Quantifying Urban Agriculture: A Case Study from Baltimore

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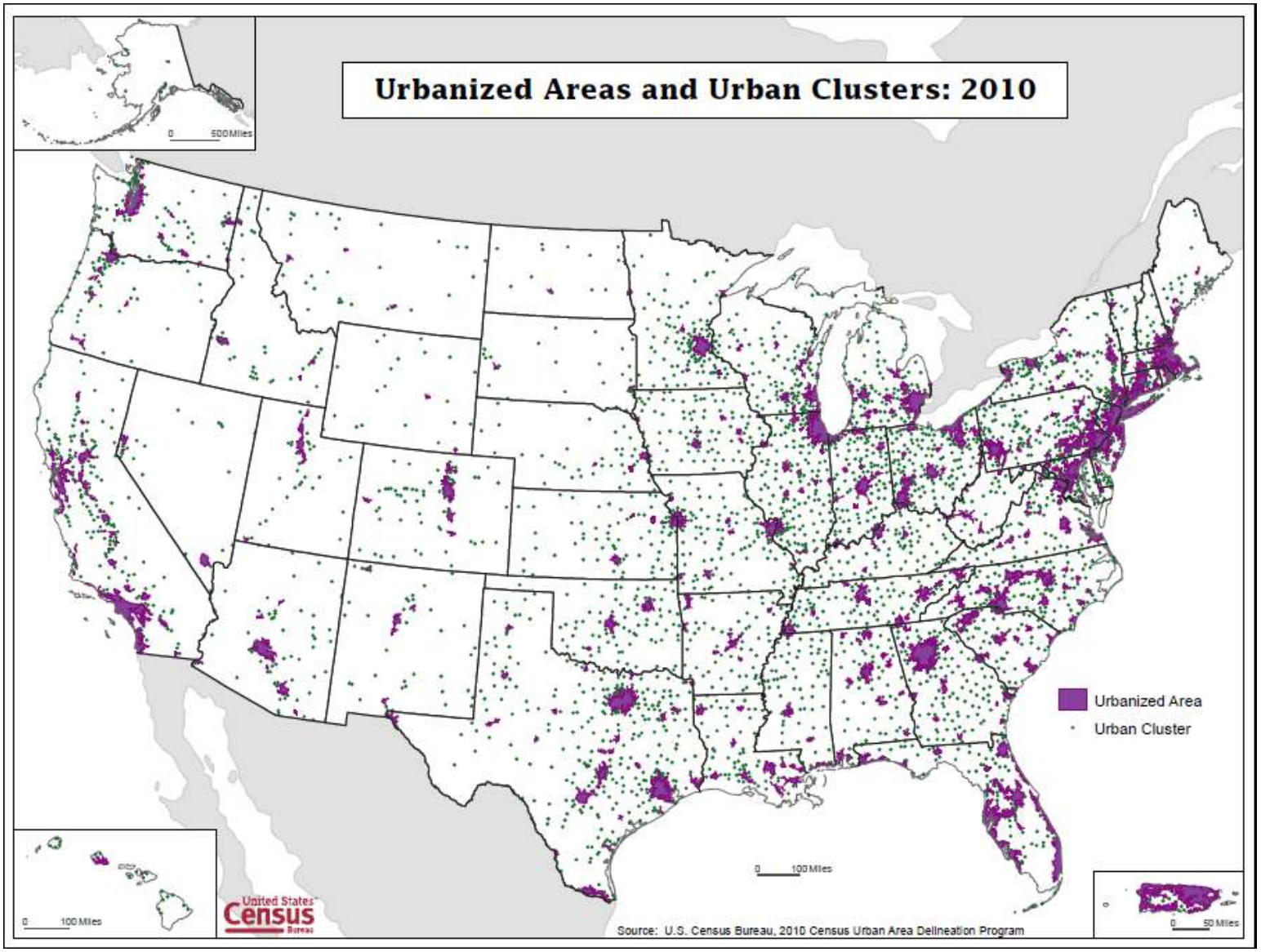
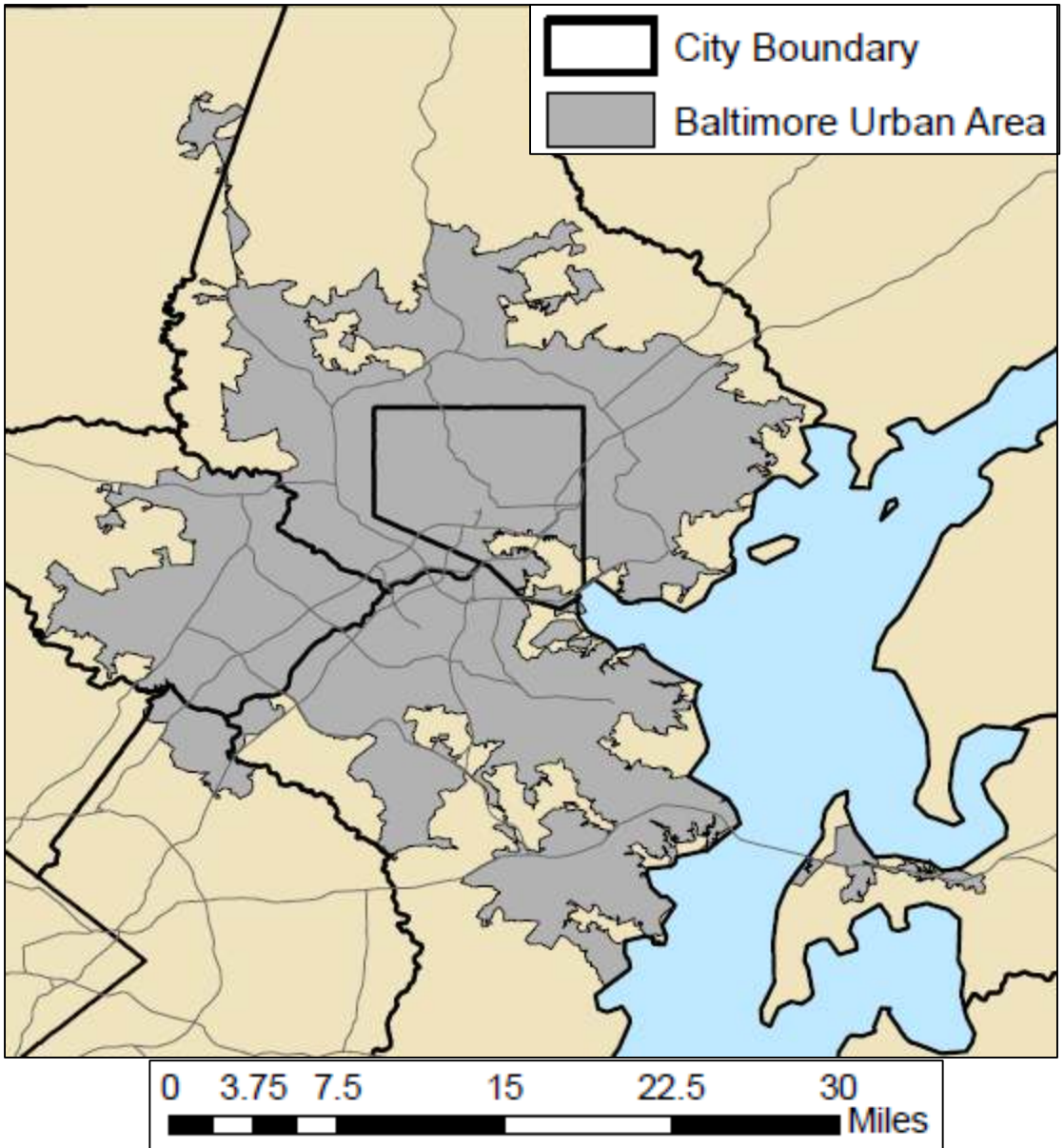
What Is Urban?



