INDIAN AGRICULTURE CROP PRODUCTION ANALYSIS

TEAM ID:NM2023TMID05874

A PROJECT REPORT

Submitted by

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CONTENTS

1.INTRODUCTION :

1.1 OVERVIEW :

1. INTRODUCTION

A brief description about the project titled “India’s Agricultutural Crop Production (1997-2021)”.

1.1 Purpose

The use of this project has been discussed and its applicaiion.

2. Problem Definition & Design Thinking

2.1 Empathy Map

empathizing the perspective of user and giving it in visualization form

2.2 Ideation & Brainstorming Map

generating and organizing ideas in a structured and in visual way.

3. RESULT

Final findings (Output) of the project has been projected using screenshots of dashboard and story.

4. ADVANTAGES & DISADVANTAGES

List of advantages and disadvantages of the proposed solution

5. APPLICATIONS

Explaining the areas where this solution can be applied in effective way

6. CONCLUSION

summarizing the entire work and findings of the proposed problem

7. FUTURE SCOPE

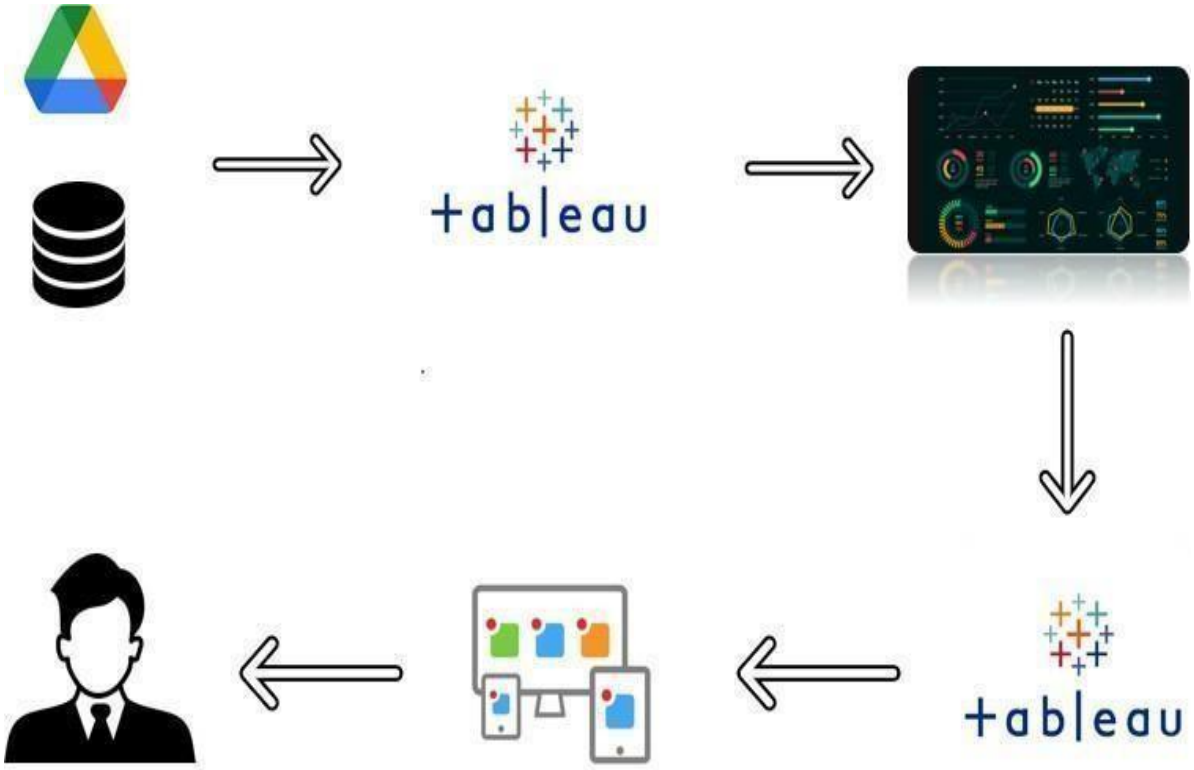
Enhancements that can be made in the project for future study.

1.2 PURPOSE:

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.

