PROJECT REPORT

PROJECT 7:

CROP PRODUCTION ANALYSIS IN INDIA

Domain: Agriculture

Mentor:-

Saiprasad Kagne

Presented by:-

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INTRODUCTION

- Farmers and agribusinesses have to make innumerable decisions every day.
- An essential issue for agricultural planning intention is the accurate yield estimation for the numerous crops involved in the planning.
- Today, India ranks second worldwide in the farm output.
- Agriculture is demographically the broadest economic sector.
- Agriculture is a unique business crop production which is dependent on many climate and economy factors.
- An accurate estimate of crop production and risk helps these companies in planning supply chain decision like production scheduling. Business such as seed, fertilizer, agrochemical and agricultural machinery industries plan production and marketing activities based on crop production estimates.

PROBLEM STATEMENT

- The Agriculture domain- vital part of the overall supply chain.
- Expected to highly evolve in the upcoming years.
- This study presents a novel Business-to-Business collaboration platform from the agri-food sector perspective & aims to facilitate the collaboration of numerous stakeholders belonging to associated business domains.

ANALYSIS

- Dataset provides information on crop production in India ranging from several 1997-2015.
- Based on the Information the ultimate goal would be to predict crop production and find important insights highlighting key indicators and metrics that influence crop production.
- Approach:
  - Python: Used for Data Cleaning
  - Tableau: For Visualization
- Based on the findings, a story was created.
- For better understanding, the results were displayed on 3 dashboards of the story, listed as:
  - Top-n Analysis
  - State-wise Analysis
  - Yearly Analysis

Attributes present in the data

```
State_Name
District_Name
Crop_Year
Season
Crop
Area
Production
```

- Link to Dataset: https://docs.google.com/spreadsheets/d/1PF1PQ4qg4ySrtyOXiF6SFGX7P0Qfl_r/edit?rtpof=true&sd=true#gid=1443108996
- Link to Python Notebook: https://colab.research.google.com/drive/1PU_S-anhlVvAl0xiU8IIG1XgK6M9crmK
- Link to Tableau: https://public.tableau.com/app/profile/priya.kumari3667/viz/CropProductionAnalysisinIndia/Story1?publish=yes

DATA CLEANING

- Dataset was first read.
- Missing and null values were found and removed using dropna( ) method. (3730 null values were removed, there were no duplicate values)
- Cleaned file is downloaded for visual analysis in Tableau.

```
df.shape
```

```
df.isnull().sum()
```

```
State_Name        0
District_Name     0
Crop_Year         0
Season            0
Crop              0
Area              0
```

```
df.shape
```

```
df.isna().sum()
```

```
State_Name        0
District_Name     0
Crop_Year         0
Season            0
Crop              0
Area              0
```

```
df1=pd.DataFrame(df)
```

```
df1.to_csv('Cleaned_Crop_production.csv', index=True)
```

Top-n Analysis

Top n
5

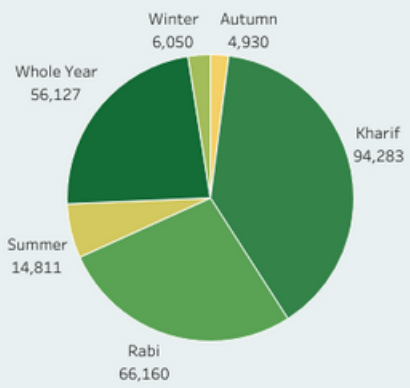
Produce by Area

Crop	
Rice	746,318,616
Wheat	470,713,245
Cotton(lint)	156,557,936
Bajra	140,967,888
Jowar	137,659,285

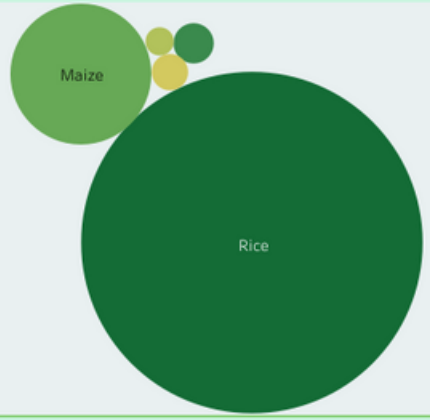
Top produce

Crop	
Rice	1,605,470,383
Maize	273,341,804
Urad	22,410,491
Moong(Green Gram)	18,303,188
Sesamum	11,009,031

