Model Inputs/Parameters

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Input Categories

- Market
- Production
- Environment (Weather, Water and Land)
- Logistics
- Cost and Commodity

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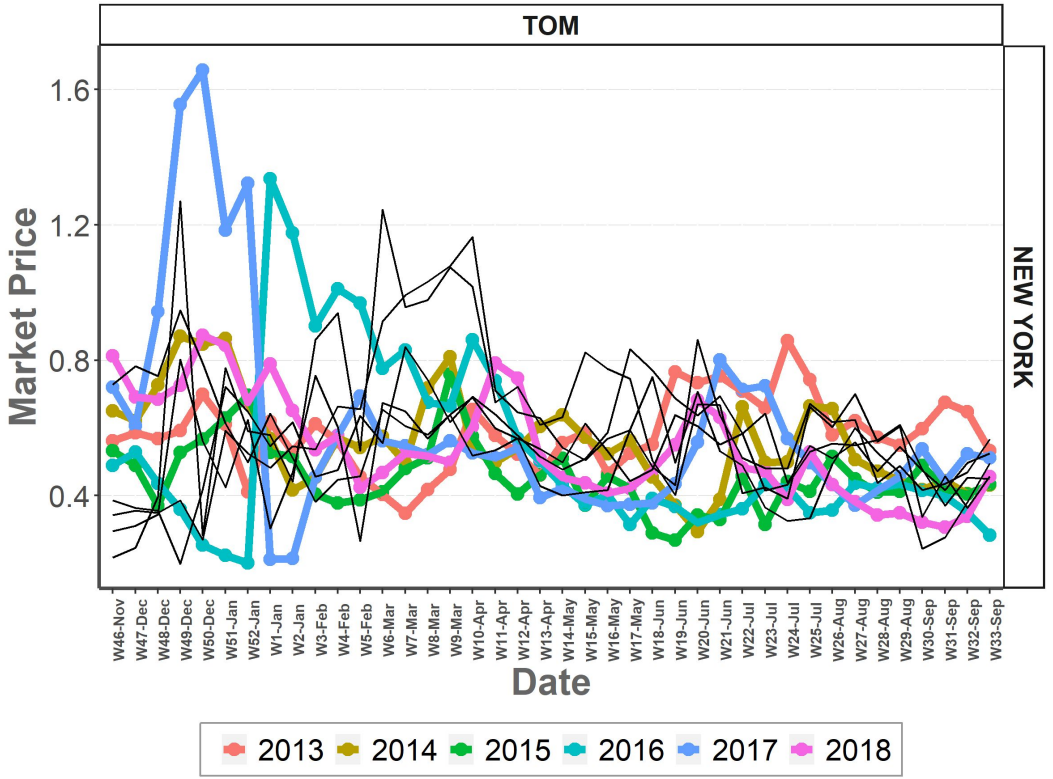
MARKET

- Prices
- Volumes
- Demand Calendar

Prices

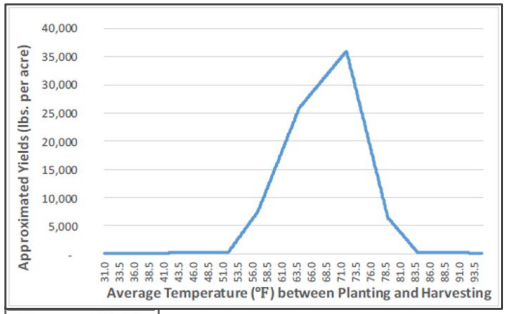
Markets
Chicago
Boston
Atlanta
New York
Philadelphia
Columbia
Pittsburgh



PRODUCTION

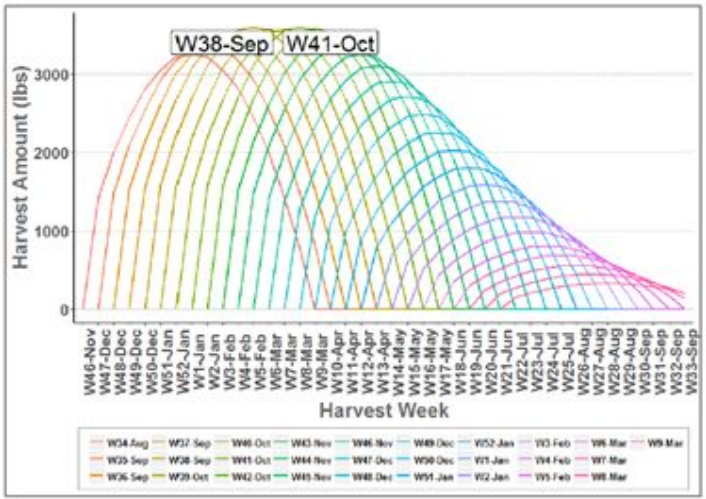
- Crop Requirements
- Quality Demanded
- Technology Effect
- Water Requirements
- Yields