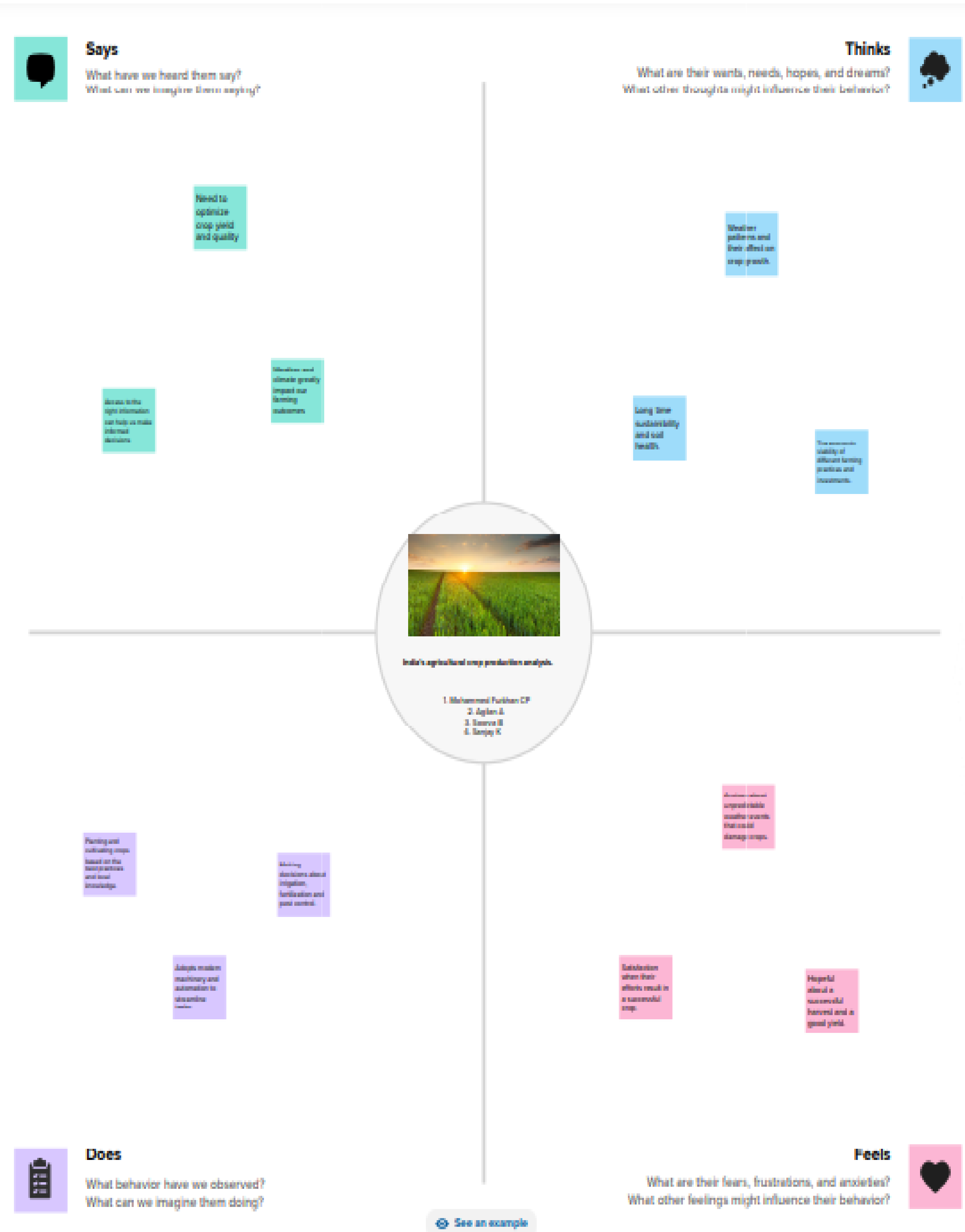
TECHNICAL ARCHITECTURE:



2.PROBLEM DEFINITION & DESIGN THINKING :

2.1 EMPATHY MAP

An Empathy Map is a tool used to help understand and empathize with the perspective of a particular user or customer. It is a visual representation of the user's attitudes, behaviors, emotions, and experiences that can be used to gain a deeper understanding oftheir needs and motivations The Empathy Map is typically divided into four quadrants "Says," "Thinks," "Does," andFeels." In each quadrant, the user's thoughts, feelings, actions,and spoken words are recorded to help build a more completeunderstanding of their perspective. The Empathy Map is often used in design thinking and user experience research to helpinform the design of products or services that better meet theneeds of the user.


Says
What have we heard them say?
What can we imagine them saying?
Need to optimize crop yield and quality
Thinks
What are their wants, needs, hopes, and dreams?
What other thoughts might influence their behavior?
Weather patterns and their effect on crop growth.
Long time sustainability and soil health.
India's agricultural crop production analysis.
1. Mohammed Furkhan CP
2. Agilan A
4. Sanjay K
Planting and cultivating crops based on the best practices and local knowledge.
Making decisions about irrigation, fertilization and pest control.
Satisfaction when their efforts result in a successful crop.
Hopeful about a successful harvest and a good yield.
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

2.2 IDEATION AND BRAINSTORMING MAP

- **Ideation and Brainstorming Maps are tools used to generate and organize ideas in a structured and visual way. They are commonly used in creative problem solving, innovation, and product design to generate a large number of ideas and then organize them into meaningful categories.**

- **Ideation and Brainstorming Maps typically start with a central theme or problem statement in the center of the map. From there, branches are drawn out to represent different categories or subtopics related to the central theme. These categories can then be further expanded with additional branches to represent specific ideas.**

- **. The purpose of an Ideation and Brainstorming Map is to encourage free thinking and generate as many ideas as possible. It allows participants to visually see how ideas are connected and to build upon each other's ideas. The map can then be used to prioritize and refine the most promising ideas. There are many variations of Ideation and Brainstorming Maps, including Mind Maps. Spider Maps, and Fishbone Diagrams.**

Define your problem statement

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

5 minutes

Brainstorm

Write down any ideas that come to mind to solve the problem your problem statement.

