Case Study: Introduction

Rodrigo Ulloa - Sárbith Aguilar - Xaimarie Hernández - Adnan Abdullahi - Leroy Vargis - Raghav Jeevendra

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Case Study Outline

- Problem to Solve
- Initial Case Study Parameters
- Proposed Methodology
- Case Study Overview
- Case Study Inputs

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Problem to Solve

- Mismatch Between Supply and Demand
- Not enough Information
- Lack of Tools for Decision-Making
- Little Knowledge of Market Opportunities
- Small Level of Coordination
- Small Value Captured by Growers for their Products

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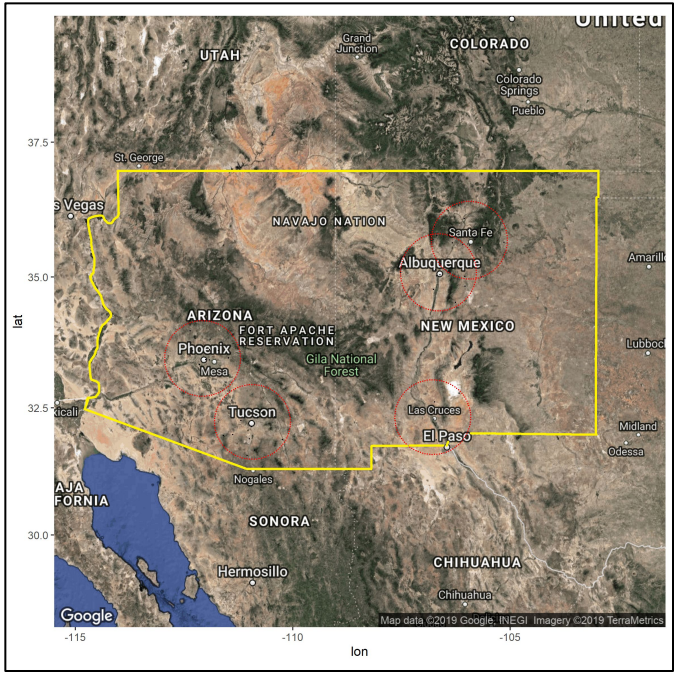
Initial Case Study Parameters

- Coverage: **Arizona** and **New Mexico**

- Initial Basket of Products:

Tomatoes - Green Beans

Lettuce - Bell Pepper



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Proposed Methodology

- Identify Market Opportunities
- Assess Production Potential
  - Climate Conditions
  - Production and Logistics Costs
- Obtain High-Level Production Plan
- Deploy the Opportunity to Specific Agents

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Case Study Overview

Opportunity Identification	Region Assessment	Yield and Price Estimates	Generate a Plan	Analyze and Deploy Decisions
Market Intelligence Trends Identification Prices and Volumes Prediction Is the opportunity capturable?	Where can it be produced? Are there enough growers? Is the required logistics available? Are the resources available (capital)?	Consider climate conditions to **estimate yields** Obtain **price estimates** for the opportunity Consider **complementary** producing regions	Run **optimization models** to determine: - Where to produce? - When to plant? - When to harvest? - How to articulate the logistics? - How to allocate resources/investment?	Analyze the plan Identify partnership candidates: - Growers - Transportation - Logistics - Consumers Negotiation and Coordination

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Case Study Inputs

5 Locations:
Phoenix, AZ
Tucson, AZ
Albuquerque, NM
Las Cruces, NM
Santa Fe, NM

4 Initial Crops:
Tomatoes
Lettuce
Green Beans
Bell Peppers

Market Opportunity:
Two identified opportunities:
Celery and **Cauliflower**

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Opportunity Identification

- Initial Set of Products:

  Tomatoes - Green Beans - Lettuce - Bell Peppers

Why did we selected this? Add information (Imports, Prices, etc.)