First Test City: Baltimore

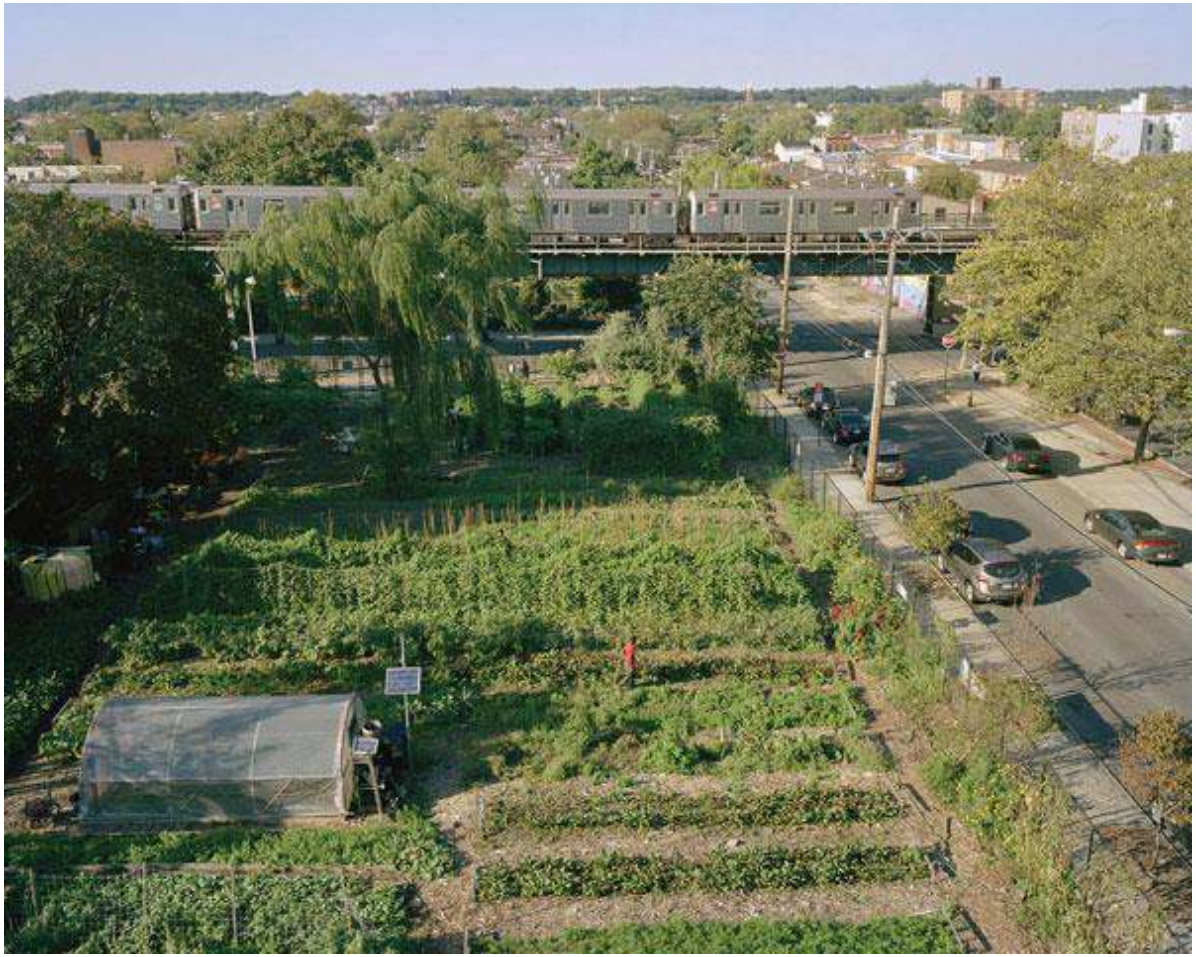


What is a Farm?