10 minutes

Group ideas

Take some time to bring your ideas into meaningful clusters or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you can break it up into smaller sub-groups.

20 minutes

Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

20 minutes

Thinking about the importance and viability of different farming practices and investments.

Struggles with managing yields and maintaining soil fertility.

Concerns about weather patterns and how they might affect crop growth.

Importance

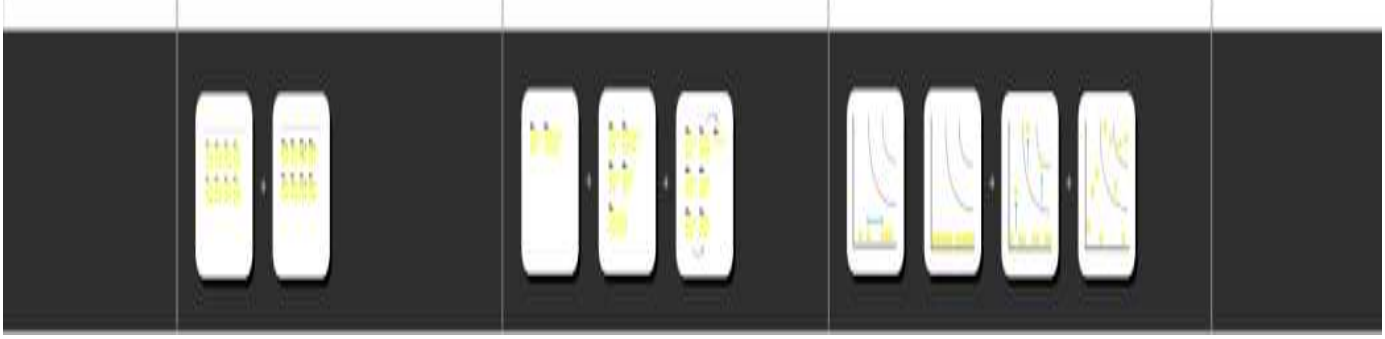
Feasibility

After you collaborate

You can export the mural as an image or pdf to share with members of your company who might have missed.

Quick wins

Keep moving forward



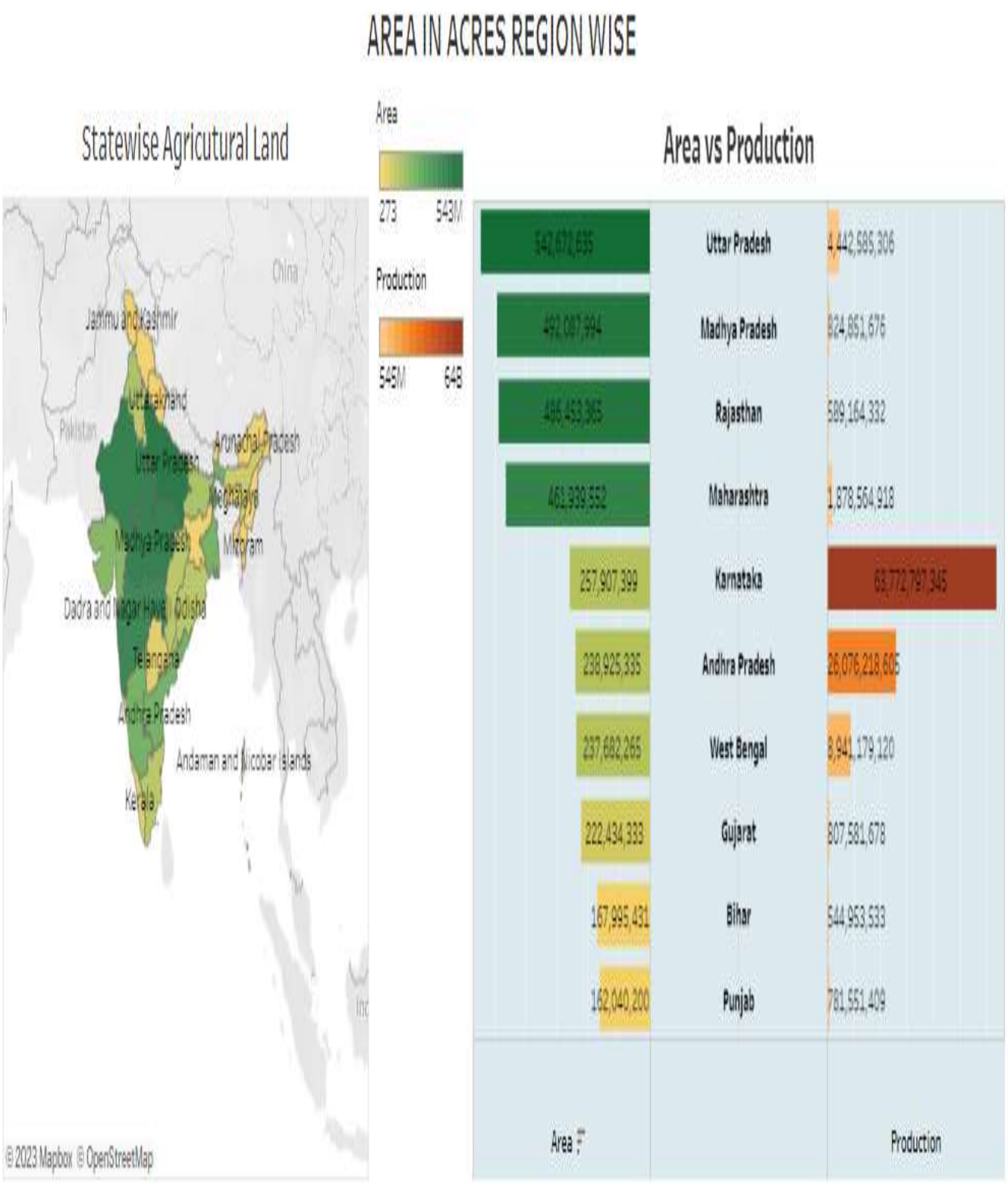
3.1 RESULTS :