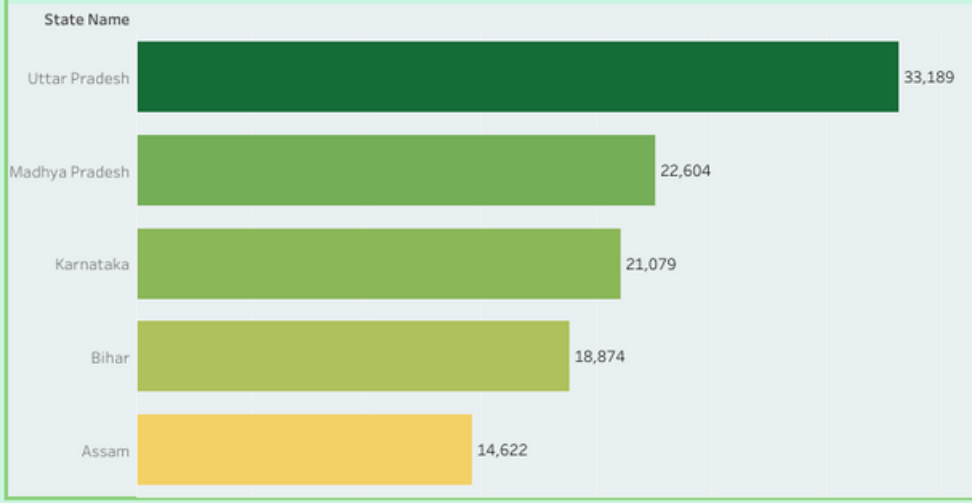
Production by Season



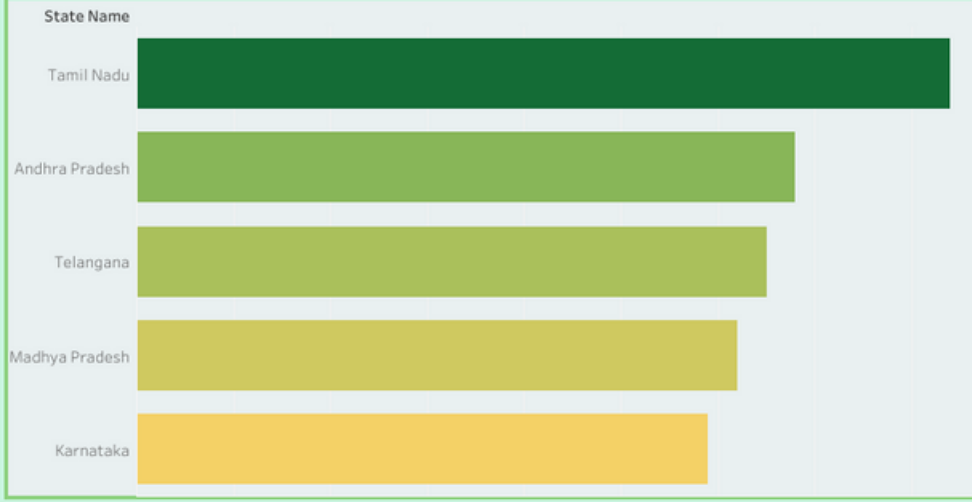
Top Crop Produce



State by Produce



Crop Type Count by State



State-wise Analysis

State Name
Madhya Pradesh

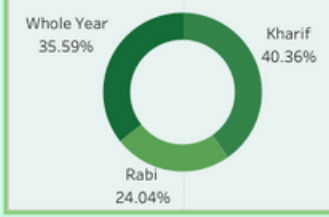
Top n
5

Types of Crops
62

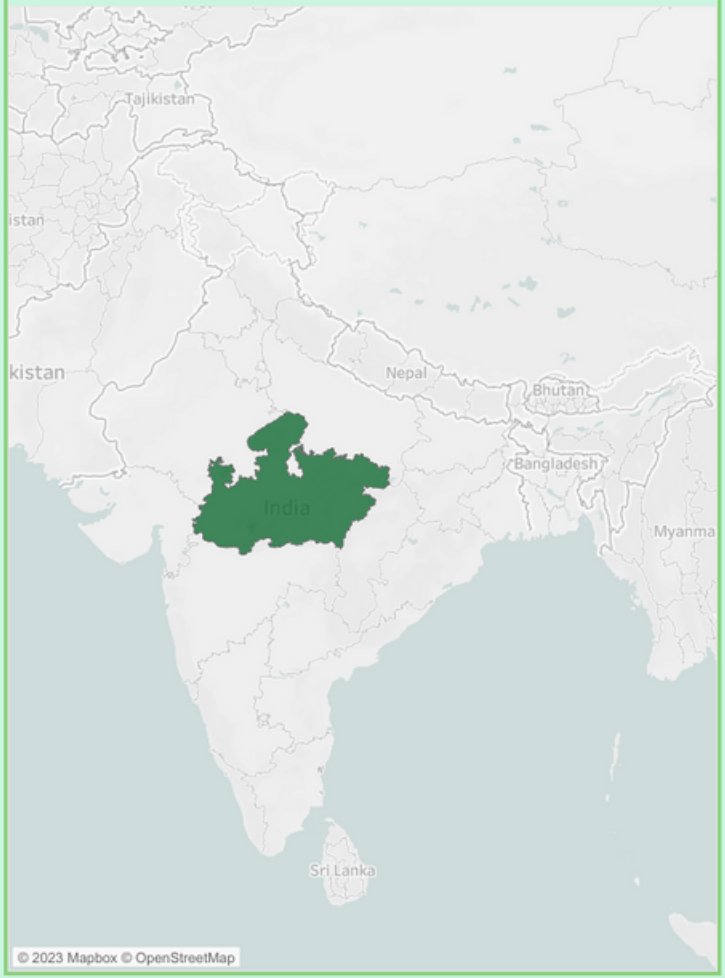
State by Area