Yields



Temp (°F)	Yield (lbs)
52	36
57	7,560
64	25,920
72	36,000
75	6,480
84	36

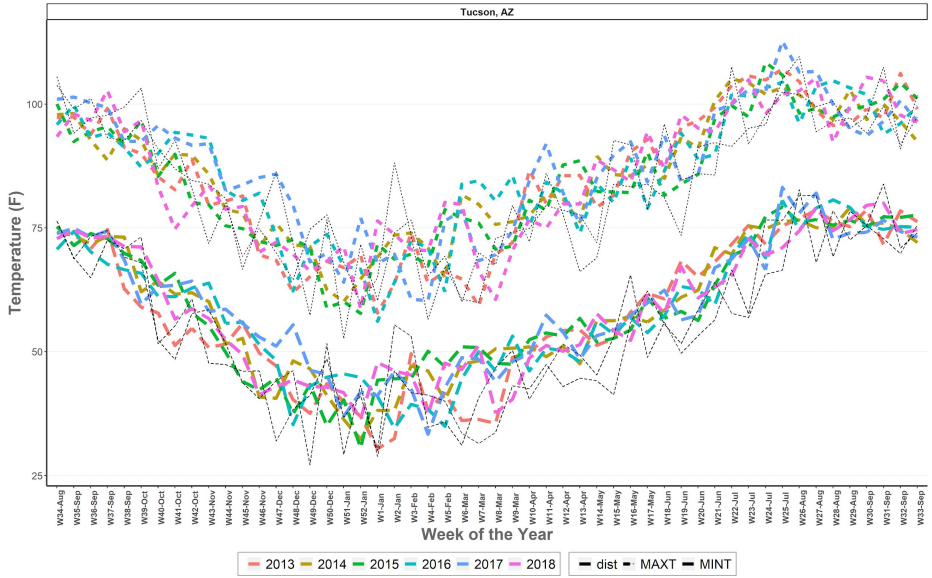
Week Planted	Yield (lbs.)
W34-Aug	32,899
W35-Sep	34,261
W36-Sep	35,283
W37-Sep	36,135
W38-Sep	36,497
W39-Oct	36,199
W40-Oct	36,199
W41-Oct	36,497
W42-Oct	36,305
W43-Nov	35,283
W44-Nov	34,261
W45-Nov	32,899
W46-Nov	31,366
W47-Dec	29,323
W48-Dec	27,279
W49-Dec	24,895
W50-Dec	22,511
W51-Jan	20,126