Creating a Dashboard in Tableau:

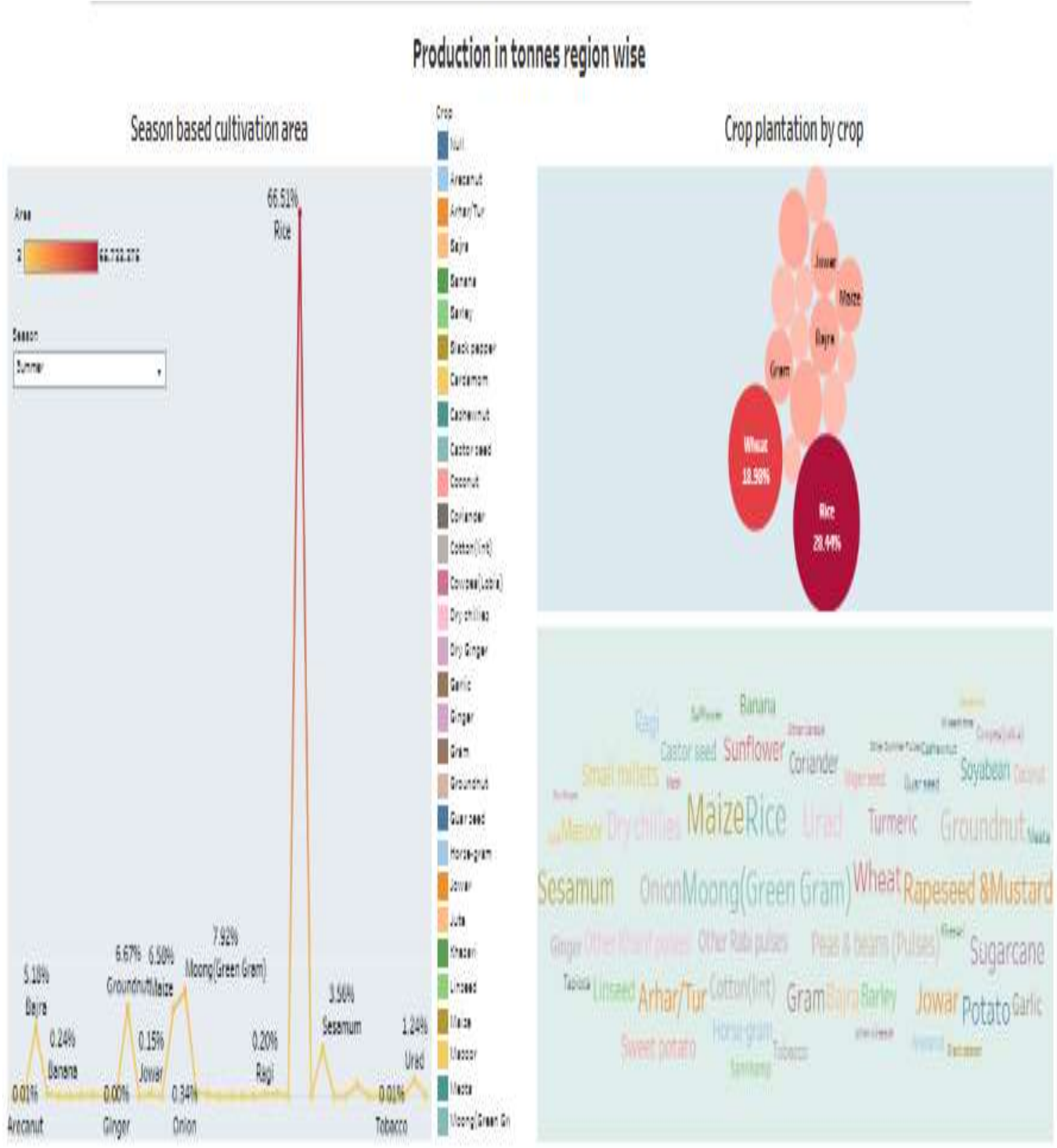
- **A dashboard is a collection of different kinds of visualizations or views that we create on Tableau We can bring together different elements of multiple worksheets and put them on a single dashboard.**

