INDIA'S AGRI CROP PRODUCTION ANALYSIS

PROJECT REPORT

submitted to the Manonmaniam Sundaranar University,

Tirunelveli, in partial fulfillment of the requirements for the

award of the Degree in

BACHLEOR OF SCIENCE IN PHYSICS

by

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ACKNOWLEGEMENT

First of all I thank **God Almighty** for giving us the strength and confidence to take up this project work.

I also express our gratefulness to **Dr. C. Veerabahu M.Sc., Ph.D., The Principal,** for giving us the permission to do the project work.

With a deep sense of gratitude we express our sincere thanks to our project supervisor **Dr. S. Subramanian Assistant Professor** for his valuable guidance & constant encouragement in completing this project work.

I would like to thank our **H.O.D. Dr. John Prince Soundranayagam Associate Professor** for his valuable advices whenever we approached him. We also express our sincere thanks to **Dr. K. Amudhavalli, Dr. M. Nagarajan, Prof. A. Infantia Daphne and Prof. S. Subha**, Department of Physics for their encouragement & suggestions throughout the course of study.

INRODUCTION

India's Agricultural Crop Production Analysis(1997-2021) This report delves into the captivating realm of India's agricultural cultivation, providing a comprehensive visual exploration of key aspects and trends in the agricultural sector. Through the visual representations, readers can gain valuable insights into crop production, seasonal variations, regional distribution, and overall production trends. These visualizations enable intuitive analysis, allowing stakeholders to uncover patterns, identify areas of growth or concern, and make data-driven decisions. By harnessing the power of Tableau, this report not only presents the data in a visually appealing manner but also provides an interactive experience for readers to explore the intricacies of India's agricultural cultivation.

To Extract the Insights from the data and put the data in the form of visualizations, Dashboards and Story we employed Tableau tool.

We are going to Analyse the India's Agricultural Crop Production by creating

- Empathy map
- Brain Storming and Idea Prioritization
- State wise Cultivation
- Crop Production as a Function Area
- Crop Cultivation against Season
- Kharif Yield over the Season
- Area wise Percentile Crop Cultivation
- Three major Crop Production over 20 Years
- Crop Plantation(Count)
- Season wise production

PROJECT FLOW

- Empathy map

- Brain Storming and Idea Prioritization

- Data preparation

    Prepare the Data for Visualization

- Data Visualizations

    No of Unique Visualizations

- Dashboard

    Responsive and Design of Dashboard

- Story

    No of Scenes of Story

- Performance Testing

    Amount of Data Rendered to DB '

    Utilization of Data Filters

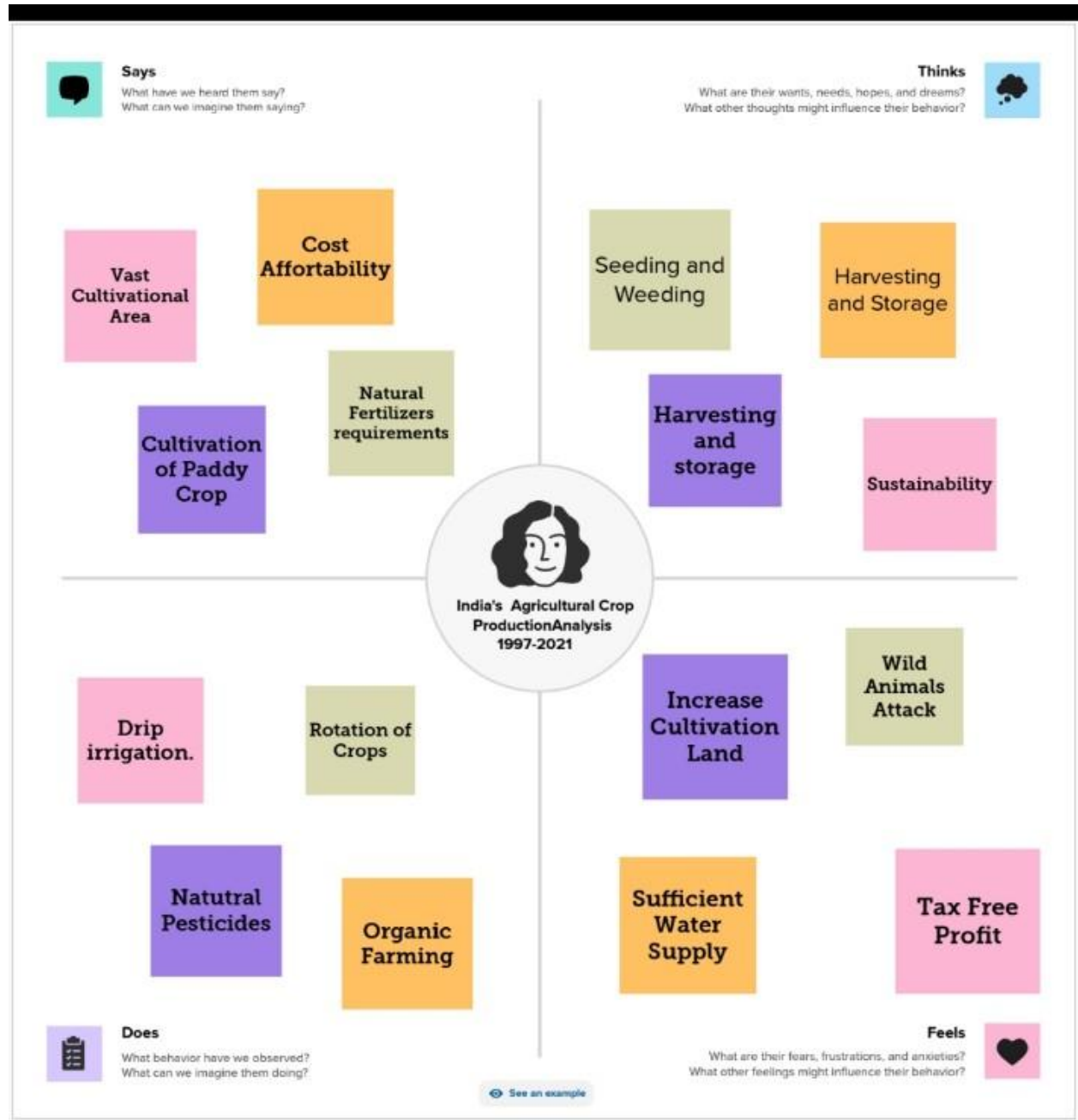No of Calculation Fields o No of Visualizations/ Graphs

