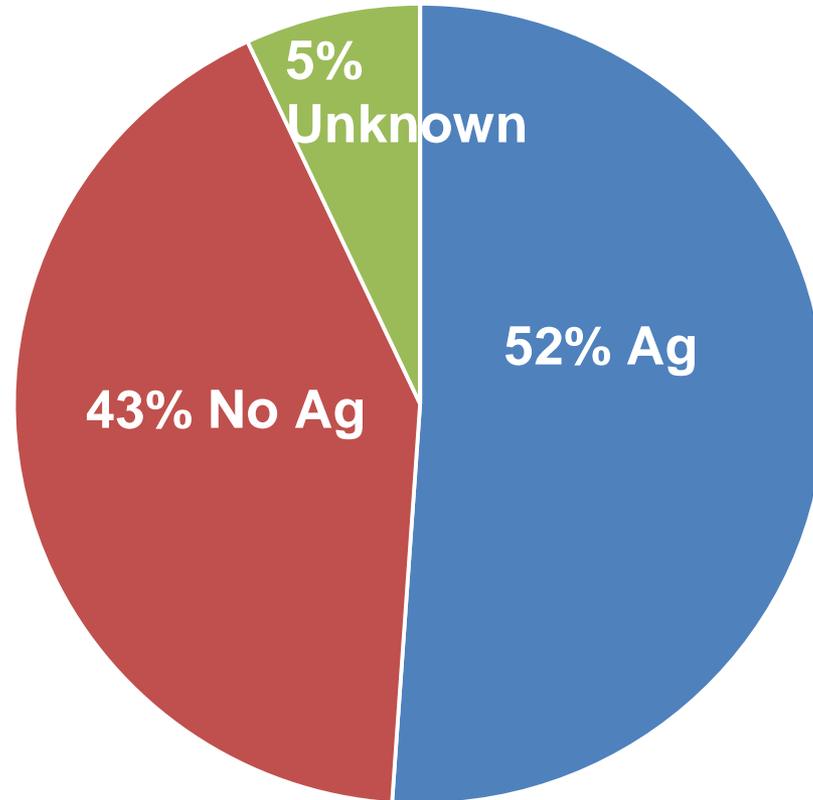
Types of Agricultural Operations

- 108 Unique Operations (From the 188 Completed Interviews)
    - 34 Backyard or Home Gardens
    - 29 School Gardens
    - 20 Community Gardens
    - 9 Demonstration Gardens
    - 8 Urban Farms
    - 5 Vacant Lot Gardens
    - 4 Roof Top Gardens
    - 1 Aquaponics
    - 1 Commercial Enterprise
    - 1 Hydroponics
   - 7 Other Types