- **The dashboard option enables us to import and add charts and graphs from worksheets to create a dashboard. On a dashboard, we can place relevant charts and graphs in one view and analyze them for better insights.**

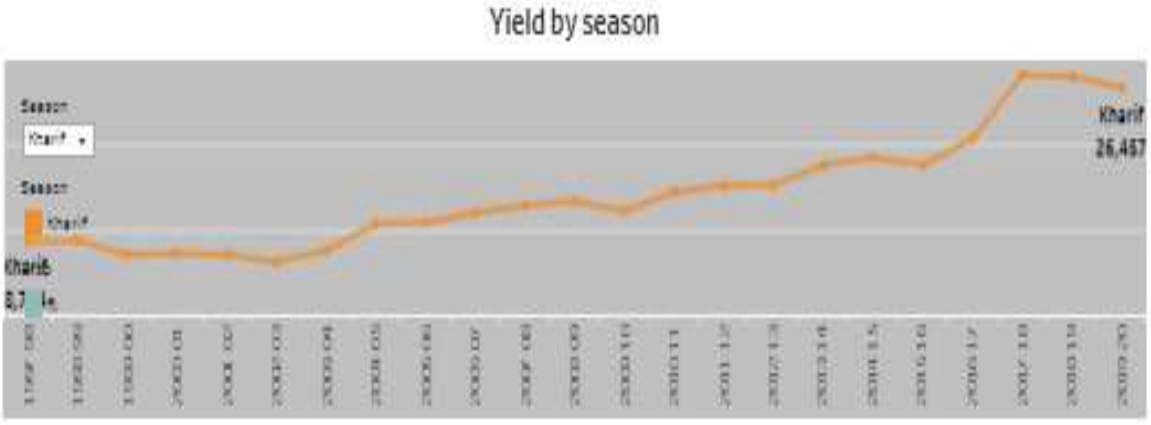
Dashboard 1:

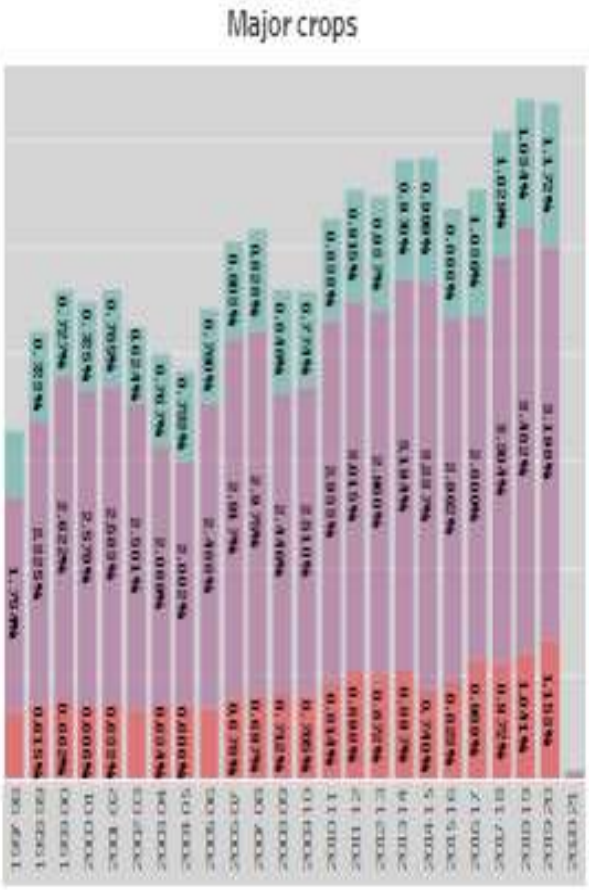

AREA IN ACRES REGION WISE
Statewise Agricutural Land
Area
273
543M
Production
545M
648
China
Jammu and Kashmir
Pakistan
Uttarakhand
Uttar Pradesh
Arunachal Pradesh
Meghalaya
Madhya Pradesh
Mizoram
Dadra and Nagar Haveli
Odisha
Telangana
Andhra Pradesh
Andaman and Nicobar Islands
Kerala
© 2023 Mapbox © OpenStreetMap
Area vs Production
542,678,635
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
Area
Production