- Publishing

  Publishing Dashboard and Story to tableau public

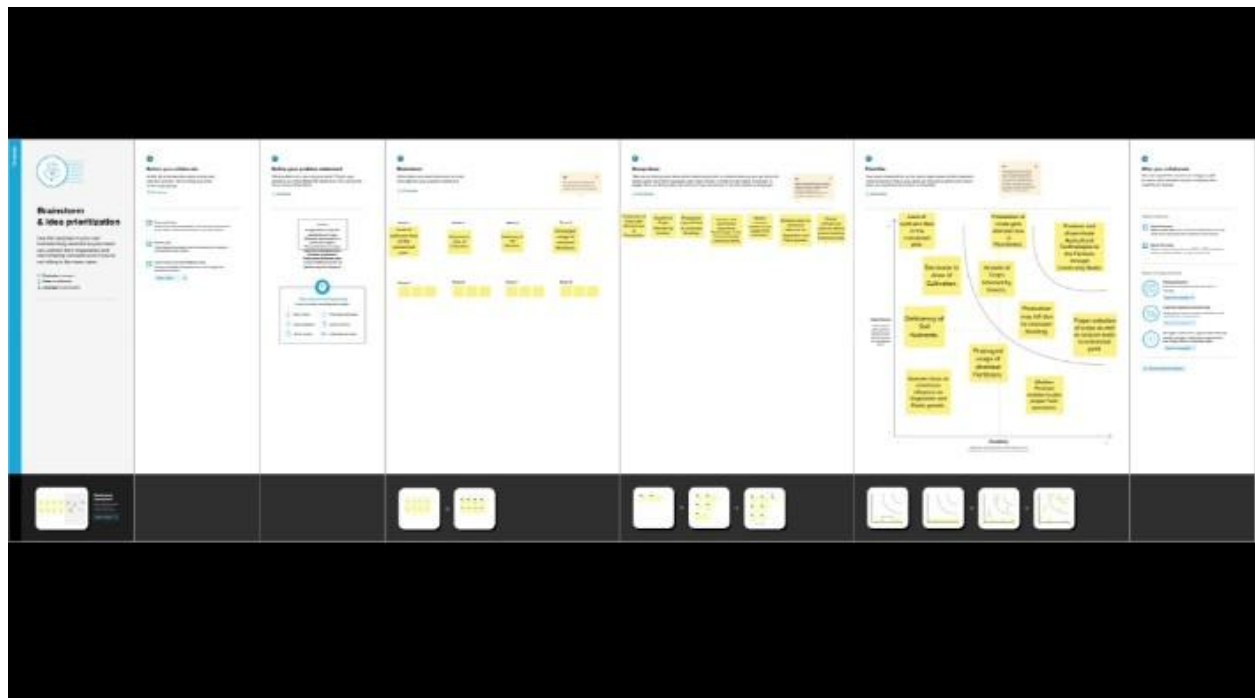- Project Demonstration & Documentation

  Record explanation Video for project end to end solution .

EMPATHY MAP

Says
What have we heard them say?
What can we imagine them saying?

Thinks
What are their wants, needs, hopes, and dreams?
What other thoughts might influence their behavior?

Vast Cultivational Area

Cost Affortability

Natural Fertilizers requirements

Cultivation of Paddy Crop

Seeding and Weeding

Harvesting and Storage

Harvesting and storage

Sustainability

India's Agricultural Crop ProductionAnalysis 1997-2021

Drip irrigation.

Rotation of Crops

Increase Cultivation Land

Wild Animals Attack

Natutral Pesticides

Organic Farming

Sufficient Water Supply

Tax Free Profit

Does
What behavior have we observed?
What can we imagine them doing?

Feels
What are their fears, frustrations, and anxieties?
What other feelings might influence their behavior?