- 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

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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

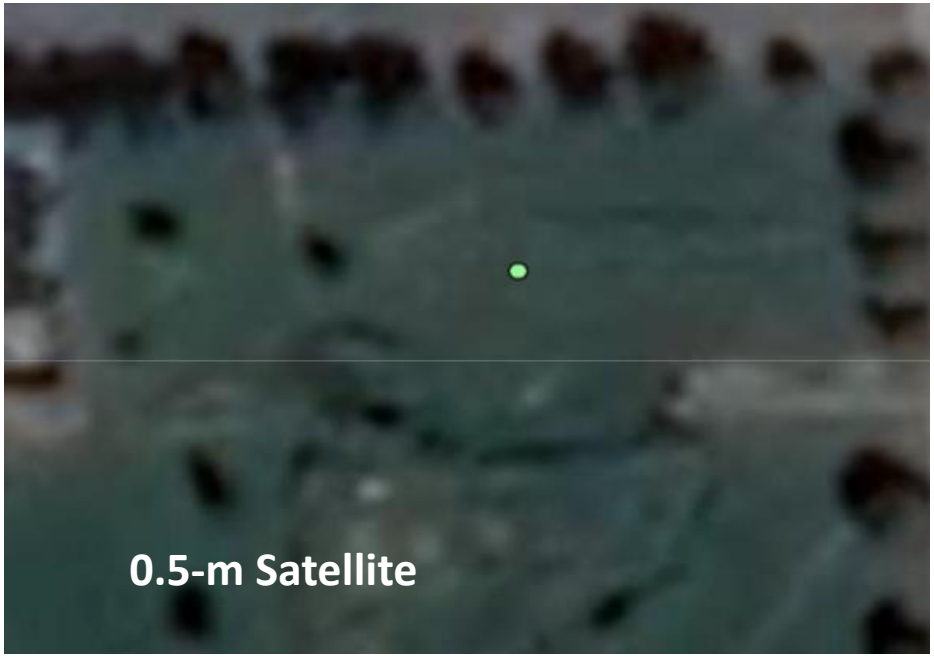
Data sources:

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

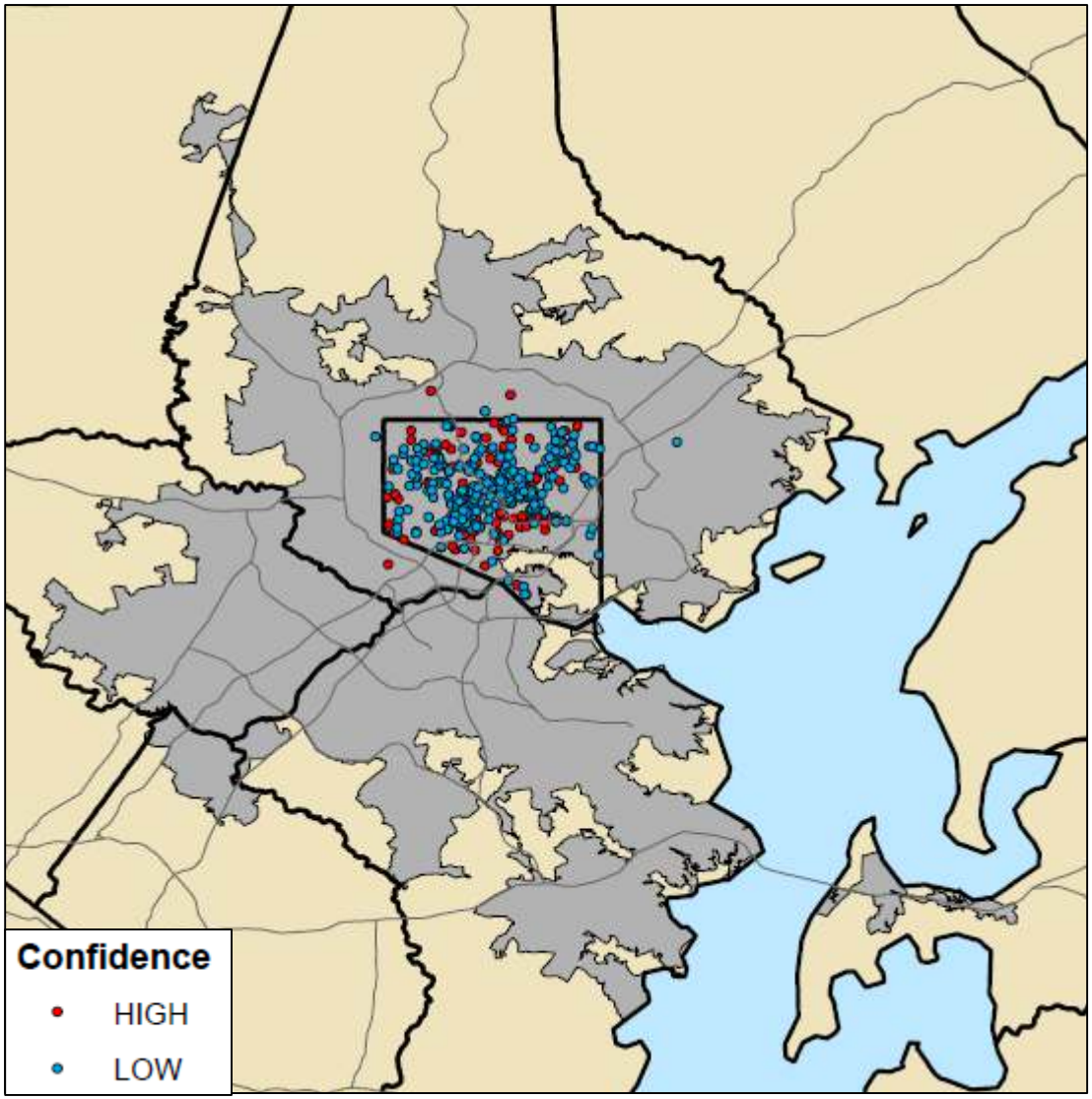
Goals and products:

- 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



Potential Urban Agriculture in Baltimore



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?

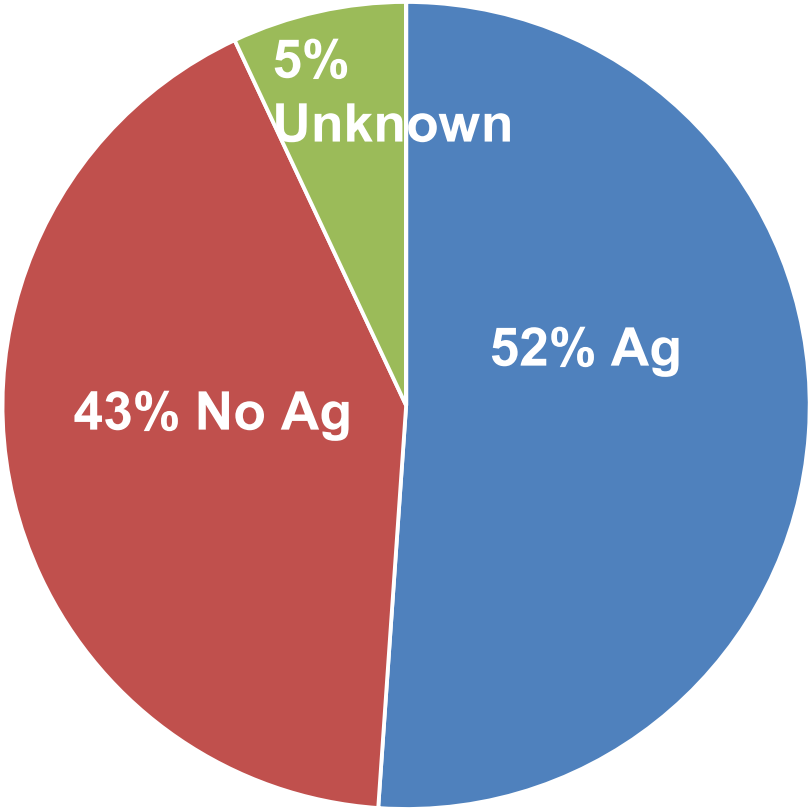
2013 List from the City of Baltimore of urban agricultural sites

