Case Study: Results

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

- Case Study Overview
  - Initial Configuration
  - Opportunity Identification
  - Agronomic Potential
  - Used Models

- Results Analysis

- Further Work
## Case Study Overview

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

**ASU Arizona State University**

**NM State University**
Initial Configuration

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
Opportunity Identification: Celery

Google Trends

Celery Market Price

Celery Imports Value
Opportunity Identification: Cauliflower
Agronomic Potential
Used Models

**INPUT**
- **MARKET**
  - Weekly product prices
  - Weekly product demand/supply
- **REGION**
  - Weekly temperatures
  - Weekly rainfall
  - Logistic costs
- **PRODUCT**
  - Water requirements
  - Upper/lower temp. restrictions

**OUTPUT**
- **OPTIMAL CONFIGURATION**
  - Product basket
  - Production regions
  - Wholesale markets
  - Technologies
- **OPTIMAL SCHEDULE**
  - Planting and harvesting
  - Consolidation and distribution
Results Analysis: Planting Decisions

Initial Scenario

Market Opportunity
Results Analysis: Harvesting Decisions

Initial Scenario

Total Value: $3,568,738

Market Opportunity

Total Value: $3,715,200
Further Work

- Improve Agronomic Potential Models
- Expand Market Intelligence Capabilities
- Develop Tools for Next Planning Stages
- Pilot Implementation
Case Study: Results

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Results Analysis: Financial Aspects

Initial Scenario

Total Value: $3,568,738

Market Opportunity

Total Value: $3,715,200