LRG GOVT ARTS COLLEGE FOR WOMEN, TIRUPUR.

UG DEPARTMENT OF MATHEMATICS

Course Name: Data Analytics with Tableau

Academic Year:2023-2024

A Project report entitled as

Work done by

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India’s Agricultural Crop productionAnalysis (1997-2019)

1. INTRODUCTION

1.1 Overview

India's agriculture sector plays a vital role in the country's economy, with crop production being a key component. In this analysis, we will carefully examine the trends and patterns in India's crop production, providing a comprehensive overview of the sector.

India's agricultural crop production analysis provides an overview of the country's agricultural sector, including information on crop yields, productivity, and overall performance. This analysis is crucial for understanding the current state of India's agriculture and identifying areas for improvement. One key aspect of the analysis is assessing the crop yields and productivity in India. This involves examining the quantity of crops produced per unit of land or per farmer. By comparing these figures to international standards and benchmarks, analysts can determine whether India's agricultural sector is performing at its full potential or if there is room for improvement.

Furthermore, the analysis also examines the infrastructure supporting India's agricultural sector. This includes evaluating the availability of storage facilities and transportation networks for moving crops from farms to markets. Adequate infrastructure is essential for minimizing post-harvest losses and ensuring that crops reach consumers in a timely manner.

Overall, conducting a comprehensive analysis of India's agricultural crop production provides valuable insights into the strengths and weaknesses of the sector. It helps identify areas for

improvement, informs policy decisions, and supports efforts to enhance food security and rural livelihoods in the country.

1.2 Purpose

India's agriculture sector serves multiple purposes and plays a crucial role in the country's socio-economic development. Here are some key purposes of agriculture in India:

1. Food Security: Agriculture ensures a steady supply of food to meet the needs of the rapidly growing population. It helps in reducing any potential food shortage and dependence on imports.

2. Livelihood and Employment: A significant portion of India's population is engaged in agriculture, either as farmers or as agricultural laborers. It provides livelihoods and employment opportunities, particularly in rural areas.

3. Rural Development: Agriculture contributes to the overall development of rural areas by generating income, improving infrastructure, and creating

markets for other rural industries. It helps in reducing rural-urban migration and promotes balanced regional growth.

4. Contribution to GDP: Agriculture remains an important contributor to India's Gross Domestic Product (GDP). While its contribution might be declining relative to other sectors, it still holds relevance and contributes to the overall economic growth.

5. Export Opportunities: India is a major player in the global agricultural market. The country exports various agricultural products, including rice, wheat, spices, fruits, and vegetables, contributing to foreign exchange earnings.