329,791,261 sq.km

Production
448,840,739 tonnes

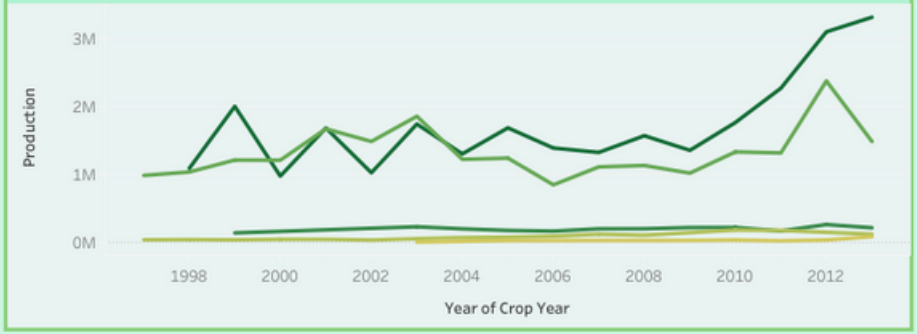
Season-wise



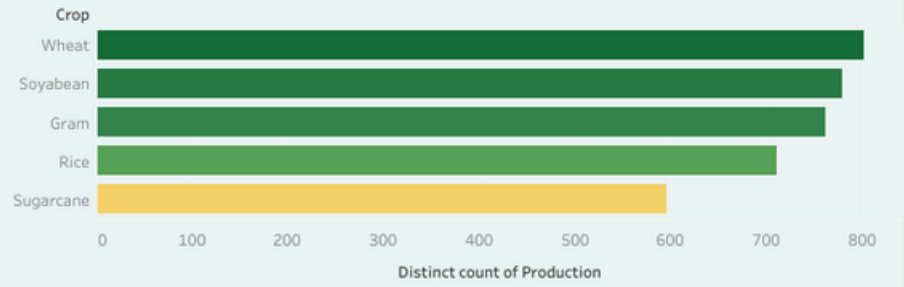
Map by State: Madhya Pradesh



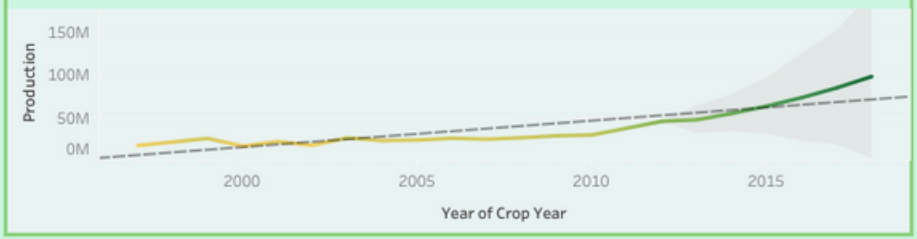
Annual Produce



Top-n Production : 5



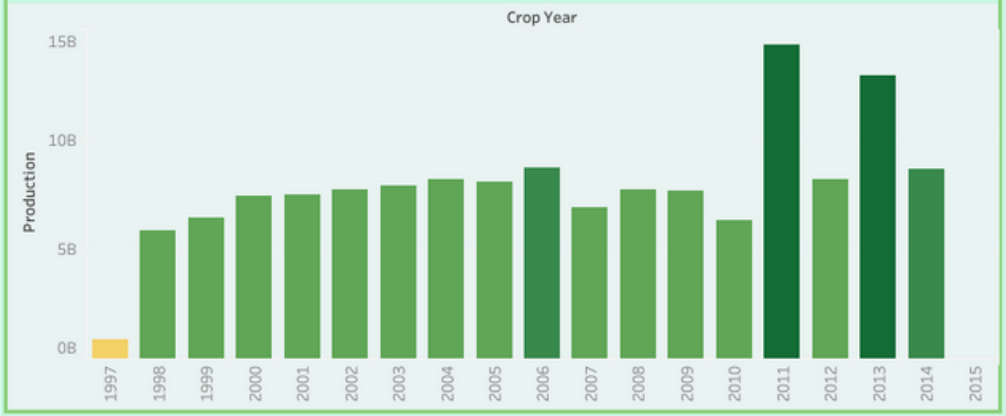
Production Forecast : Madhya Pradesh