Types of Products

- 108 Completed Surveys Reporting Agriculture
  - 83 Grow or harvest vegetables, potatoes, or melons
  - 51 Grow or harvest fruits, nuts, or berries
  - 27 Grow or harvest greenhouse or nursery crops
  - 5 Grow or harvest gains, hay, legumes, or field crops
  - 37 Raise or keep farm animals
  - 32 Produce farm animal products
  - 2 Produce certified organic products
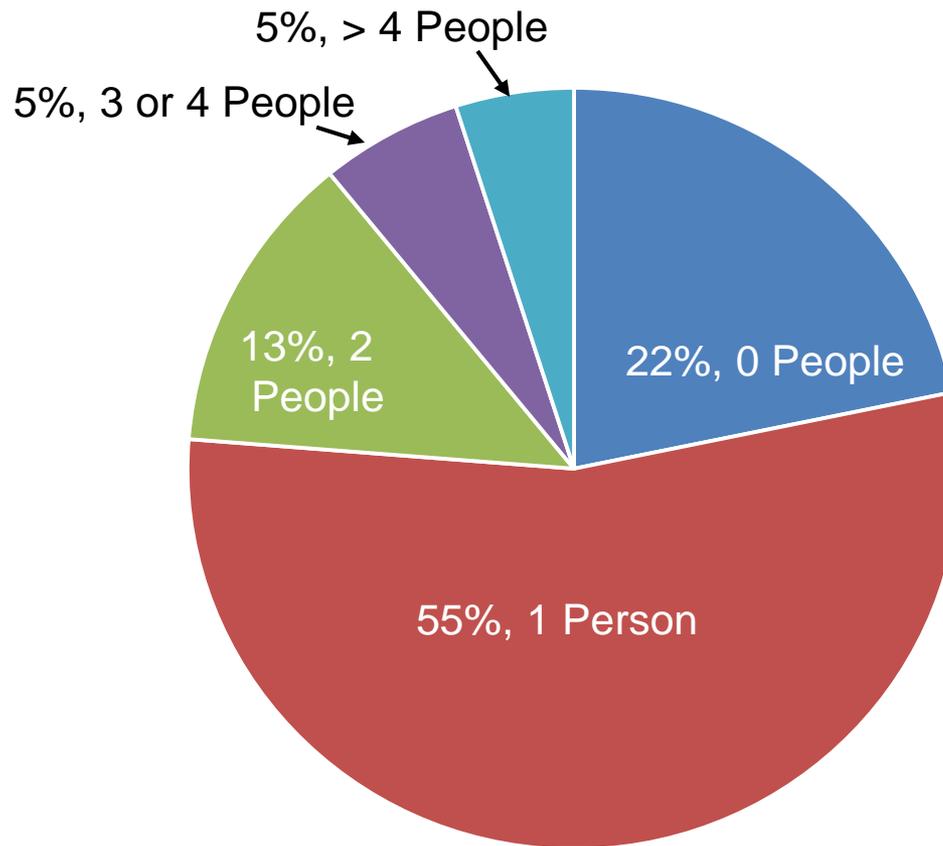
Area Devoted to Agricultural Activity
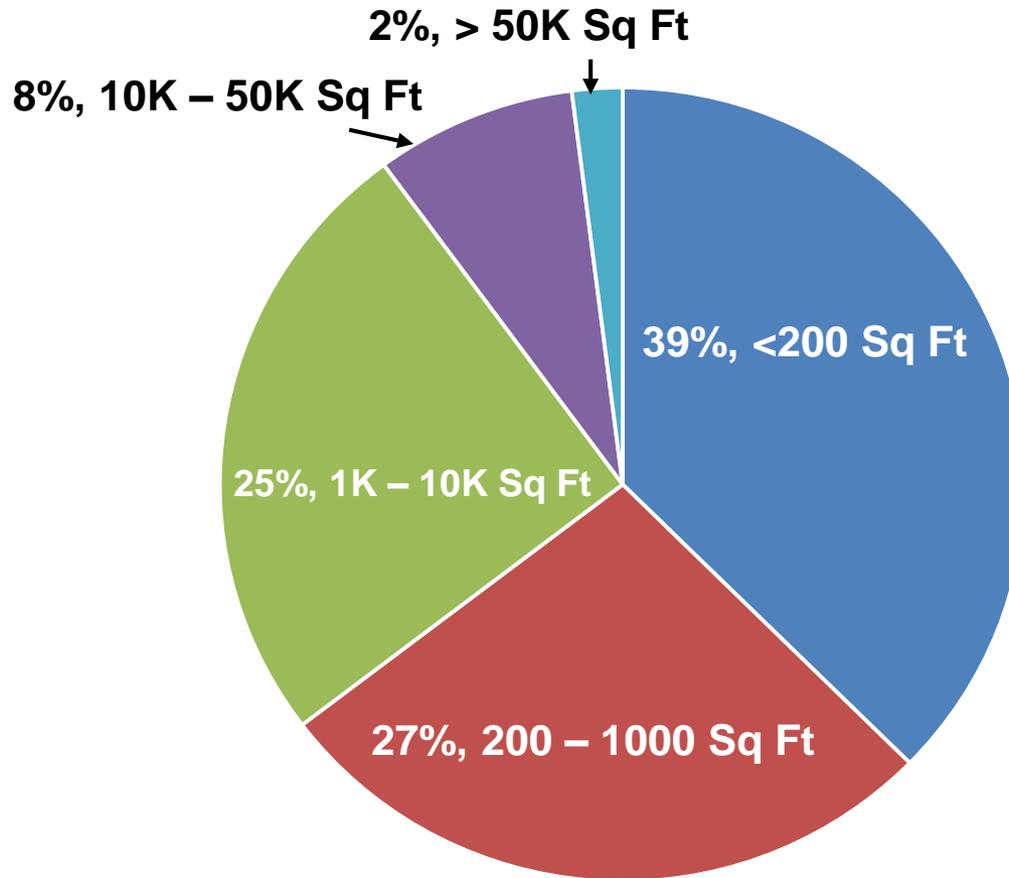
Based on 88 Reporting Area

