

**“Technology enabled rapid response fresh food supply chains”**

# **Supply Side Logistics Workshop**

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# Agenda

- Deliverables Associated with Supply Side Activities
- Definition of General Activities
- Discussion of Each Element
- A snapshot of Maricopa County
- Conclusions
- Project Management Plan Revision

# Deliverables

- Targeted Regions and Partners Identification
- Assessment of Supply Logistics and Infrastructure
- Assessment of Current and Projected Demand Logistics
- Open Access Planting and Planning Module
- Beta Prototype of Supply Side Platform

# Definition of General Activities



## Targeted region and partners identification

This involves the discovery of regions and collaborators that would be ideal for the implementation of the TERRSC



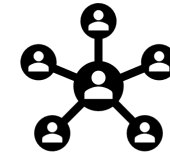
## Assessment of Supply Logistics and Infrastructure

This speaks to the process of inquiring about and documenting the supply side service providers along with their respective costs and capacities



## Assessment of current and projected demand logistics

This covers identification of current services and providers on the demand side, and discovering/creating new services that fit the requirements of the TERRSC



## Open access Planting Module

Platform that provides information to growers as regards what to grow and when to grow, for optimal results.



## Beta prototype supply side platform

Central platform with market intelligence, agronomic potential, planting and planning models fully integrated

# Elements

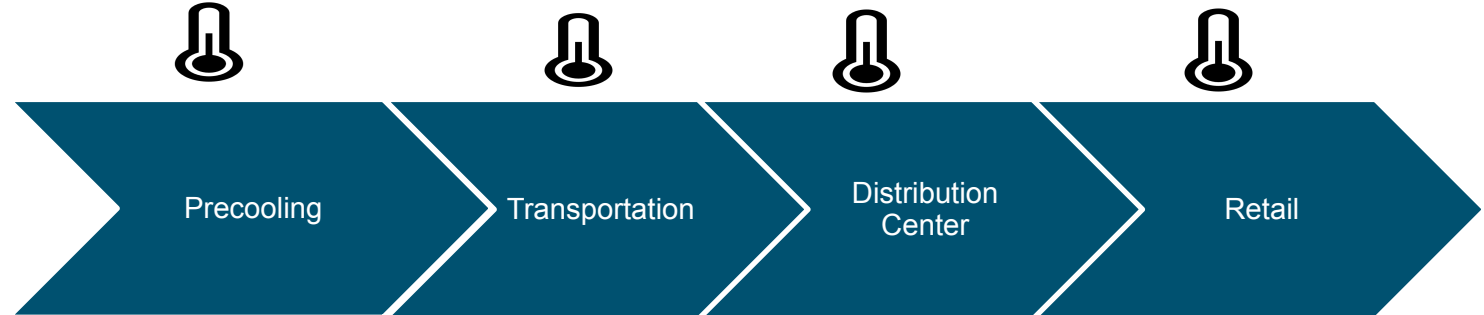
- Precooling/Cold Chain/Shelf-Life Preservation
- Processing
- Coordination
- Routing
- Packing
- Capacity Analysis (Initial Assessment)

# Precooling and the Cold-Chain

## Issues to Consider

- Current cold chain services available to small growers in identified regions
- Associated cost of cold chain services in identified regions and access small growers have to these services
- Pre-cooling technologies adopted by small growers in identified regions(Room cooling, vacuum cooling, forced air cooling, Hydro-cooling)

**Critical refrigeration steps required to keep produce fresh and safe before arrival at point of sale**



# Processing and Packing

## Issues to Consider

- Identification of processing service providers in an identified region
- Key processing operations engaged in by small growers to increase value of produce for a targeted region
- Associated costs and accessibility to small growers
- Modified Atmosphere packing and alternative packaging options for TERRSC



# Coordination



Coordination falls to the agent designated as the “Supply side articulator”



Key factors to consider concerning coordination are:

- Profile of a possible Supply side articulator
- Is there someone currently filling this role in the traditional Supply chain and if yes what are they doing wrong?
- Business case to entice potential articulators



# Routing

Due to size of growers in the supply chain, there would be a need for the implementation of a “milk run” system in picking up fresh produce from farms/pickup sites

## Issues

- ❑ Refrigerated Transport service providers willing and able to perform milk runs
- ❑ Available capacities and associated costs of refrigerated transport
- ❑ Leveraging Dry Trucks retrofitted with special packaging to allow for temperature-controlled storage of fresh produce
- ❑ Implementing demand side solutions to the supply side: regulations to be aware of (Uber freight et al)



# Capacity Analysis

Estimating costs and capacities of supply logistic services in an identified region is key to the operation of the developed supply side platform

## Issues

- Estimating Accurately associated cost and capacities of logistics services for an identified region ( Cold storage, cross docking, packaging, et al)
- Minimum volume of produce logistic service providers are willing to handle

# Supply Side Assessment

# Objective of the supply side assessment



Determine the readiness of any region to participate in the technology enabled rapid response fresh food supply chain



Define the minimum level of logistic infrastructure required to kickstart the project in any region



Cluster growers based on profile and provide actionable recommendations on needed steps to meet minimum participation requirements



Identify challenges faced by small growers in a region of interest

# Stages of the supply side assessment

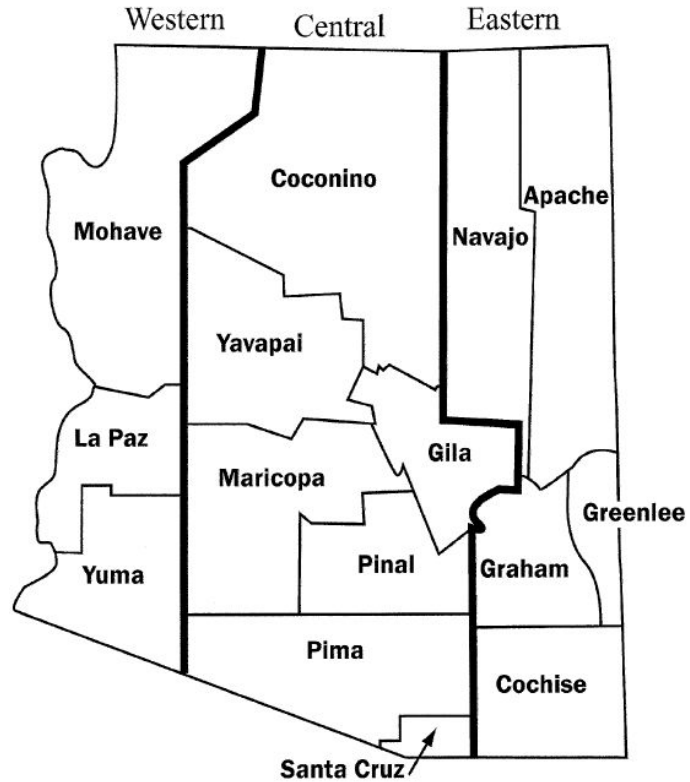


# Assessment Criteria

Grower specific information	Land Zone Information	Logistic service providers information	Crop Specifics	Regulations and Business Practices
Land Ownership and Land size	Temperature	precooling facilities	Storage Requirements	Contracting
Expertise of growers	Precipitation	transport providers/brokers	Shelf Life	Value Chain
Business Model	Quality of soil	Cross-Docking consolidation Facilities	Yield Estimations	Marketing Standards
Capital Source	Labor availability	collection fleets	Compatibility Requirements	Handling and Packaging
Level of Association	Phytosanitary Conditions	cold warehouses	Ethylene production	Access to Capital
Infrastructure related to growing fresh produce, precooling, processing, packaging	Water availability	pre-cutting facilities	Planting costs and water requirements	Chemicals/Processes Used