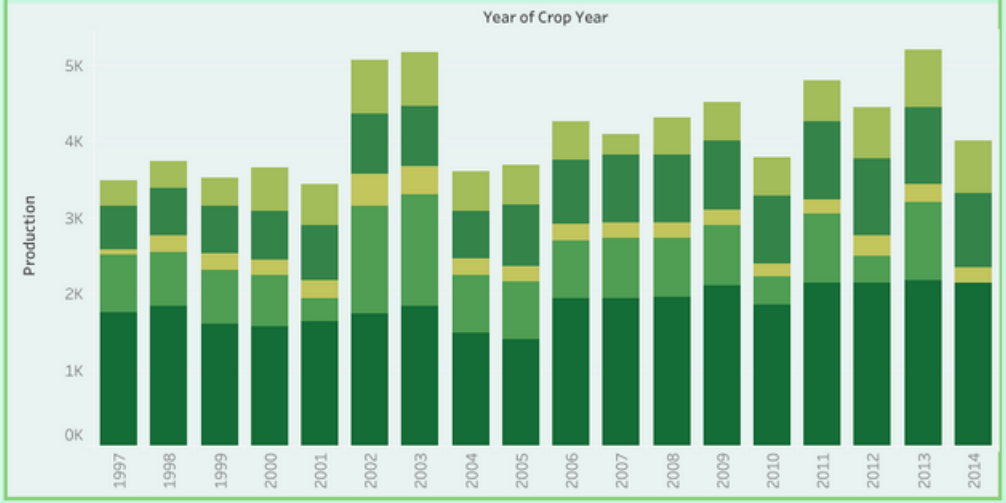
Top n 5

Yearly Analysis

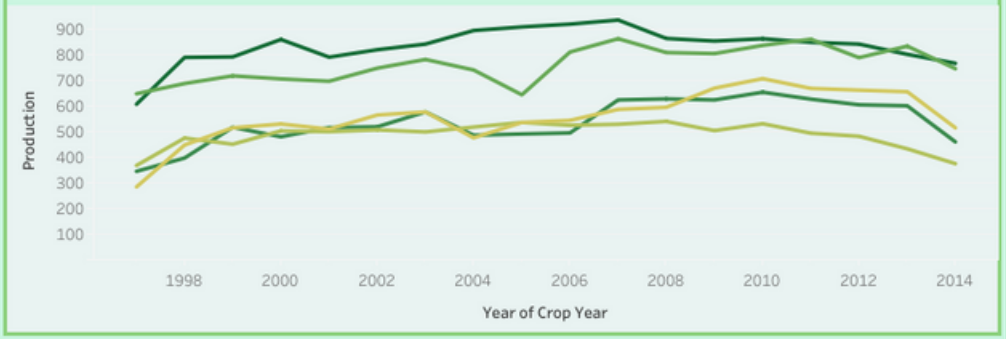
Production by Year



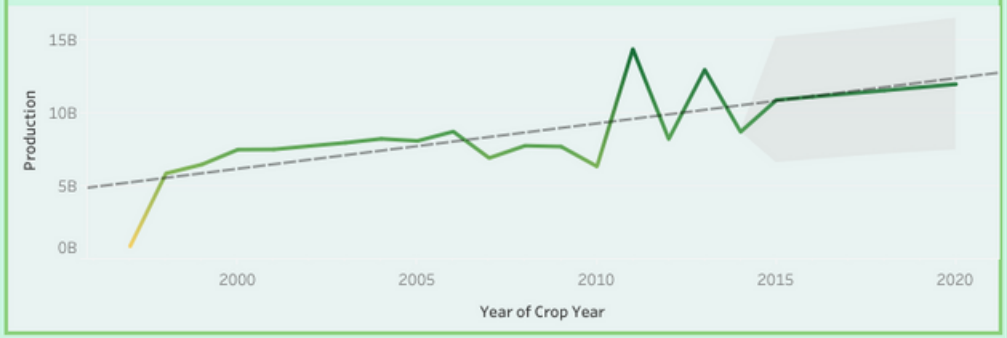
Top Producing States



Year by Top produce



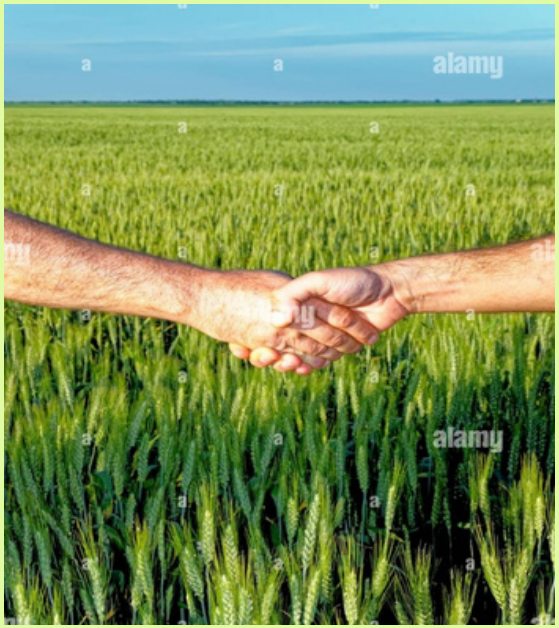
Forecast for Production



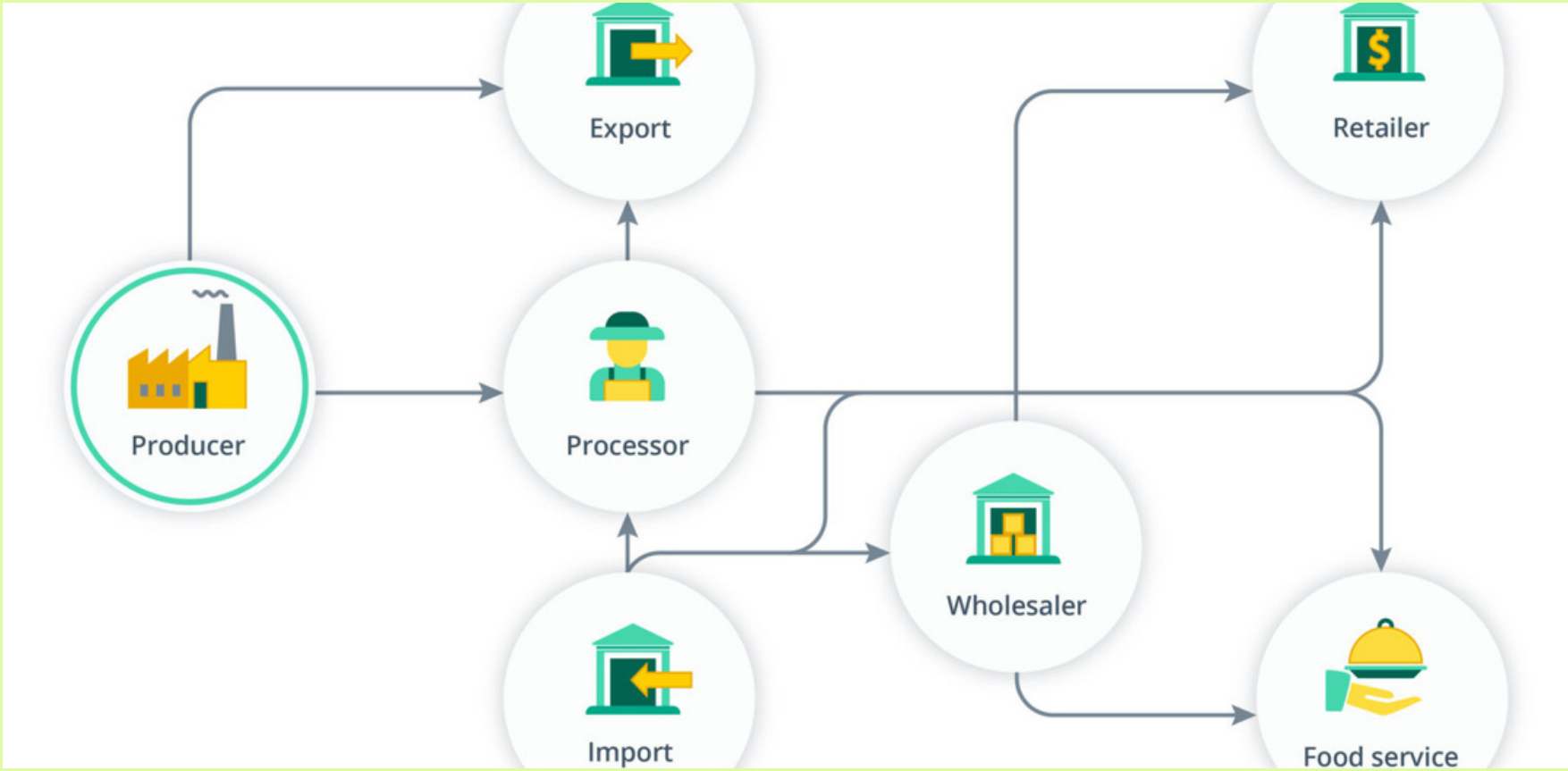
Forecast for Area

BENEFITS TO OTHER BUSINESSES

- Improve farming productivity and operations- Farmers can analyze weather conditions, temperature, water usage and soil conditions to make informed decisions on business choices -- like determining the most feasible crop choices that year or which hybrid seeds decreased waste.
- In AgriTech- Cooperation between private farmers, big agricultural corporations, communities, and governments. Such cooperation can result in the wider promotion of agriculture and rural development, a reduction in poverty, and food security.
- Stop migration of the labor force.
- Reduce food waste- 20% to 30% of food is wasted today at various stages of the supply chain.



B2B SUPPLY CHAIN




THANK YOU!