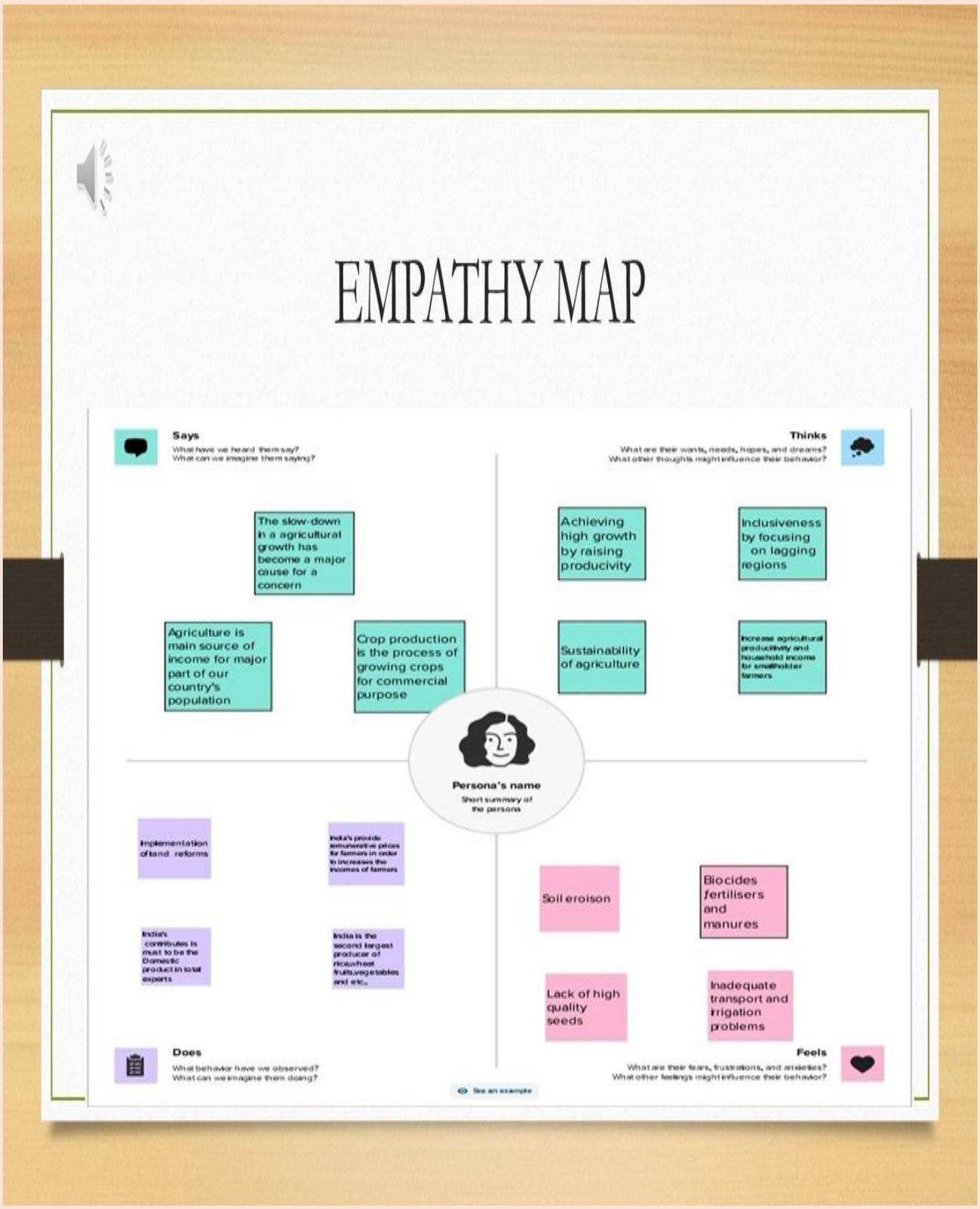
6. Environmental Sustainability: Sustainable agricultural practices promote biodiversity, soil health, and water conservation. It helps in maintaining a balance between ecosystems and ensures the long-term viability of agriculture.

These purposes highlight the significance of agriculture in India's development trajectory,

emphasizing the need for supportive policies and investments in this sector.