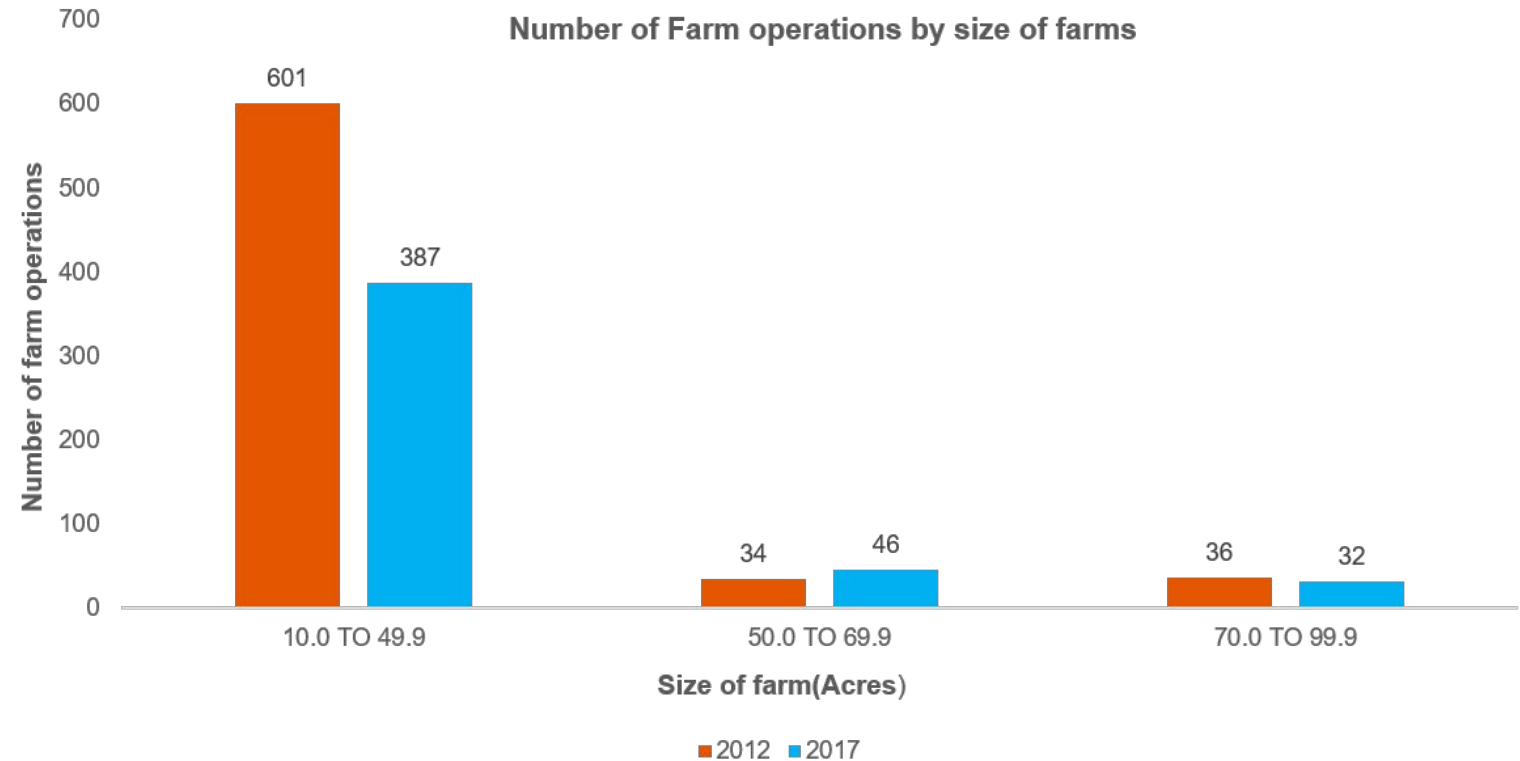
# MARICOPA COUNTY

- One of 15 counties in Arizona
- Stretches 9,224 square miles
- Arizona's capital city lies within it
- As of 2017 NASS Census- 1874 farm operations