Add historical production

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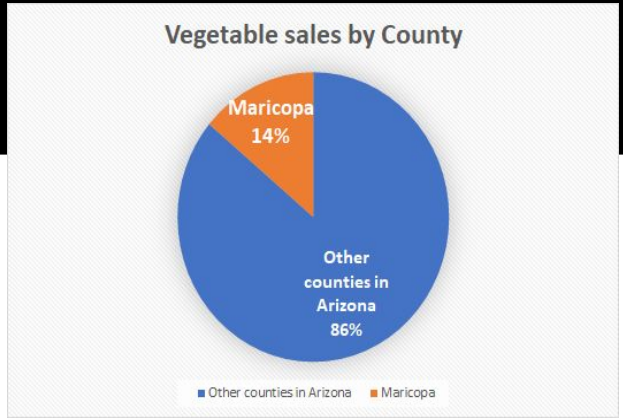
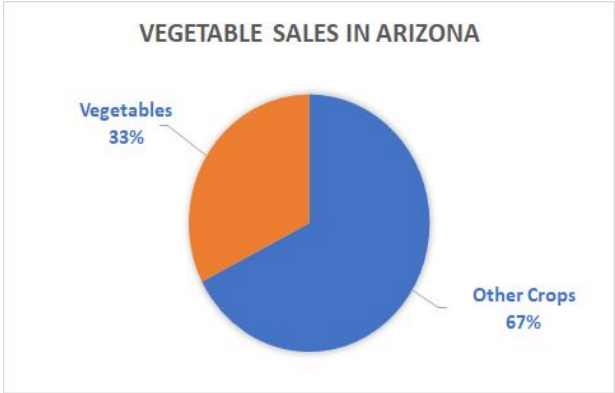
Adnan's

- Vegetables take up a sizeable share of the crop production Market in Arizona
- Vegetables grossed at $1,009,125,000 making up 33% of Total Crop sales in Arizona (NASS 2017)
- Vegetables are a logical choice due to the huge share of the market they occupy
- Vegetables sold in Maricopa makes up 14% of total Vegetable sales in Arizona (NASS 2017)





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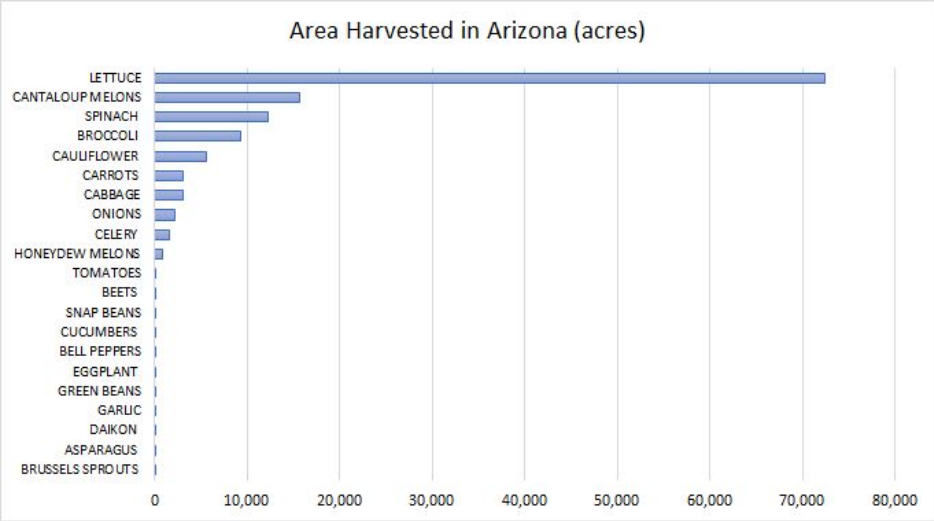
ADNAN'S

Lettuce recorded a total of 72,411 Acres(NASS 2017)

Interestingly not all the initial FFAR crops are harvested heavily

Perhaps price of the produce also influenced selection?