See an example

# BRAIN STORMING AND IDEA PRIORITIZATION

DATA PREPARATION

Preparing the data for visualization involves cleaning the data to remove irrelevant or missing data, transforming the data into a format that can be easily visualized, exploring the data to identify patterns and trends, filtering the data to focus on specific subsets of data, preparing the data for visualization software, and ensuring the data is accurate and complete. This process helps to make the data easily understandable and ready for creating visualizations to gain insights into the performance and efficiency.
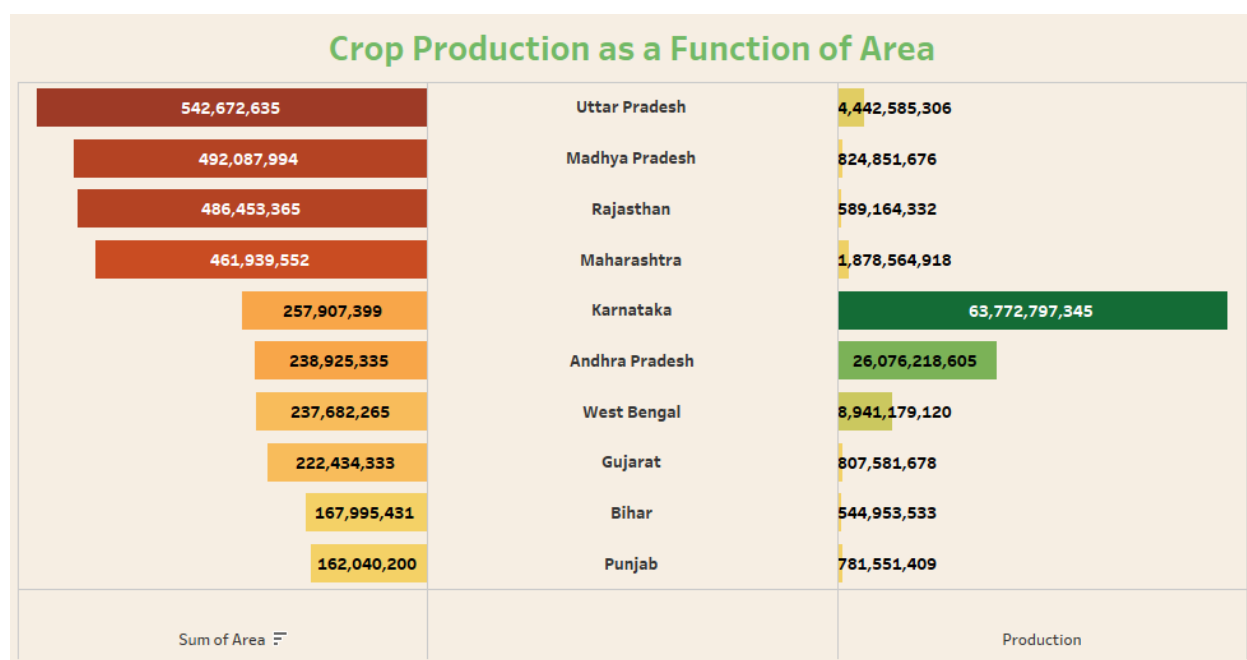
Data Visualization

Data visualization is the process of creating graphical representations of data to help people understand and explore the information. The goal of data visualization is to make complex data sets more accessible, intuitive, and easier to interpret. By using visual elements such as charts, graphs, and maps, data visualizations can help people quickly identify patterns, trends, and outliers in the data.

SHEET 1- State wise Cultivation
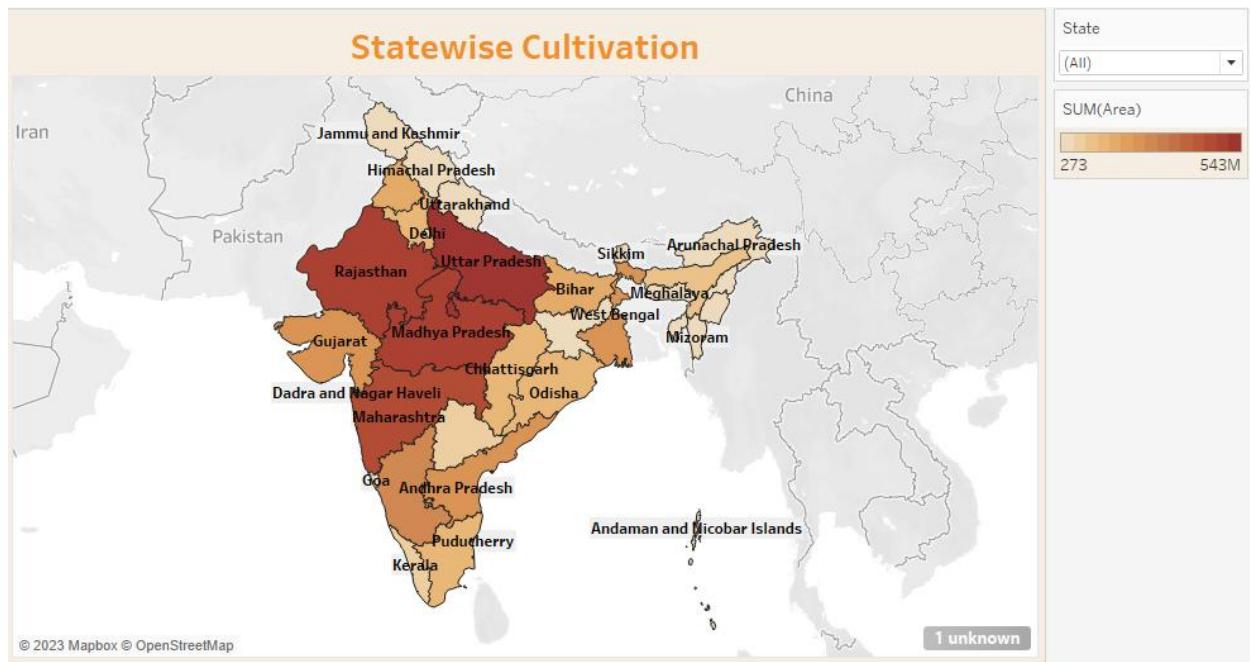
Here we have analysed state wise agricultural landscape. The dark brown indicates the high production of crops and the light brown indicates the low production of crops.