# Snapshot of Maricopa

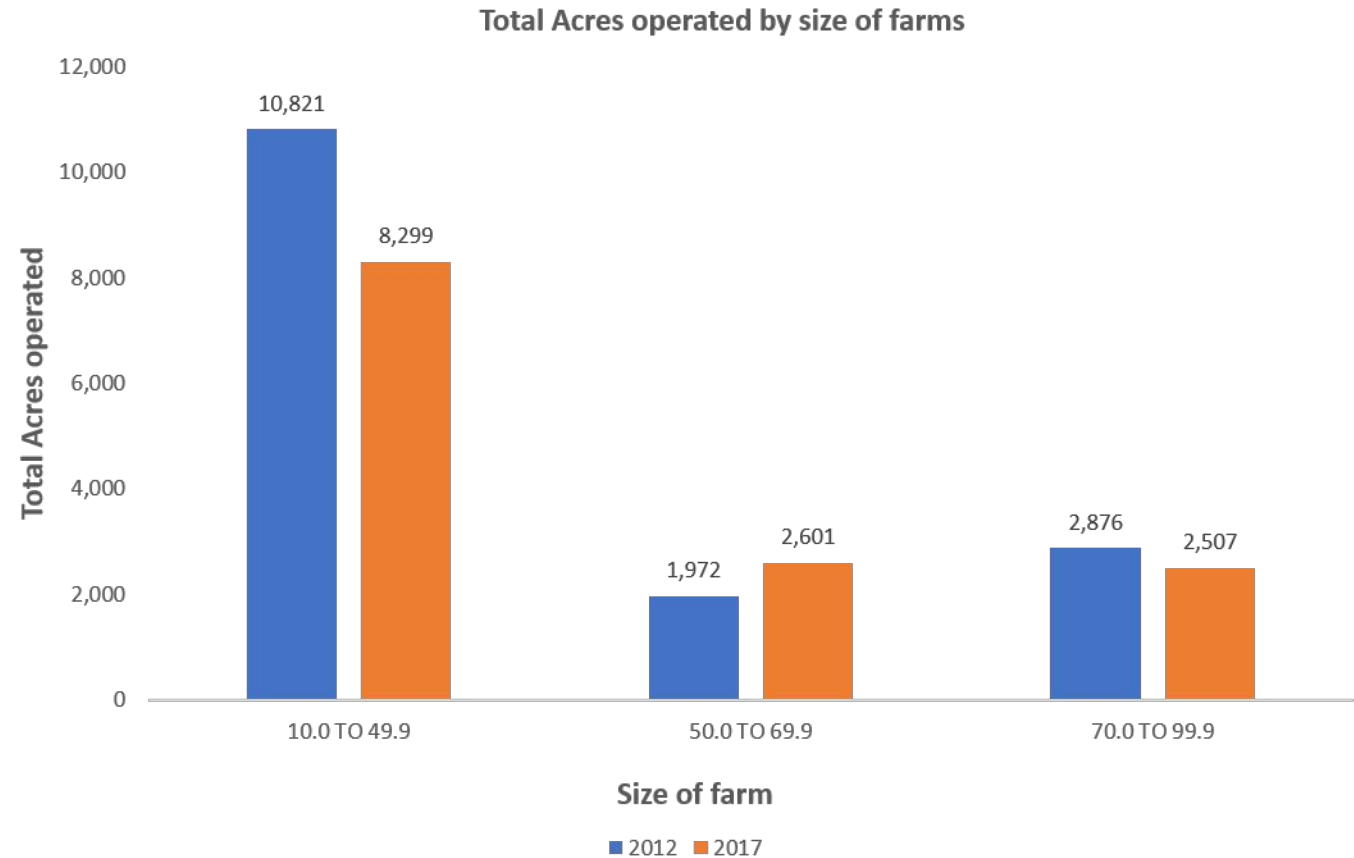
- Total Land in Farms in Maricopa county equals **474,438 acres** which is approximately **8%** of the available land acreage in Maricopa
- As of 2017 there were 1874 farm operations in Maricopa with an average size of farm being 253 acres.
- Size of farms vary from as little as 1 to as large as in excess of 2000 acres in size