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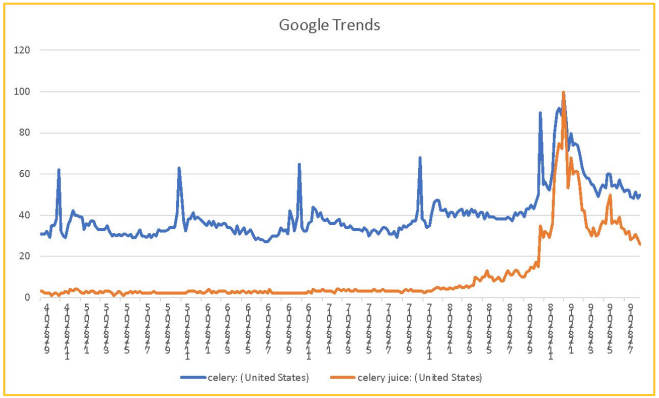
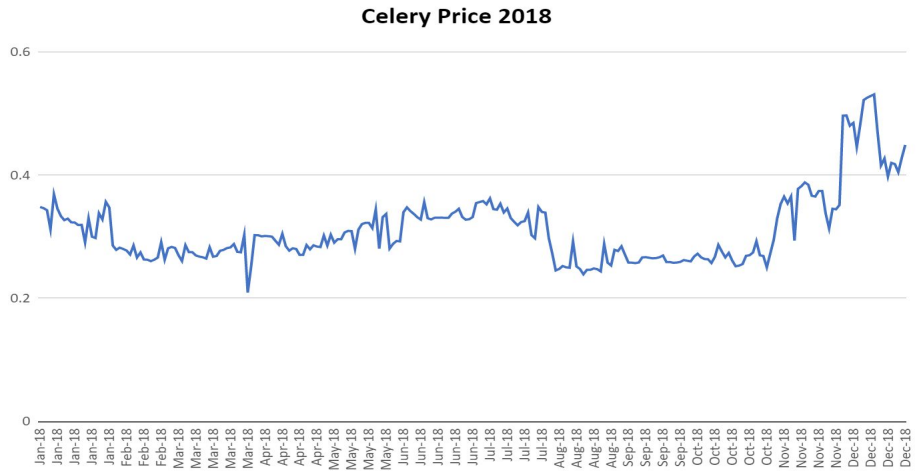
Opportunity Identification

- Opportunity:

  Celery





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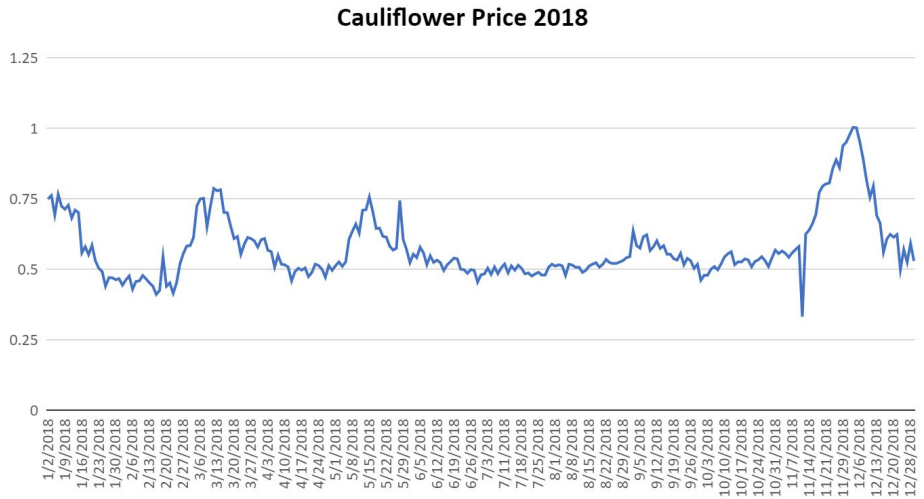
Xaimarie

- Opportunity:

Cauliflower



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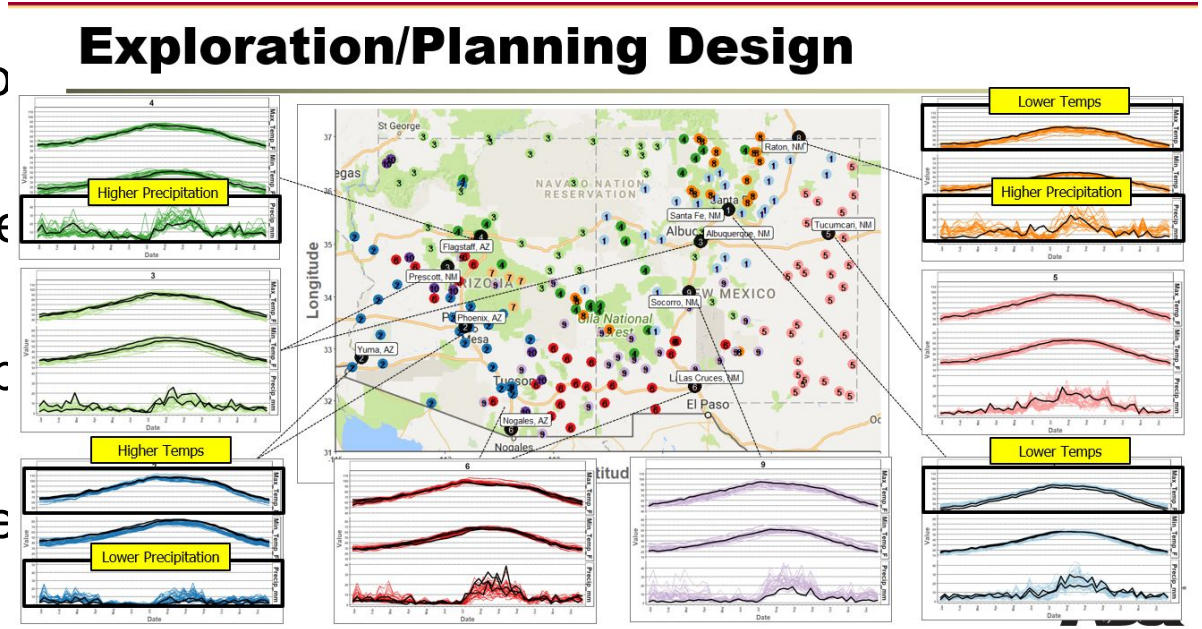
Information Collection