SHEET 2- Crop Production as a Function Area

Crop Production as a Function of Area

| Sum of Area	State	Production
542,672,635	Uttar Pradesh	4,442,585,306
492,087,994	Madhya Pradesh	824,851,676
486,453,365	Rajasthan	589,164,332
461,939,552	Maharashtra	1,878,564,918
257,907,399	Karnataka	63,772,797,345
238,925,335	Andhra Pradesh	26,076,218,605
237,682,265	West Bengal	8,941,179,120
222,434,333	Gujarat	807,581,678
167,995,431	Bihar	544,953,533
162,040,200	Punjab	781,551,409

In this butterfly chart, we visualised how the crop production varies with area across the states of India.

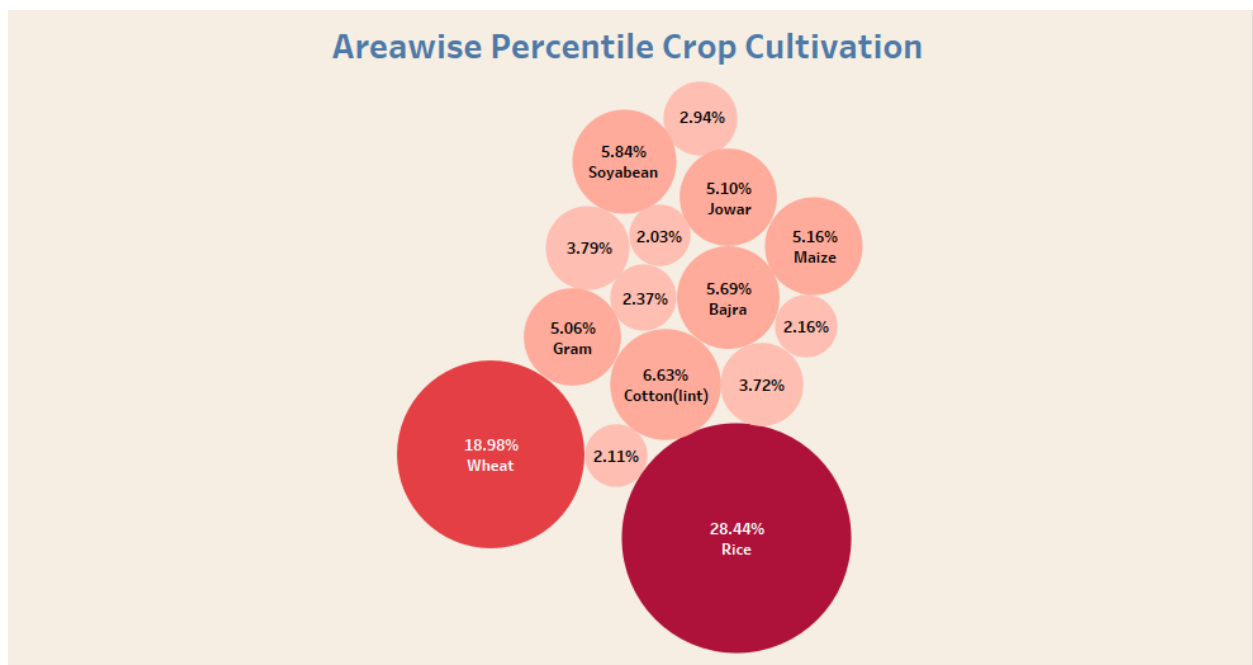# SHEET 3- Crop Cultivation against Season
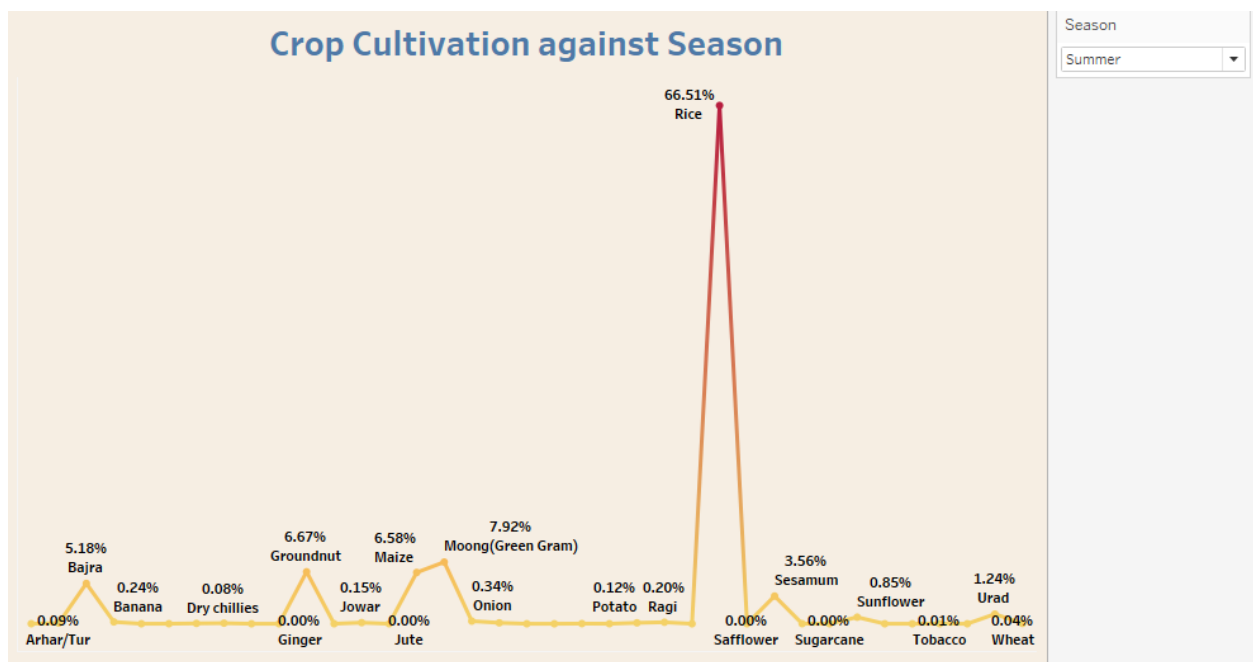
In this line chart, we studied how the crop cultivation behaves with different seasons across India
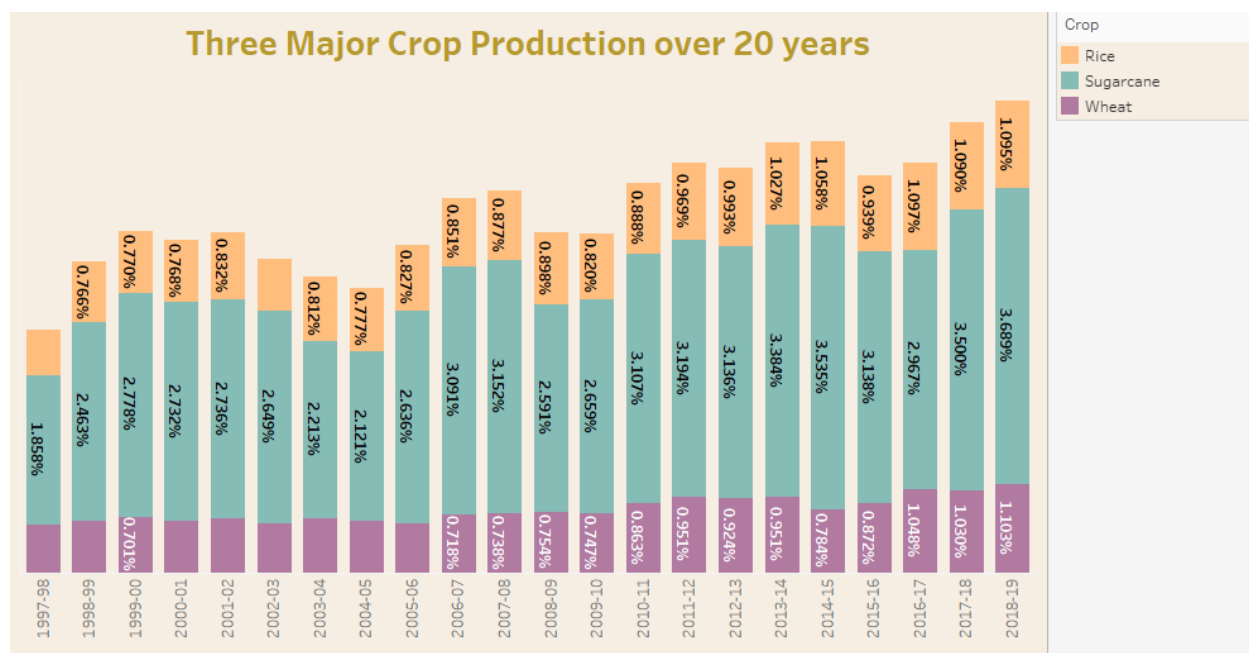
SHEET 4- Kharif Yield over the Seasons
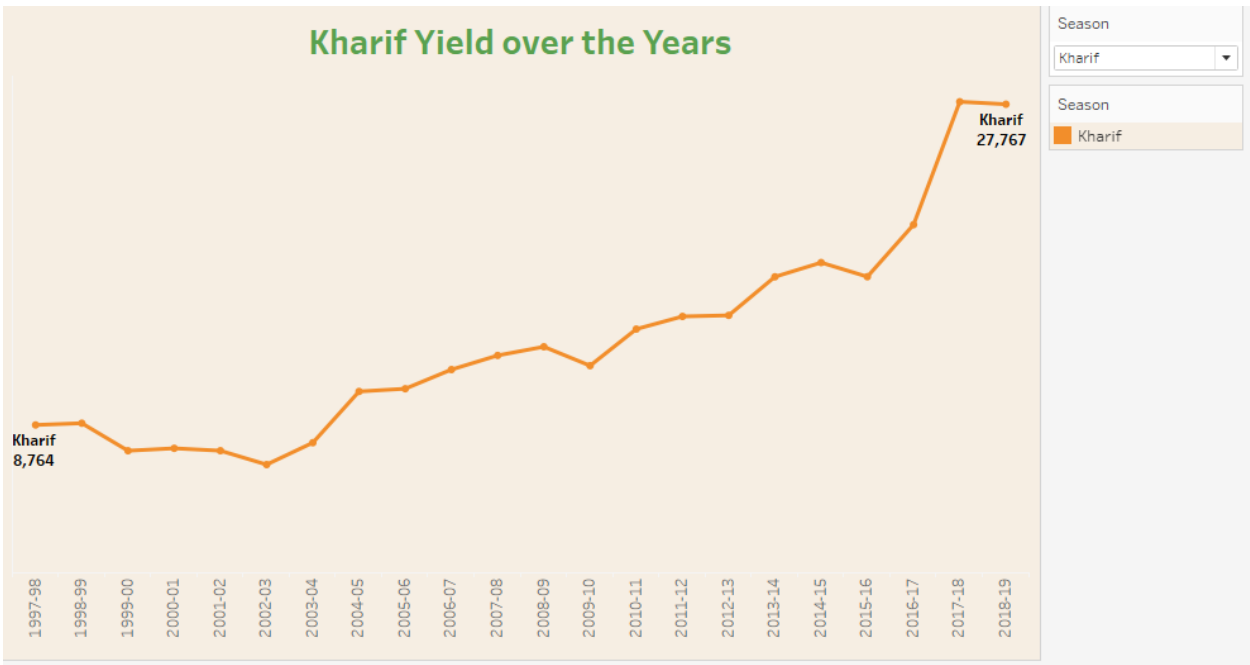
From the above chart, it is evident that kharif yield increases in the recent years.