# Snapshot of Maricopa

- Based on our category of interest( small growers) we can see that generally there has been a reduction n number of growers in Maricopa county.
- However there was a slight increase in numbers of very large growers (>2000 acres)
- Total farm Acres operated decreased by just ~0.3% despite a 24% decrease in the number of farm operations. This points to large farm operations buying out smaller ones



# Snapshot of Maricopa

- Farm Labor is key to any farm operation
- A total of **1008** farm operations hired workers in 2012 and a total of **651** farm operations hired workers for 2017.
- Generally farm labor hired reduced across all categories

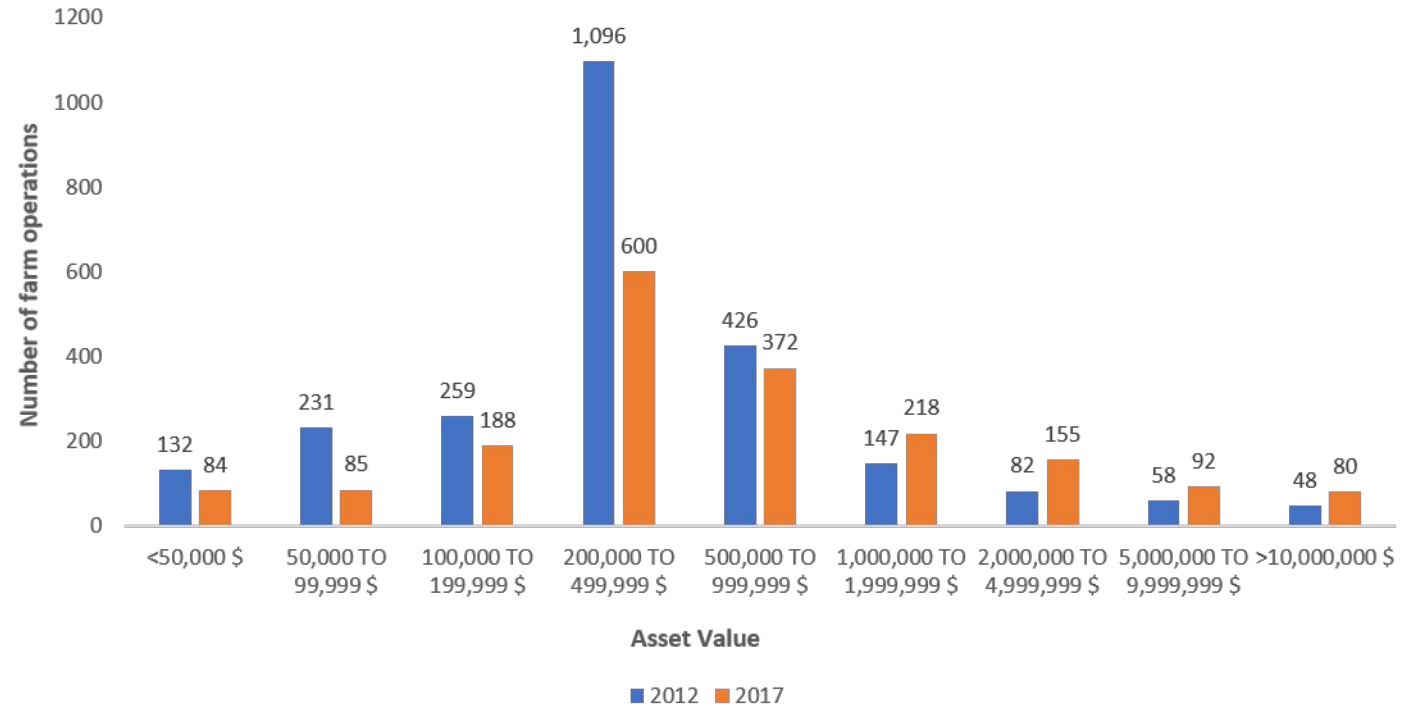
Number of farm operations with workers by category of workers