- Available Productio
- Agronomic: Weathe
- Growers/Land: Cap
- Logistics: Capacitie



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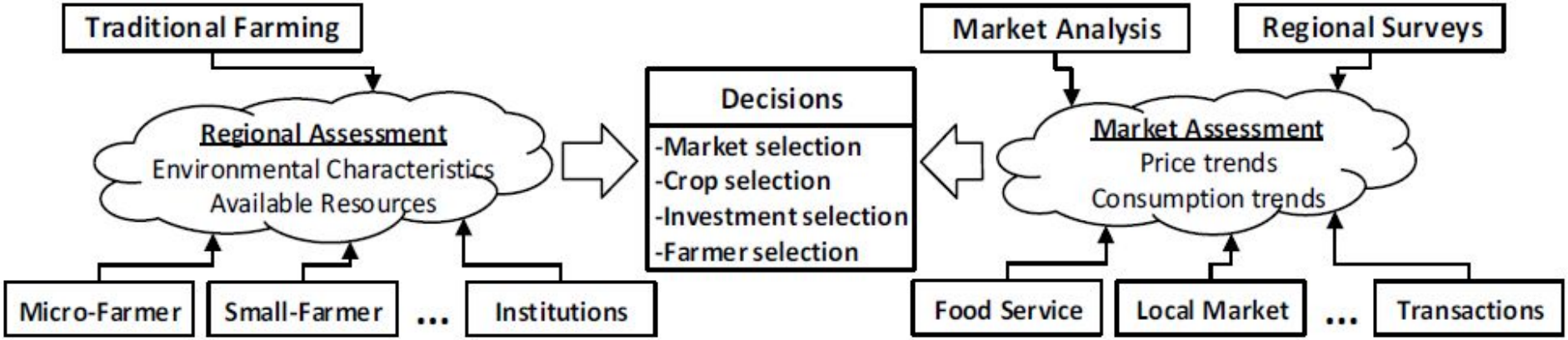
Strategic Planning Stage

- Run Optimization Models:



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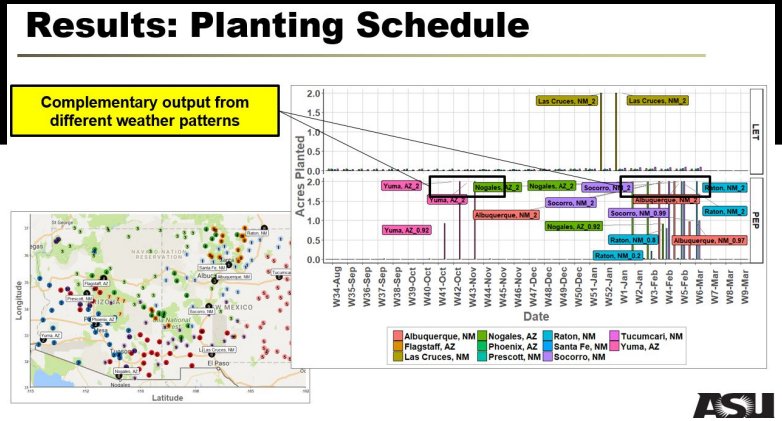
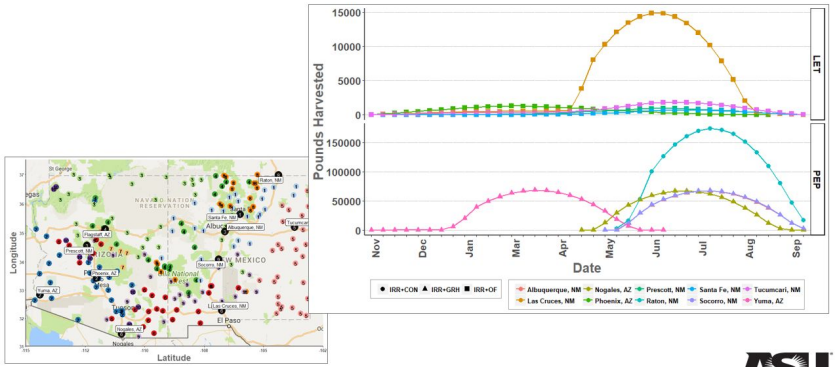
Results