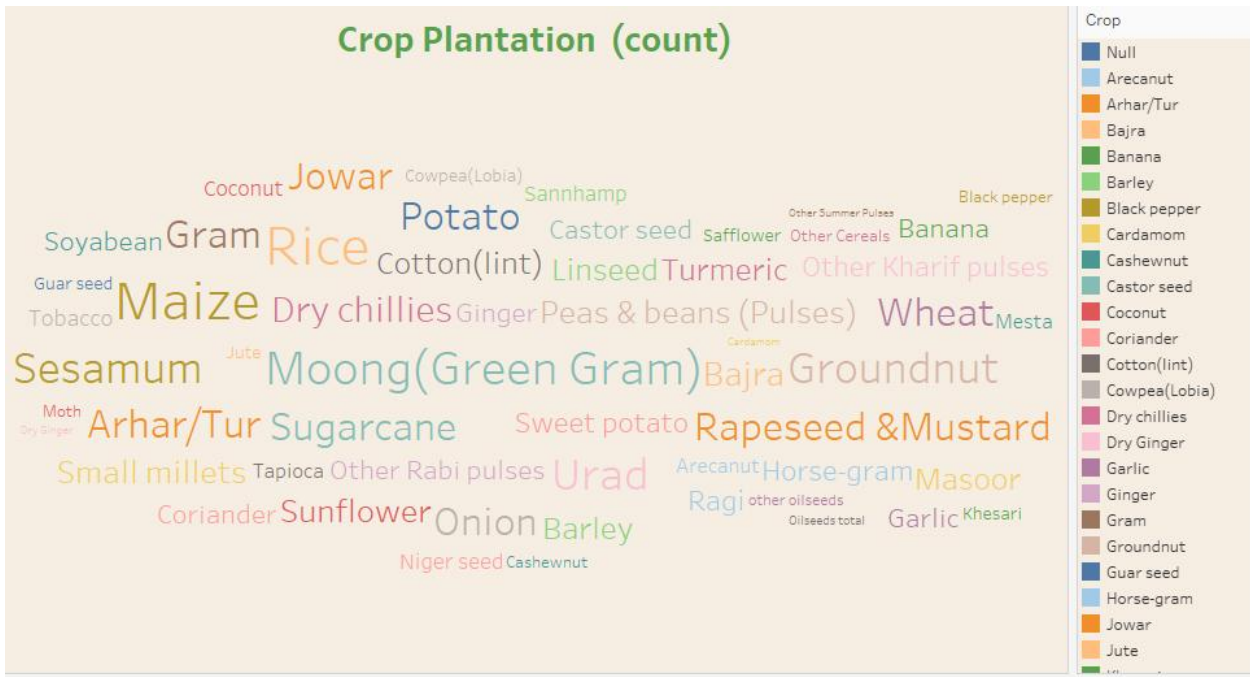# SHEET 5- Area wise Percentile Crop

Percentage of crop cultivation is expressed as a function of area in this bubble chart.

# SHEET 6- Three major Crop Production over 20 Years

The bar graph explores the production of three major crops namely rice, wheat and sugarcane for the past two decades.

SHEET 7- Crop Plantation (Count)

This visualization is crop plantation in terms of count. We can easily identify the count of the crops with the size of the text and the crop can be identified by the colour of the text.