# Assessing Maricopa

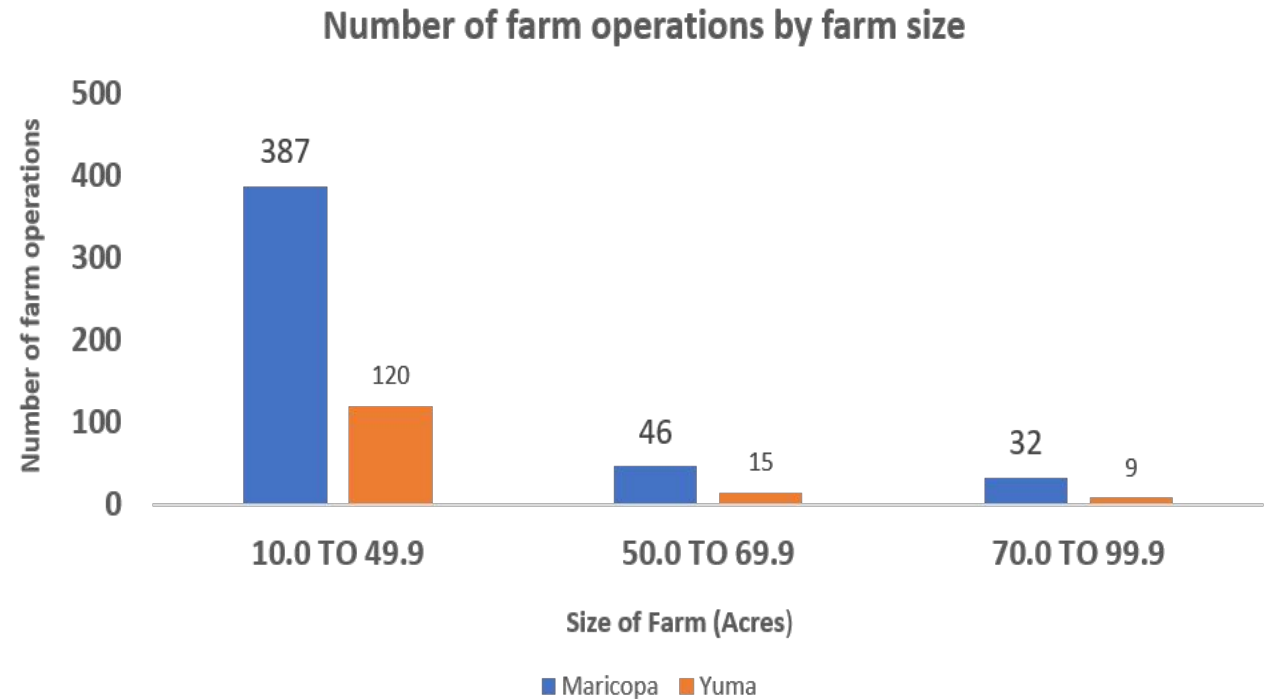
- Asset in this context refers to the value of the farmland and buildings on the farm
- A clear bifurcation exists at the \$1,000,000 Asset value mark
- Lower Asset category farmers reduced in numbers while higher asset category farmers increased