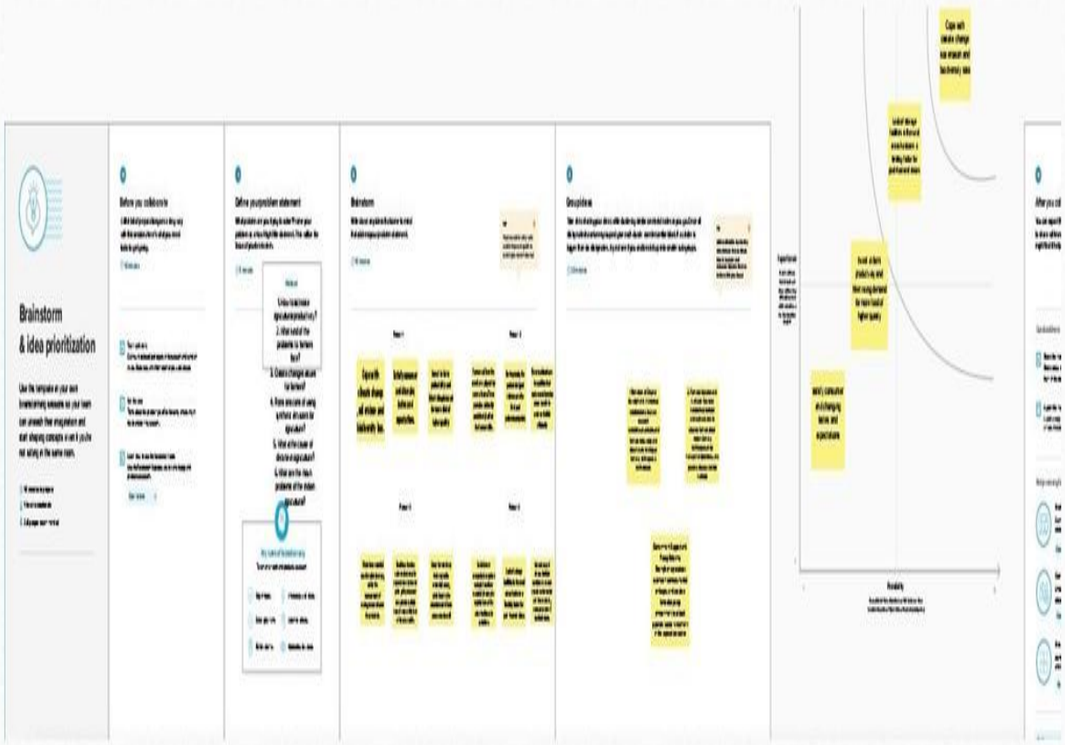
2. PROBLEM DEFINITION AND DESIGN THINKING