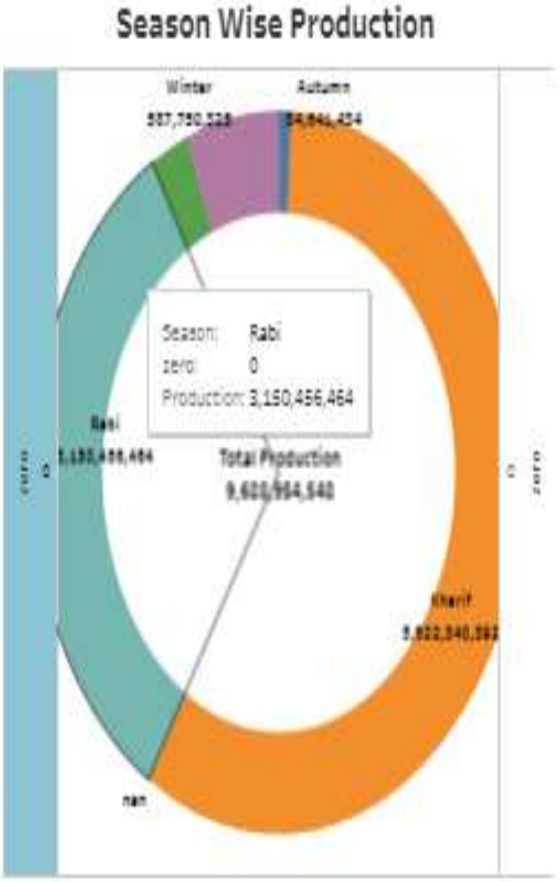
Dashboard 2:


Production in tonnes region wise
Season based cultivation area
Area
Season
Summer
66.51%
Rice
5.18%
Bajra
0.24%
Banana
6.67%
Groundnut
6.58%
Maize
7.92%
Moong(Green Gram)
0.15%
Jowar
0.20%
Ragi
3.56%
Sesamum
1.24%
Urad
0.01%
Arecanut
0.00%
Ginger
0.34%
Onion
0.01%
Tobacco
Crop
Crop plantation by crop
Jowar
Maize
Bajra
Gram
Wheat
18.98%
Rice
28.44%
Banana
Castor seed
Sunflower
Coriander
Soyabean
Small millets
Maize
Rice
Dry chillies
Urad
Turmeric
Groundnut
Sesamum
Onion
Moong(Green Gram)
Wheat
Rapeseed &Mustard
Other Rabi pulses
Pegeon pea (Arhar Tur)
Sugarcane
Linseed
Arhar/Tur
Cotton(lint)
Gram
Bajra
Barley
Jowar
Potato
Garlic
Sweet potato
Horse-gram
Tobacco

DashboarD3:


Yield by season
Season
Kharif
Season
Kharif
Kharif
26,467


Major crops


Season Wise Production
Winter
Autumn
Season: Rabi
zero: 0
Production: 3,150,456,464
Rabi
Total Production
Kharif
nan

Story:

Well, it is a sequence of differim charts that combine to prote cohesive plot to its viewers In essence, all these charts tell a day about the data which allows the viewers to form the conclusion. The story in Tableau.contams story poms, where each story point is either a workor a dashboard.

When you share a story-for example by publishing a workbook to Tableau Public, Tableau Server, or Tableau Clad-users can interact with the story to reveal new findings or ask new questions of the data

- **A.Options:**
  - **For Adding A New Story Point: Choose Blank to add a newpoint or Duplicate to use the current story point as the starting place foryour next pom**

- **B.The Story Pane:**
  - **Use this pane to drag dashboards, sheets, and test descriptions to your story sheet. This is also where you set the size of your story and display or hide the title**