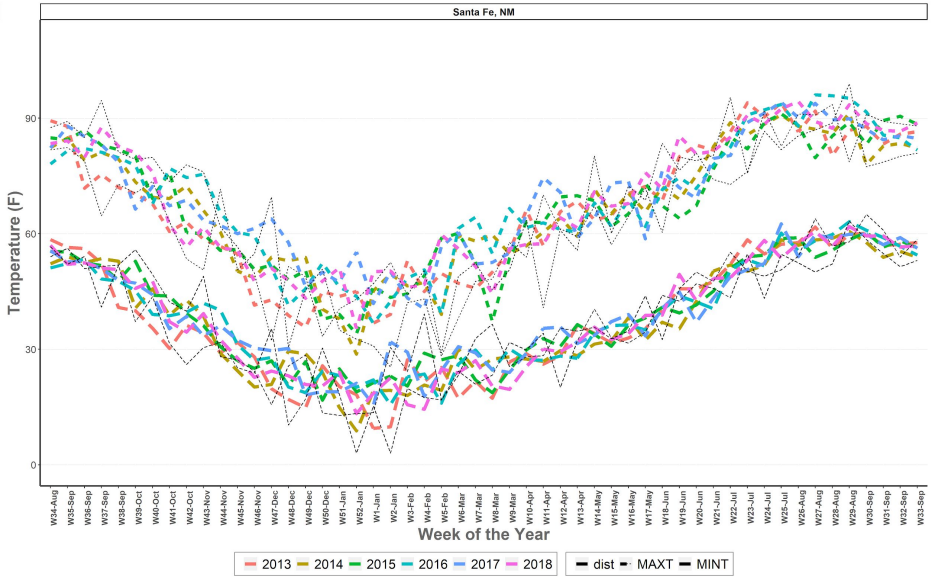


ENVIRONMENT

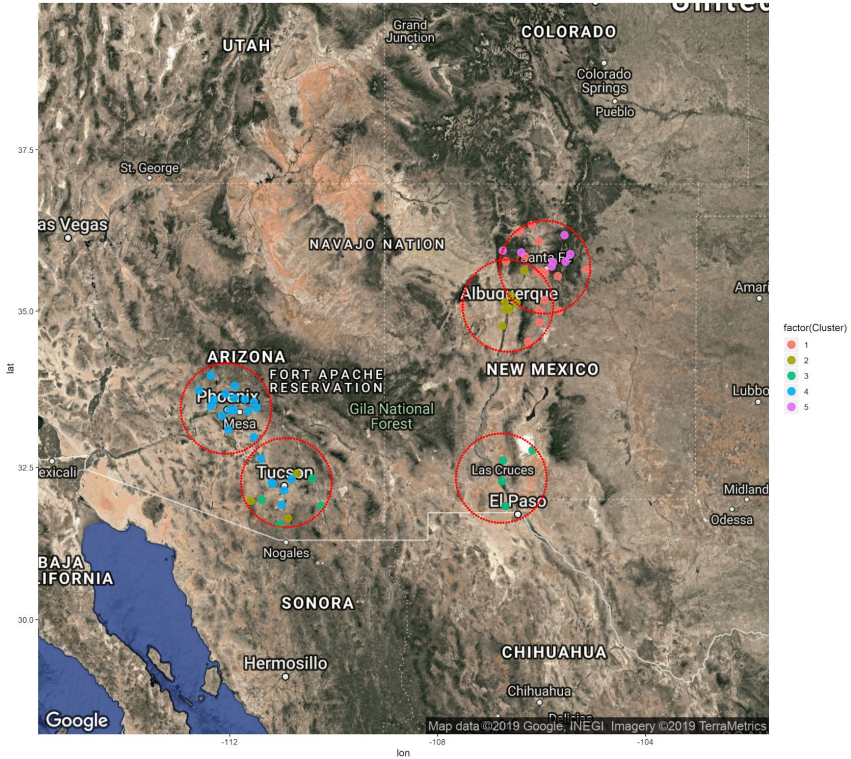
- Land Available
- Water Availability
- Weather
  - **Minimum Temperature**
  - **Maximum Temperature**
  - **Precipitation**

Temperatures





Clusters


UTAH
Grand Junction
COLORADO
Colorado Springs
Pueblo
St. George
NAVAJO NATION
Albuquerque
ARIZONA
FORT APACHE RESERVATION
NEW MEXICO
Phoenix
Mesa
Gila National Forest
Tucson
Las Cruces
El Paso
Midland
Odessa
Nogales
SONORA
CHIHUAHUA
Hermosillo
Chihuahua
Google
Map data ©2019 Google, INEGI Imagery ©2019 TerraMetrics
lat
lon
37.5
35.0
32.5
30.0
-112
-108
-104
factor(Cluster)
1
2
3
4
5

LOGISTICS

- Transportation costs, going from
  - **Zone to Customer**
  - **Zone to DC**
  - **Distributor to Customer**
  - **Local Transportation**
- Estimated time for arrival
- Locations
- Lead Time

Logistics Costs

	Cost	Unit
Transportation (Truck)	$2.603	$/lb/mile
Transportation (Air)	$0.50	$/lb/mile
Inventory at DC	$0.001	$/lb

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

COST & COMMODITY

- Planting costs
- Water costs
- Technology costs
- Available Capital
- Package weight
- Crops considered
- Customers

Planting and Technology Costs

Crop	Planting Cost per acre
Tomato	$5,444
Bell Pepper	$9,914
Lettuce	$7,496
Green Beans	$3,278
Celery	$5,982
Cauliflower	$5,270

Technology	Operational Costs
Controlled	$625,000
Protected	$336,000
Open Field	$5,611

Sources of previous Inputs?

- NOAA
  - Historical minimum and maximum temperatures and precipitation
- USDA
  - Historical crop prices and transportation costs
- Surveys
  - Production/planting cost, water requirement, trend analyses, technology cost, crops information (e.g. shelf life)

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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, such as what to plant in a specific zone.