2.1 EMPATHY MAP



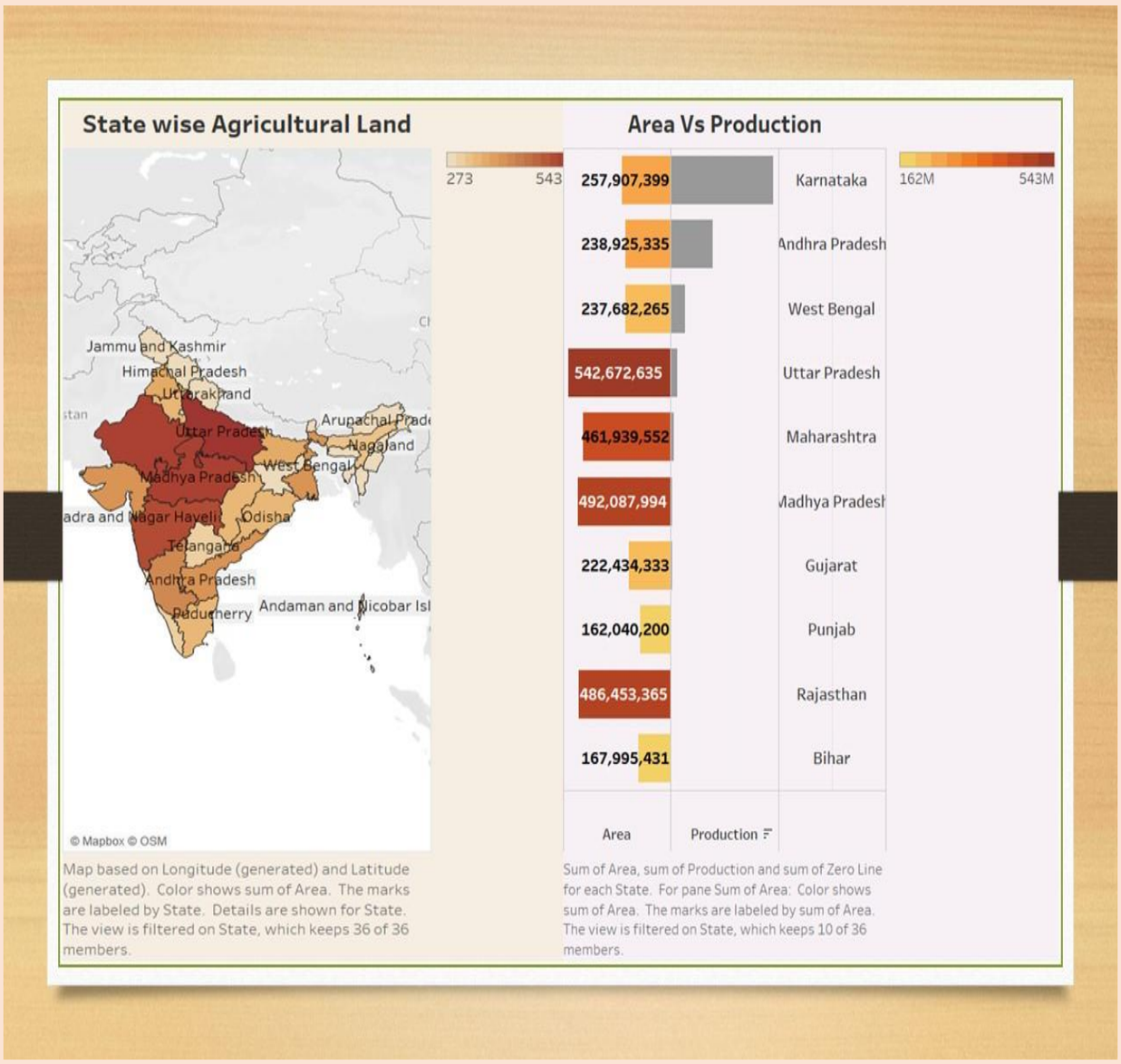
2.2 Ideation & Brainstorming Mapping

BRAINSTROM &IDEA PRIORITIZATION

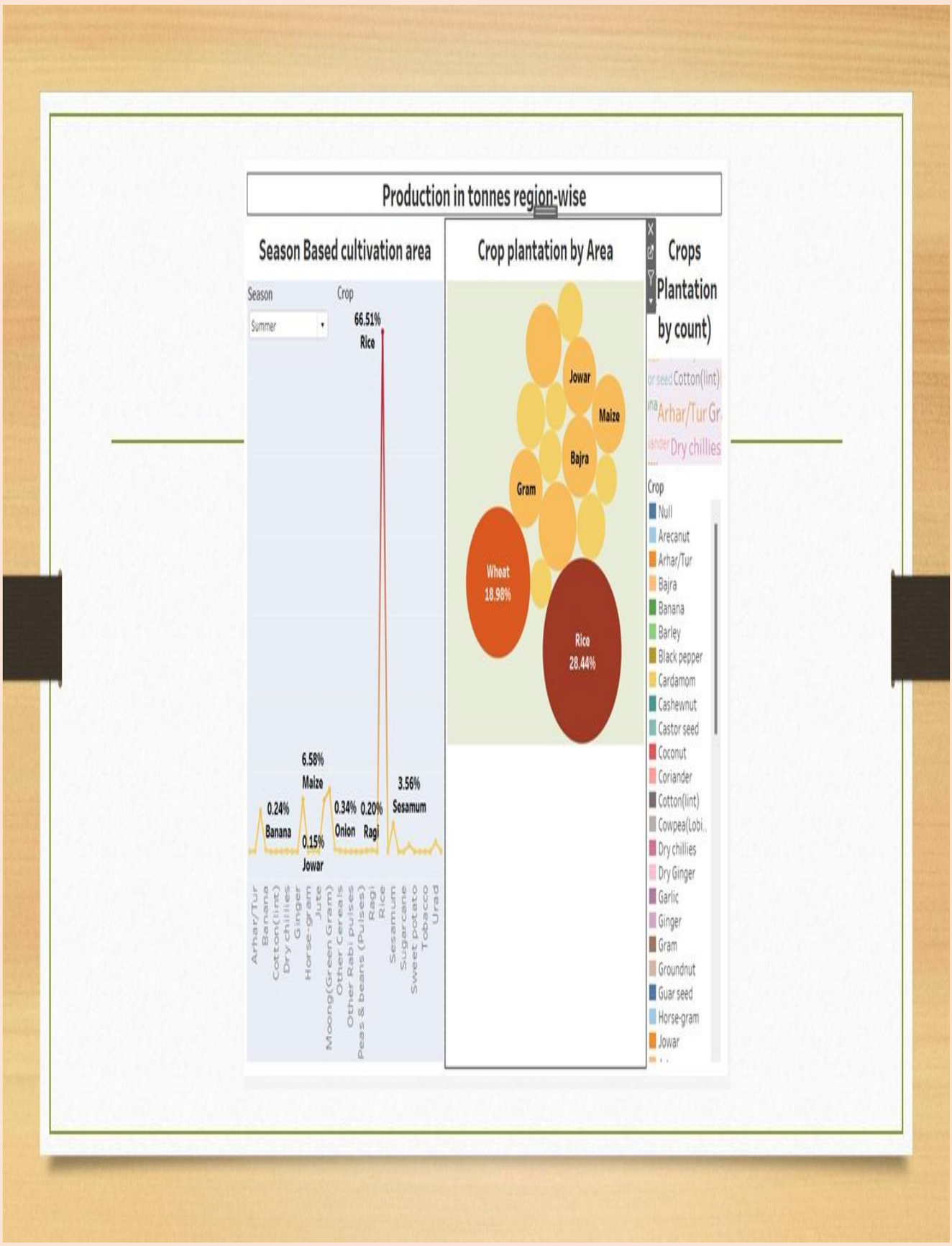


3.RESULT

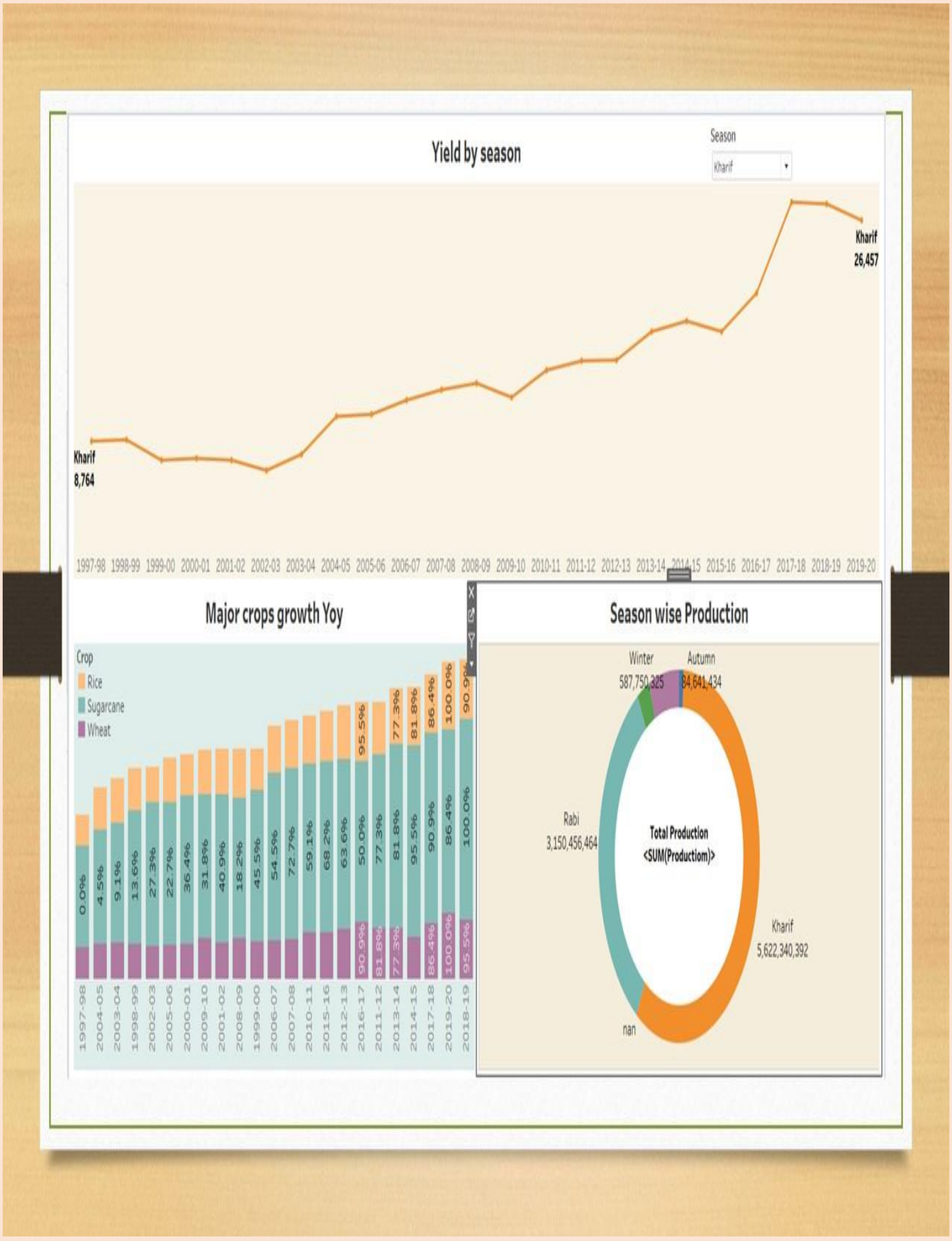
Dashboard 1



Dashboard 2


Production in tonnes region-wise
Season Based cultivation area
Crop plantation by Area
Crops Plantation by count)
Season
Summer
Crop
66.51%
Rice
6.58%
Maize
0.24%
Banana
0.15%
Jowar
0.34%
Onion
0.20%
Ragi
3.56%
Sesamum
Arhar/Tur
Banana
Cotton(lint)
Dry chillies
Ginger
Horse-gram
Jute
Moong(Green Gram)
Other Cereals
Other Rabi pulses