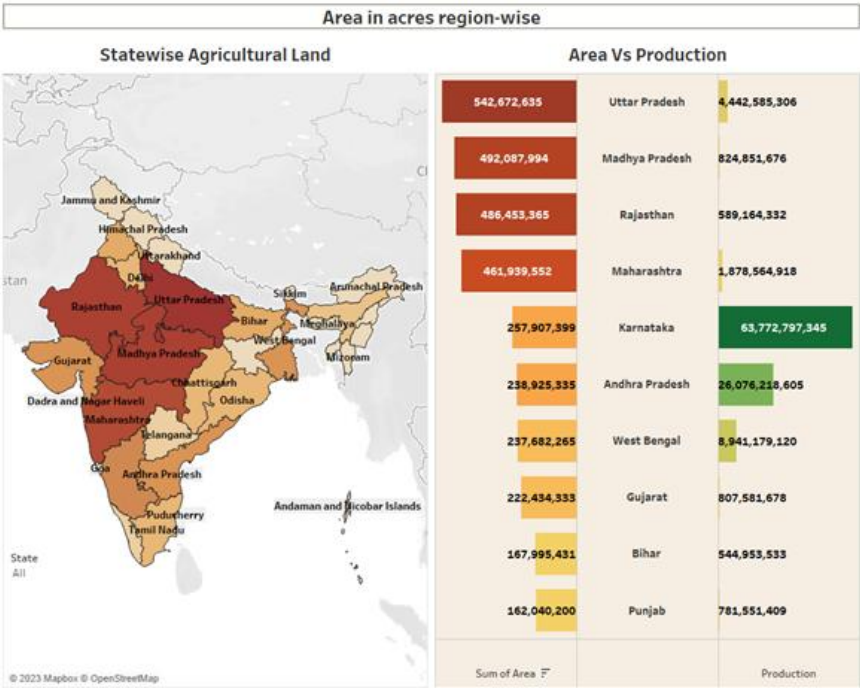# SHEET 8- Season wise Production
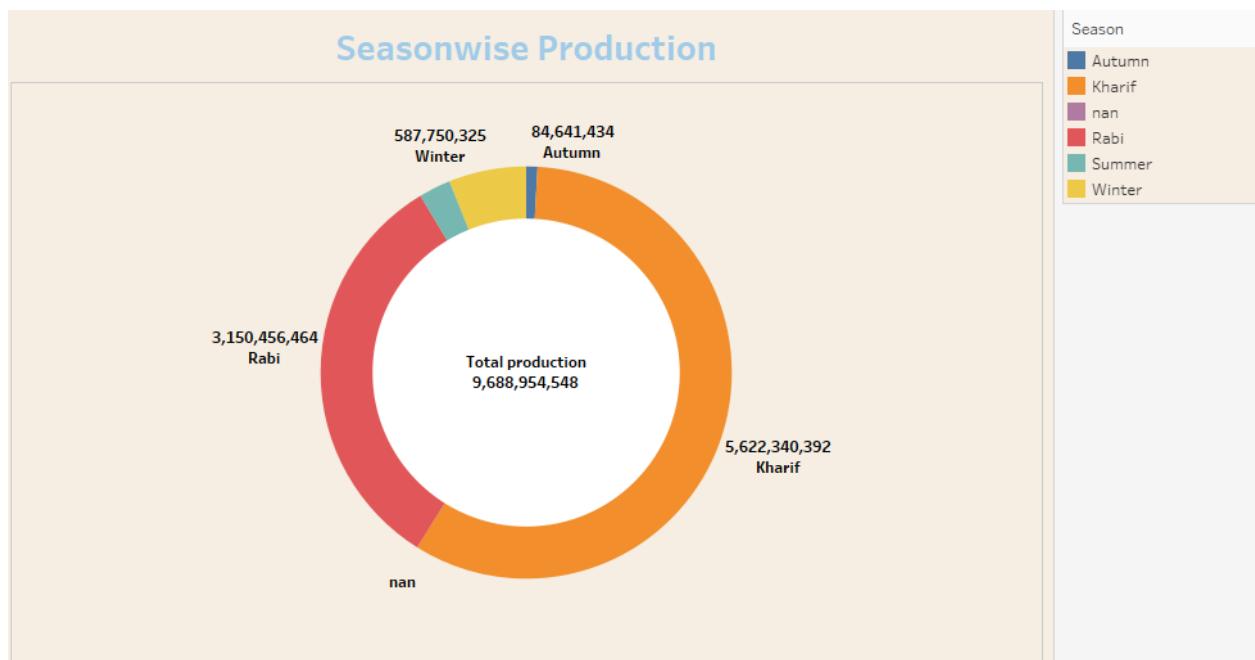
Season wise yield is represented in the form of doughnut chart. It is evident that the yield is the largest during kharif season followed by rabi season.
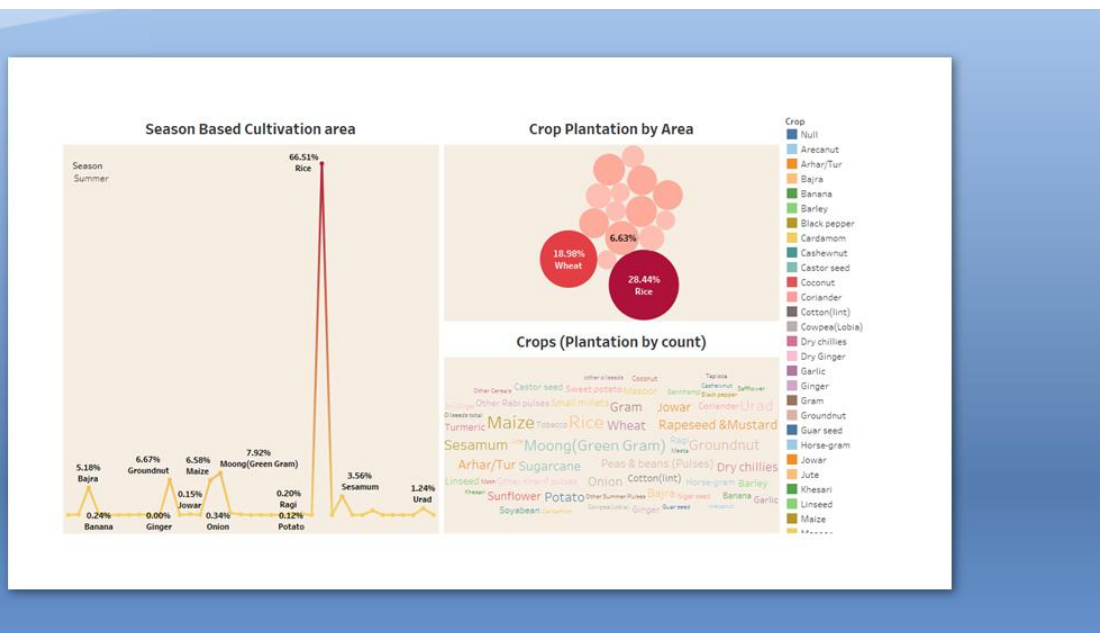
DASHBOARD