- 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



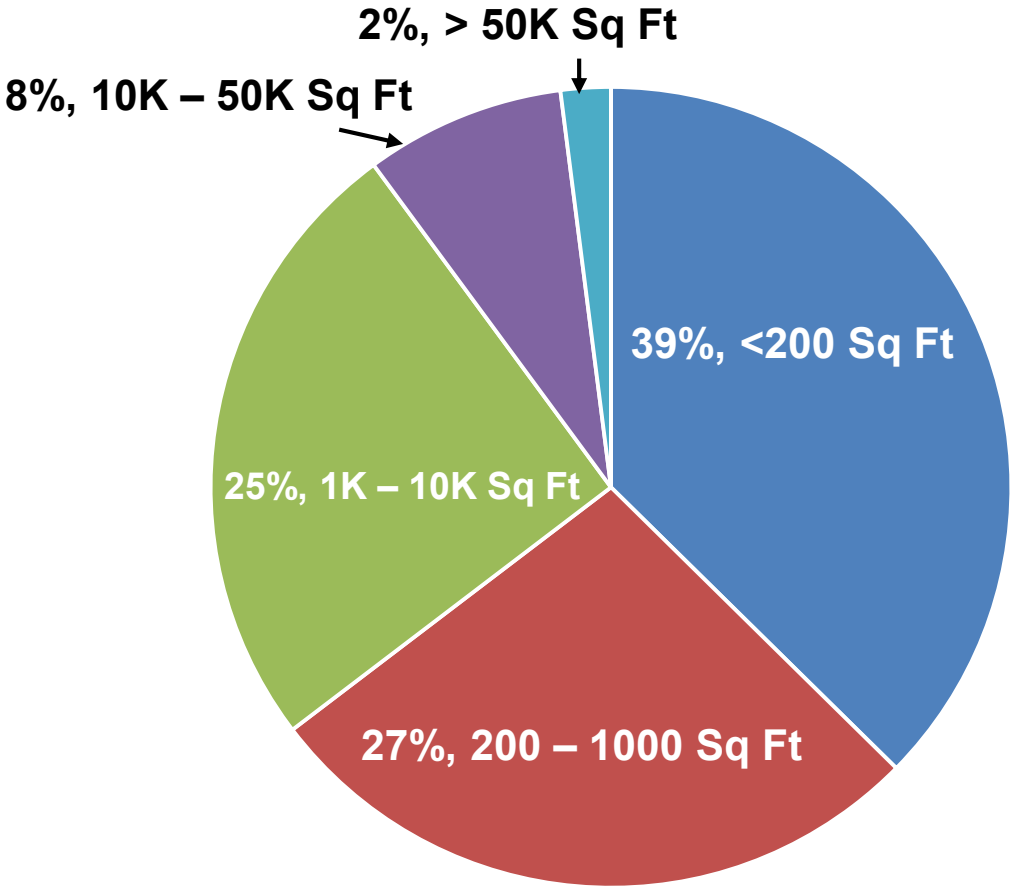
Types of Agricultural Operations

- 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

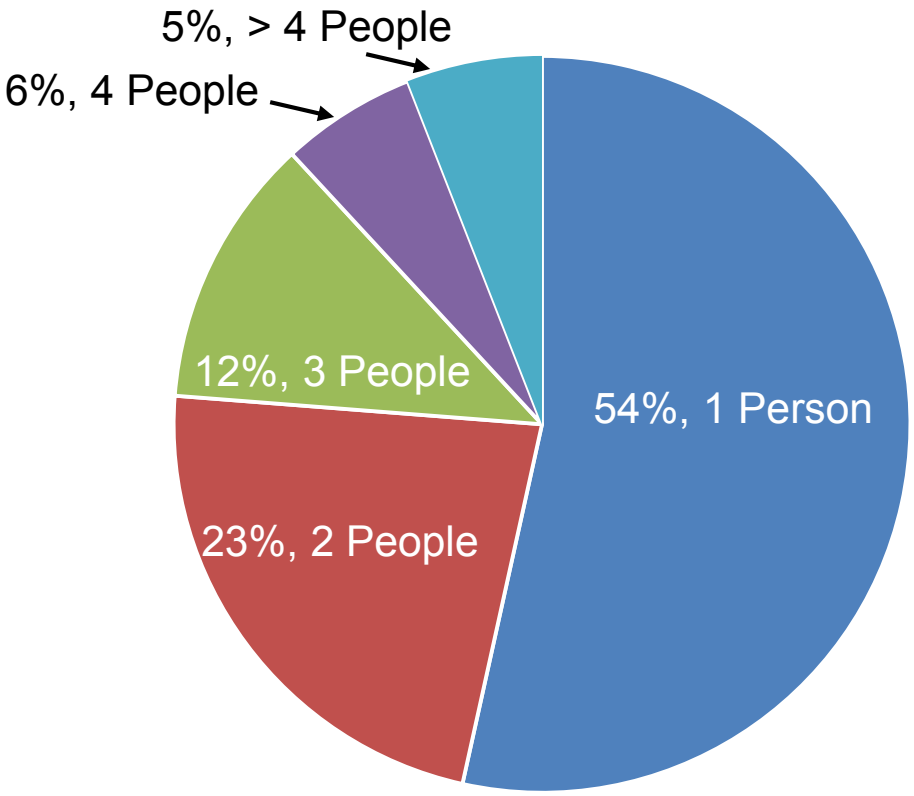
- 108 Completed Surveys Reporting Agriculture
  - 83 Grow or harvest vegetables, potatoes, or melons
  - 51 Grow or harvest fruits, nuts, or berries
  - 27 Grow or harvest greenhouse or nursery crops
  - 5 Grow or harvest gains, hay, legumes, or field crops
  - 37 Raise or keep farm animals
  - 32 Produce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