Peas & beans (Pulses)
Ragi
Rice
Sesamum
Sugarcane
Sweet potato
Tobacco
Urad
Jowar
Maize
Bajra
Gram
Wheat
18.98%
Rico
28.44%
Crop
Null
Areçanut
Arhar/Tur
Bajra
Banana
Barley
Black pepper
Cardamom
Cashewnut
Castor seed
Coconut
Coriander
Cotton(lint)
Cowpea(Lobi..
Dry chillies
Dry Ginger
Garlic
Ginger
Gram
Groundnut
Guar seed
Horse-gram
Jowar

Dashboard 3


Yield by season
Season
Kharif
Kharif
26,457
Kharif
8,764
1997-98 1998-99 1999-00 2000-01 2001-02 2002-03 2003-04 2004-05 2005-06 2006-07 2007-08 2008-09 2009-10 2010-11 2011-12 2012-13 2013-14 2014-15 2015-16 2016-17 2017-18 2018-19 2019-20
Major crops growth Yoy
Crop
Rice
Sugarcane
Wheat
0.0% 4.5% 9.1% 13.6% 27.3% 22.7% 36.4% 31.8% 40.9% 18.2% 45.5% 54.5% 72.7% 59.1% 68.2% 63.6% 50.0% 77.3% 81.8% 95.5% 90.9% 86.4% 100.0% 100.0%
90.9% 95.5% 81.8% 77.3% 86.4% 100.0% 95.5%
1997-98 2004-05 2003-04 1998-99 2002-03 2005-06 2000-01 2009-10 2001-02 2008-09 1999-00 2006-07 2007-08 2010-11 2015-16 2012-13 2016-17 2011-12 2013-14 2014-15 2017-18 2019-20 2018-19
Season wise Production
Winter
587,750,325
Autumn
84,641,434
Rabi
3,150,456,464
Total Production
<SUM(Productiom)>
Kharif
5,622,340,392
nan