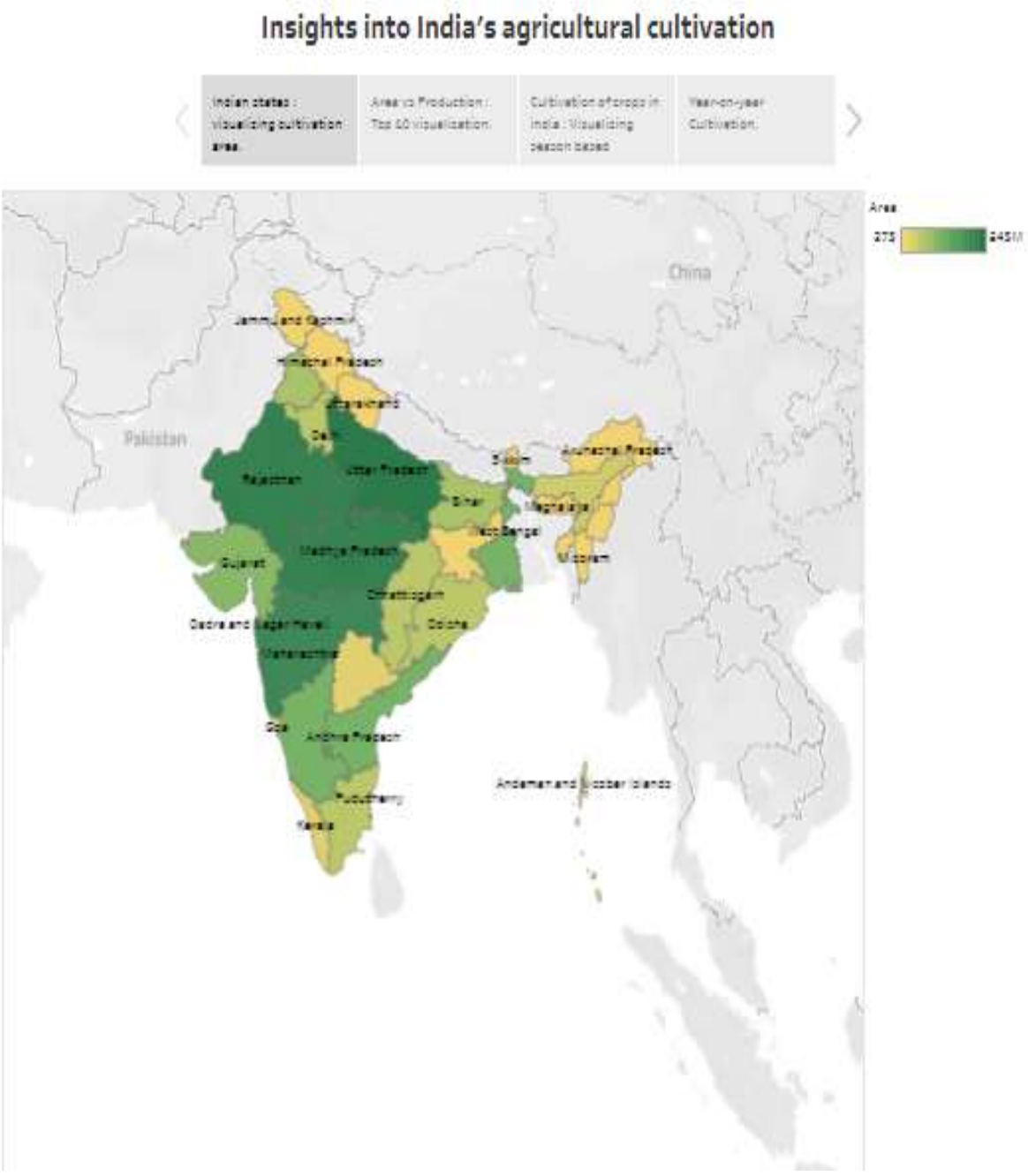
- **C.The Layout Pane: This is where you choose your navigator style, and display or hide the forward and back arrows**

- **D. The Story Menu: Use this menu in Tableau Desktop to format the story or copy or export the current story point as an image. You can also clear the entire story here or show or hide the navigator and story tale**

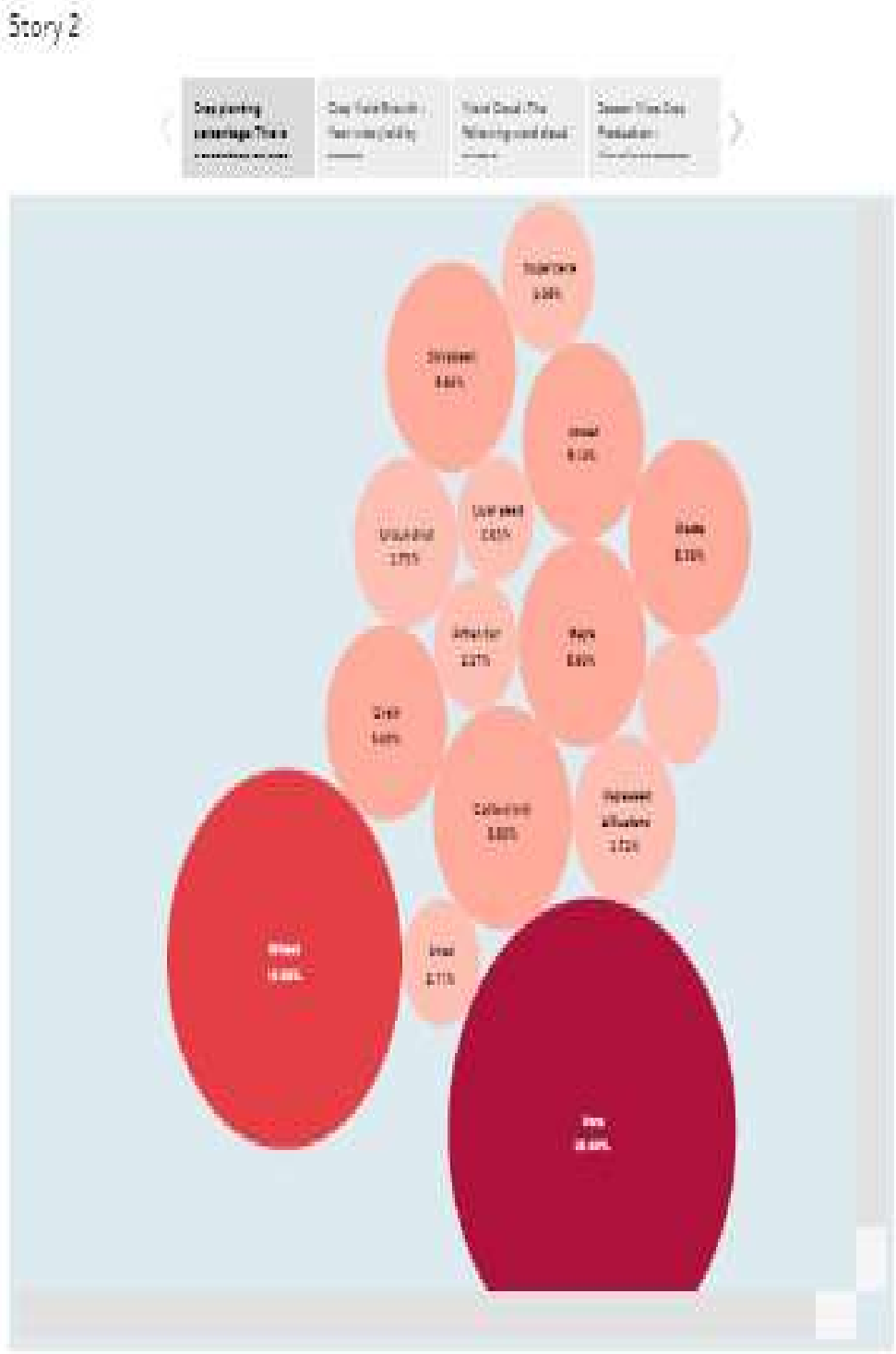
- **E. The Story toolbar: This toolbar appears when you mouse-over the navigator area. Use it to revert changes, apply updates to a story point. delete a story point, or create a new story point out of the current, customized one**