Number of Farm operations by Asset value



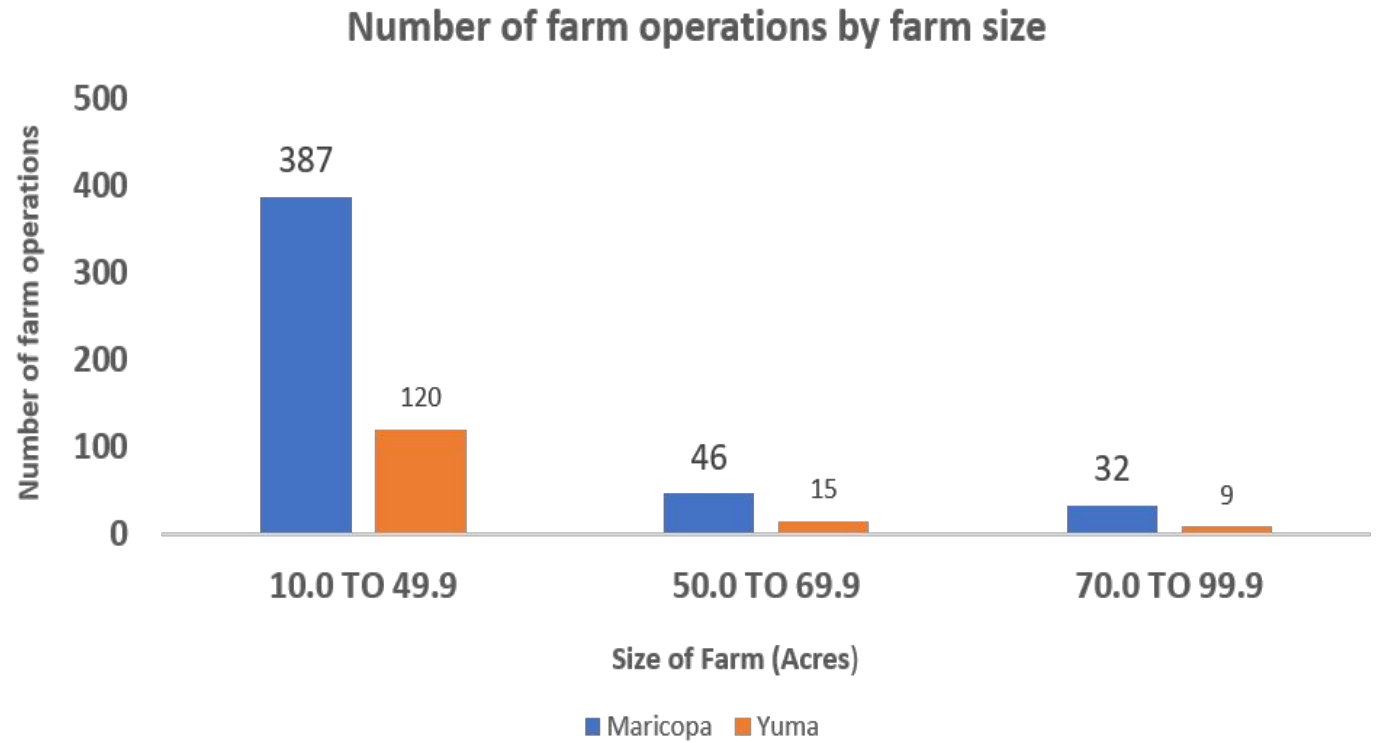
# Snapshot of Maricopa

- Farm sales refer broadly to all farm products and no specific category( Livestock, crops, et al)
- Interesting to note that the largest category in terms of sales are farms that recorded sales less than a \$1000



# Snapshot of Maricopa

- 456 farm operations in Yuma as against 1874 farm operations in Maricopa.
- Farm operations across relevant acreage categories is lower in Yuma as compared to Maricopa



# Snapshot of Maricopa

- Yuma reported fewer farm operations across all asset value categories
- Assets cover Farm-land and buildings
- Yuma recorded a total of 107,908 acres of vegetables harvested from 64 farm operations sales of **\$782,293,000**.
- This represented almost a **400%** increase in acreage harvested and sales as compared to Maricopa and

Value of farm assets by farm operations



# Project Management Plan Revision

- Re-evaluate approach to estimating cost and capacities of logistic service providers
- Concurrently access current and future projected demand logistics alongside current assessment of supply side

**Thank you.**



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