Total Number of Decision Makers for an Operation

5%, > 4 People

6%, 4 People
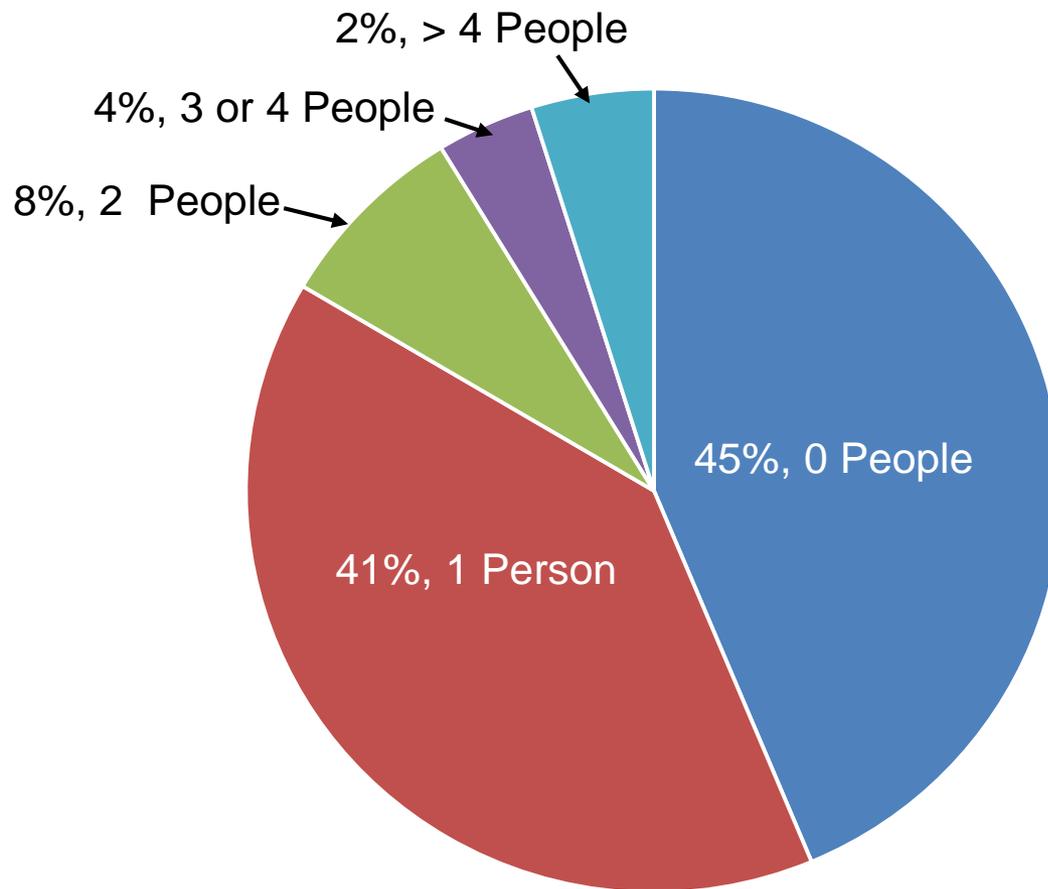
12%, 3 People

54%, 1 Person

23%, 2 People
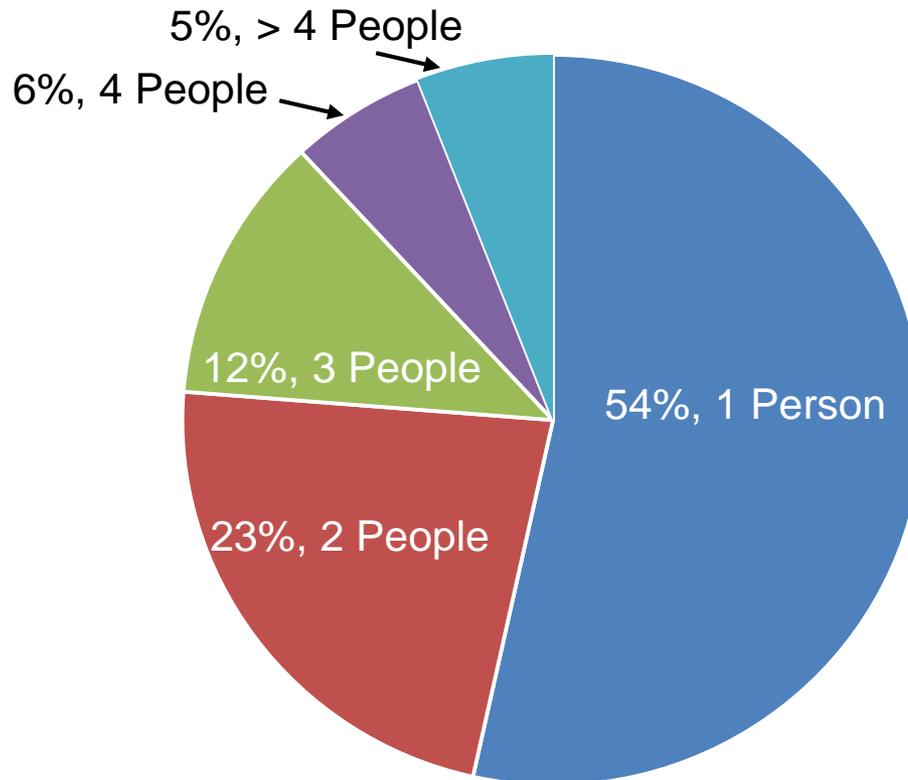
Based on 110 Reports

Total Number of Female Decision Makers for an Operation

Based on 110 Reports

Total Number of Male Decision Makers for an Operation

2%, > 4 People

4%, 3 or 4 People

8%, 2 People

45%, 0 People

41%, 1 Person

Based on 110 Reports

Decisions Based on Baltimore

- Drop the minimum of 36 square feet requirement in the definition of urban ag

- Separate operations qualifying as a farm from those producing only for home use

- Treat a community garden as a single operation

- Refine questionnaire to allow respondents to report area and yield more accurately

Next Steps

- Validate/refine algorithm with pilot studies in Seattle and Austin

- Refine questions quantifying area and yield from urban agriculture

- Begin preparing for national implementation

Thank You!