F. The navigator: The navigator allows you to edit and organize your story points. It's also how your audience will step through your story. To change the style of the navigator, use the Layout pane.

Story 1:


Insights into India's agricultural cultivation
Indian states : Visualizing cultivation area.
Area vs Production : Top 10 visualization.
Cultivation of crops in India : Visualizing season based
Year-on-year Cultivation.
Area
China
Pakistan

Story 2:



4. ADVANTAGES & DISADVANTAGES

ADVANTAGES:

1. **We can check the report and do cultivation according to statics.**
2. **It will help farmers to analyse the crop production in season basis, so they can cultivate the crops with a plan.**
3. **By this we have an overall survey of Indian agricultural crop production from 1997-2021.**
4. **We came to know the major crops produced in India were Rice, wheat, Maize etc.**

DISADVANTAGES:

1. **Indian agriculture heavily relies on monsoon rains, making it vulnerable to erratic weather patterns and droughts.**
2. **Productivity per unit of land is often lower compared to other countries due to outdated farming practices and limited mechanization.**
3. **We can see that in some state we have a big area for cultivation, but the production is very low.**

5. APPLICATIONS

1. Food Security: Indian agriculture plays a vital role in providing food security to its vast population by producing a variety of crops such as rice, wheat, pulses, and vegetables.

2. Livelihoods: Agriculture is a major source of livelihood for a significant portion of the Indian population, including farmers, laborers, and agribusinesses.

3. Export: India exports various agricultural products like basmati rice, spices, cotton, and tea, contributing to foreign exchange earnings.

4. Rural Economy: Agriculture contributes significantly to the rural economy by generating income, employment, and demand for goods and services.

6. CONCLUSION

In this project we have analysed Indian crop production in different ways by the Dashboard and story, we have taken a data where we can see in which season the production is high, so we can cultivate accordingly and even we have taken the land-based data, so we have to save our crop producing lands, since it is very important for us. This project will be very useful to analyse Indian agricultural crop production in basis of season, crops variety, land and top crop producing areas.

In conclusion, Indian agriculture and crops hold immense

significance for the nation's economy, food security, and rural livelihoods. The sector is characterized by a rich diversity of crops, agro-climatic zones, and farming practices. However, it faces a range of challenges that require attention and strategic planning.

7. FUTURE SCOPE

1. The adoption of advanced agricultural technologies, such as precision farming, drone technology, and artificial intelligence, is expected to enhance productivity, reduce resource use, and optimize crop management.

2. Developing and cultivating climate-resilient crop varieties will be crucial to mitigate the impact of climate change, ensuring stable yields despite changing weather patterns.

3. Growing consumer awareness about health and sustainability is likely to boost demand for organic and sustainable farming practices, offering new market opportunities for farmers.

4.Exploring and promoting the cultivation of non-traditional and high-value crops can help reduce dependency on a few staple crops and provide diversified income sources for farmers.

5. Investments in rural infrastructure, such as irrigation systems, transportation networks, and cold storage facilities, will reduce post-

harvest losses and improve market access.

6. Indian agriculture has the potential to expand its export market for crops,spices, and processed foods, contributing to foreign exchange earnings.