Area Devoted to Agricultural Activity



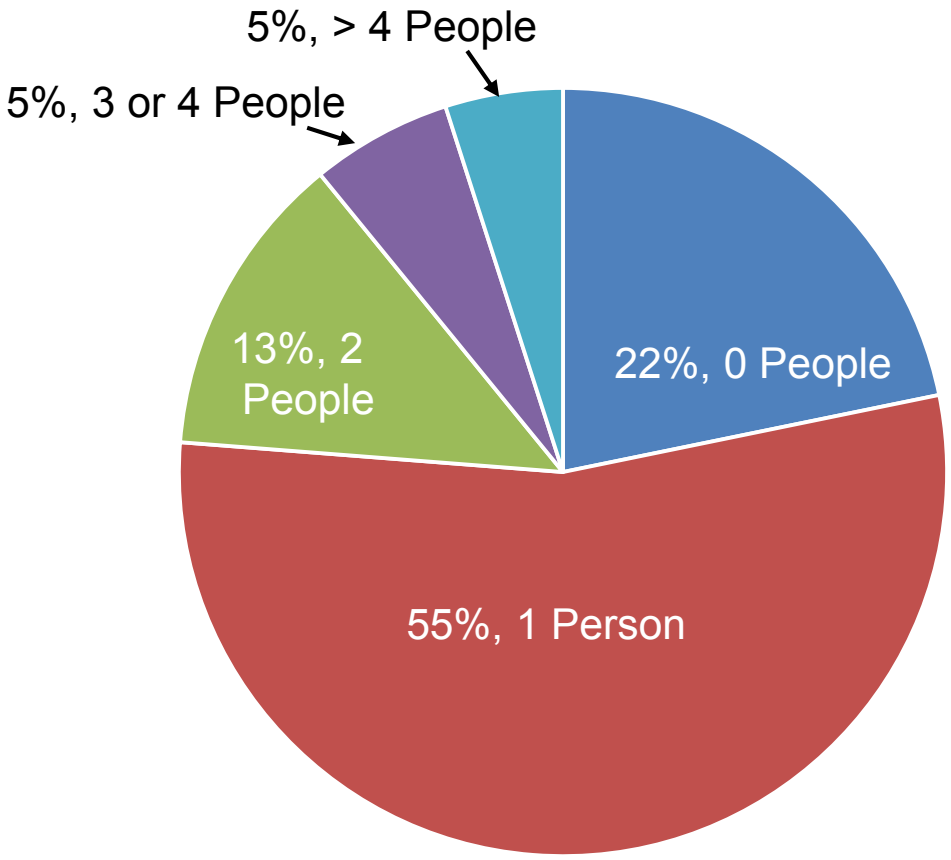
Based on 88 Reporting Area

Total Number of Decision Makers for an Operation



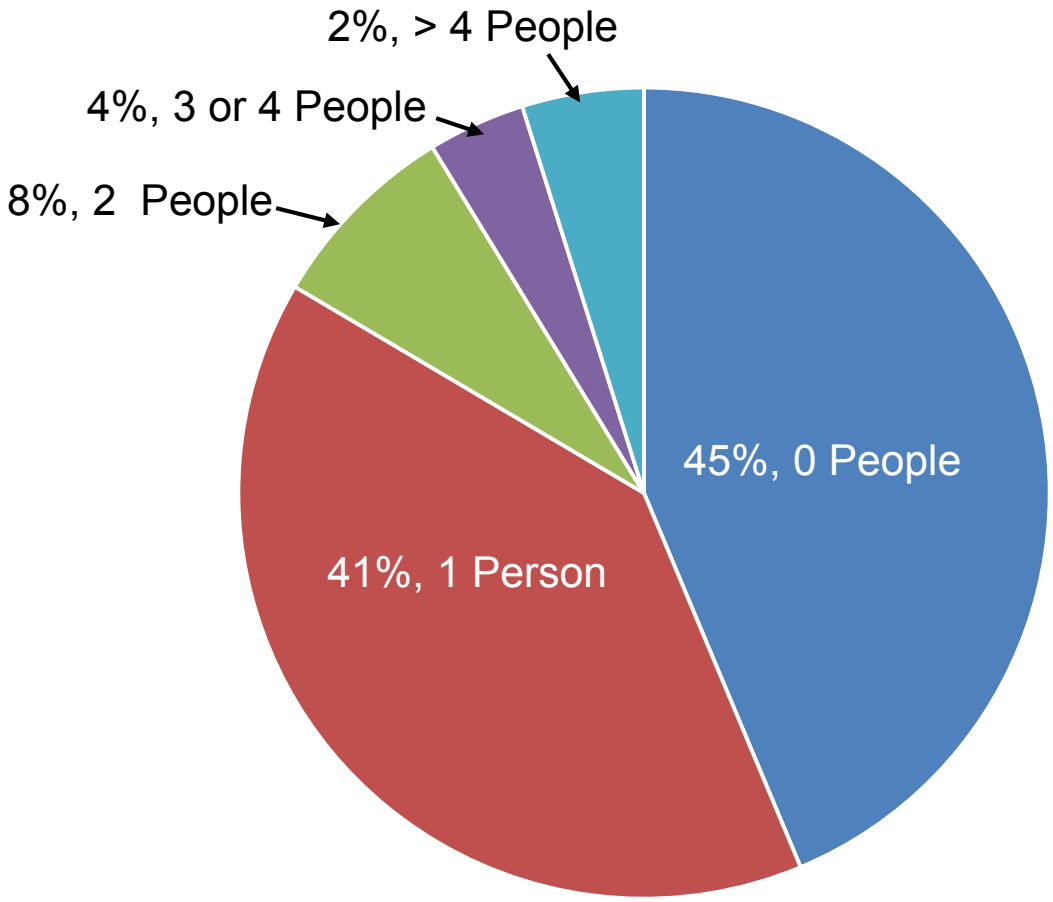
Based on 110 Reports

Total Number of Female Decision Makers for an Operation



Based on 110 Reports

Total Number of Male Decision Makers for an Operation



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!