A dashboard is a graphical user interface (GUI) that displays information and data in an organized, easy-to-read format. Dashboards are often used to provide real-time monitoring and analysis of data and are typically designed for a specific purpose or use case. Dashboards can be used in a variety of settings, such as business, finance, manufacturing, healthcare, and many other industries. They can be used to track key performance indicators (KPIs), monitor performance metrics, and display data in the form of charts, graphs, and tables.
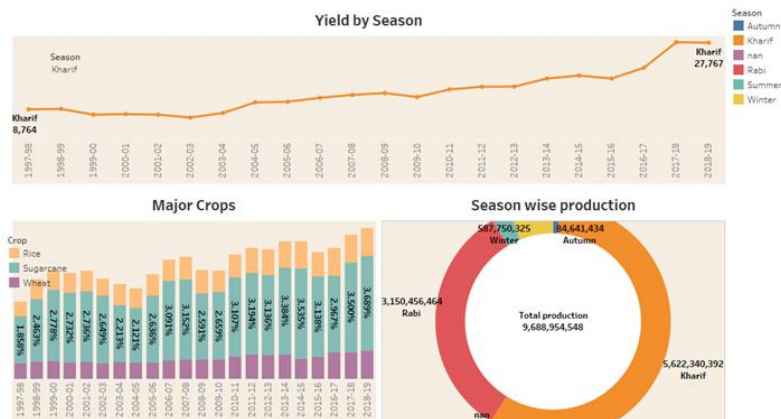
DASHBOARD- 1

Area in acres region-wise

Statewise Agricultural Land

Area Vs Production

Sum of Area	State	Production
542,672,635	Uttar Pradesh	4,442,585,306
492,087,994	Madhya Pradesh	824,851,676
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167,995,431	Bihar	544,953,533
162,040,200	Punjab	781,551,409

DASHBOARD 2

DASHBOARD- 3

STORY

A data story is a way of presenting data and analysis in a narrative format, intending to make the information more engaging and easier to understand. A data story typically includes a clear introduction that sets the stage and explains the context for the data, a body that presents the data and analysis logically and systematically, and a conclusion that summarizes the key findings and highlights their implications. Data stories can be told using a variety of mediums, such as reports, presentations, interactive visualizations, and videos.

The below is the link for story.

STORY- 1

https://drive.google.com/file/d/1qcl0WFYLNUUi4lx75OZWvCEfz1f4nK6Q/view?usp=drivesdk

STORY- 2

https://drive.google.com/file/d/1qeXtGqq16EAmemPpYqX-D3henA6gkl4y/view?usp=drivesdk

PUBLISH DASHBOARD & STORY TO

TABLEAU PUBLIC

We have published the results of our analysis in Tableau Public and given the link below

PROJECT DEMONSTRATION

Video explanation of our work have been recorded and the link for access is given here.

https://drive.google.com/file/d/1oNQLUS8IzB1hUZORVsGZSIrhbD7Ni1-8/view?usp=drivesdk

RESULTS AND DISCUSSIONS

India's agricultural crop production has been studied as a function of different seasons over the passed 2 decays using Data Analytics software Tableau by creating the following charts.

- Empathy Map
- Brain Storming and Idea Prioritization
- State wise Cultivation
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- Season wise Production

By doing this project work we have learned a little bit of Data Analytics which is a foundation stone for Data Science, which is a attractive field now a days. We wish to analysie the sales of our family Medical Shop, using Tableau in the future. It will be very helpful to increase the sales of the Medical Shop.

THANK YOU