- Planting Schedule:
- Harvesting Schedule:
- Costs Distribution:





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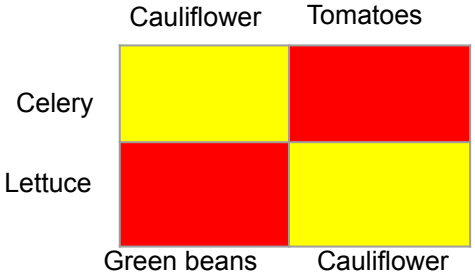
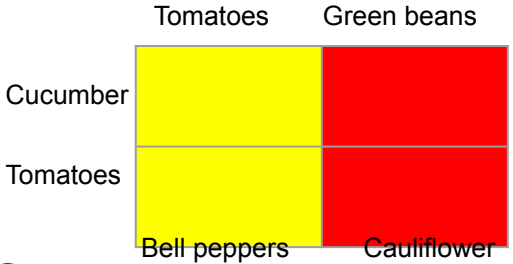
Compatibility

- Red represents pairs that are not compatible
- Yellow represents pairs that are compatible





Common name	Storage temperature (℃)	Relative humidity (%)	Ethylene production rate	Ethylene sensitivity
Tomatoes	10 to 13	90 to 95	Very low	High
Bell pepper	7 to 10	95 to 98	low	Low
Lettuce	0	98 to 100	Very low	High
Cucumber	10 to 12	85 to 90	Low	High
Green beans	4 to 7	95	Low	Moderate
Celery	0	98 to 100	Very low	Moderate
Cauliflower	0	95 to 98	Very low	High

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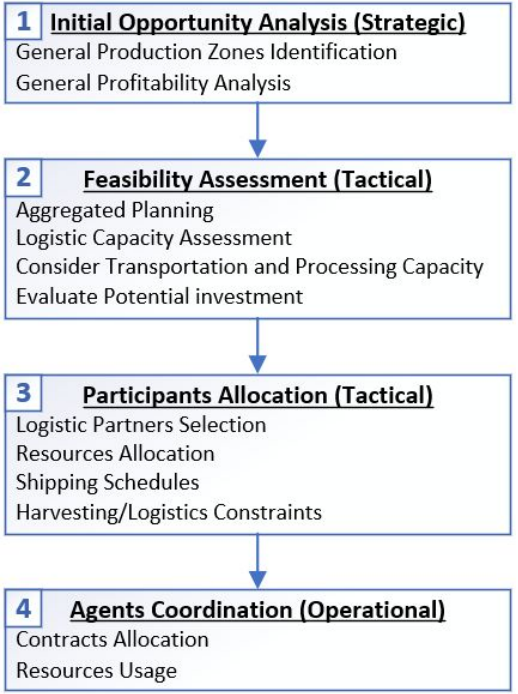
Next Steps

- Feasibility Analysis
- Partners Identification & Allocation
- Agents Coordination (Contracts)
- Articulation and Monitoring



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Case Study in AZ and NM

Rodrigo Ulloa - Sárbith Aguilar

Case Study Outline

- Opportunity Identification
- Information Collection
- Strategic Planning Stage
- Results
- Next Steps

Why do we need these Inputs?

- Implement the input into the planning tools that have been developed throughout the years
- Use this information to provide growers with critical decisions
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PRODUCTION

- Product Demand
- Hectares to Plant
  - **Amount to plant per crop**
- Quality demanded
- Cost of technology