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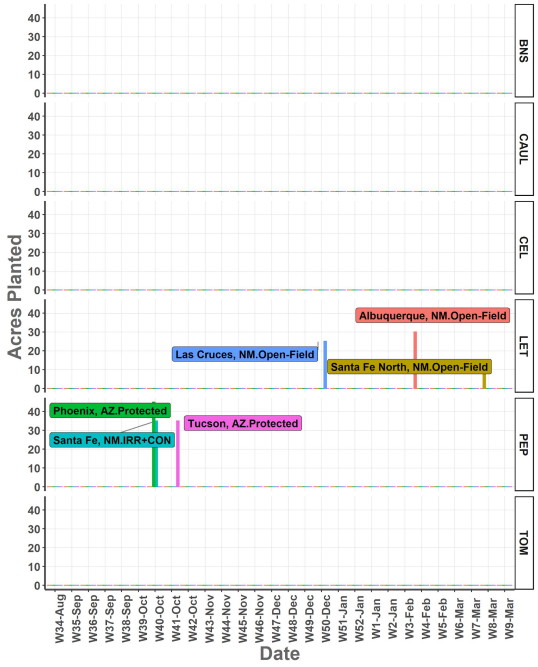
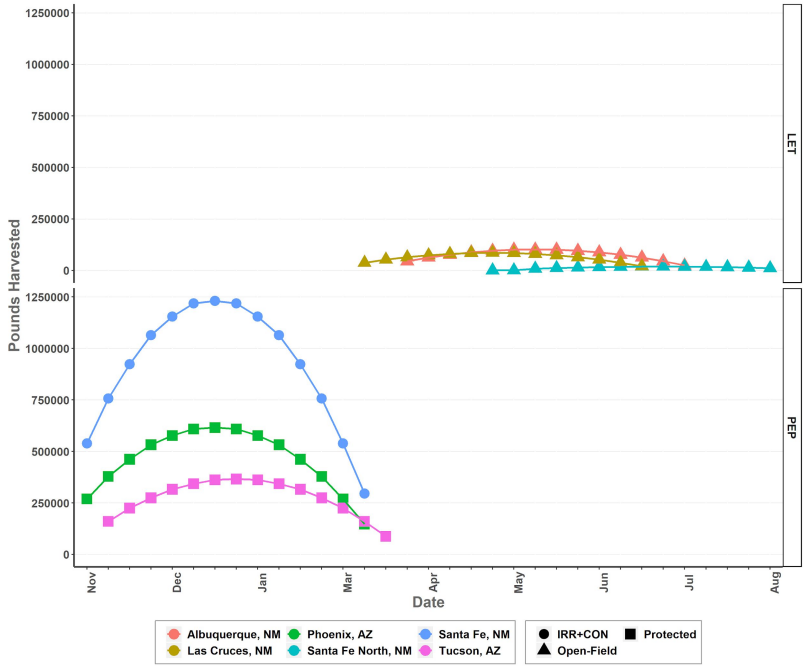
Output Based on this Information





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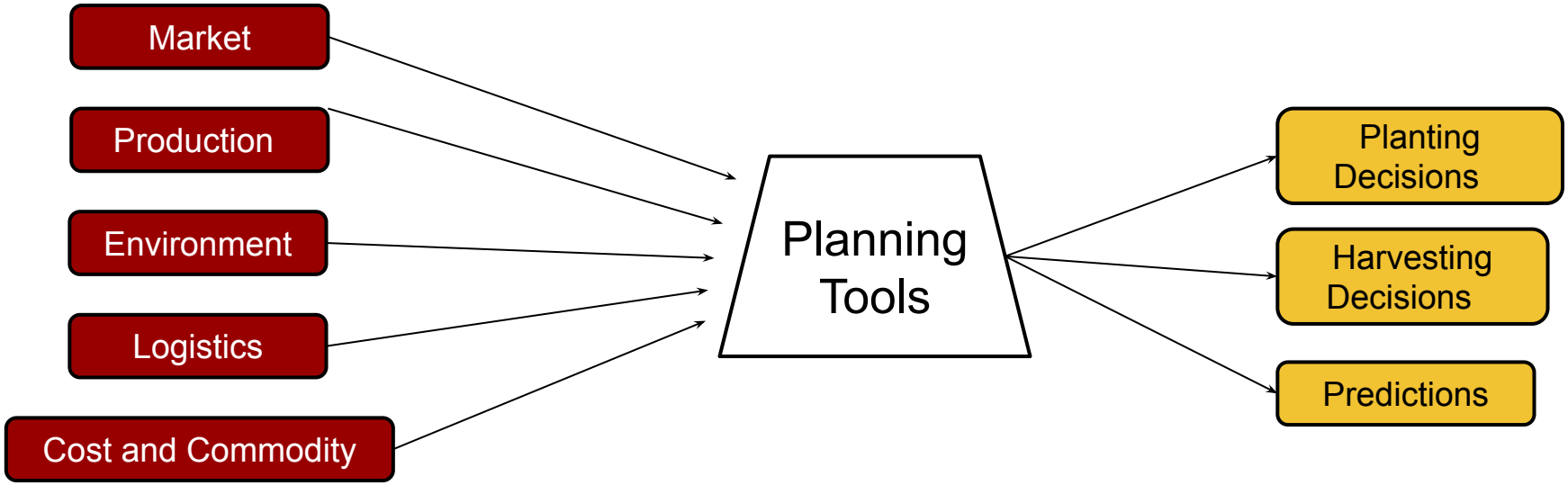
Overview of Process



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