Story


Insights into India's agricultural cutivation
Crop yield growth: Year wise a
Crop production in Tonnes: The
Crop production in tonnes:The
Season
Kharif
Kharif
26,457
Season
Kharif
Kharif
8,764
1997-98
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
2009-10
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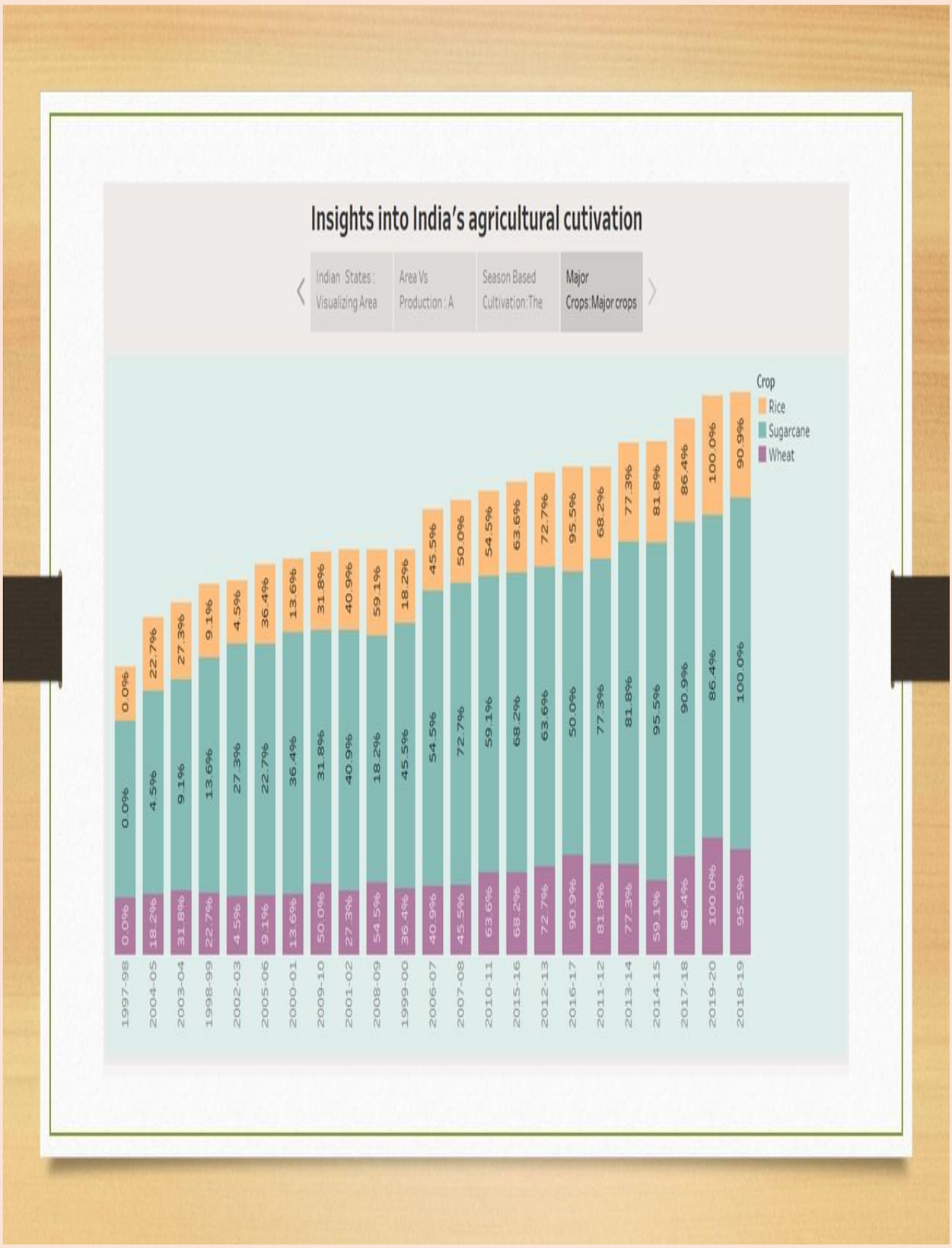
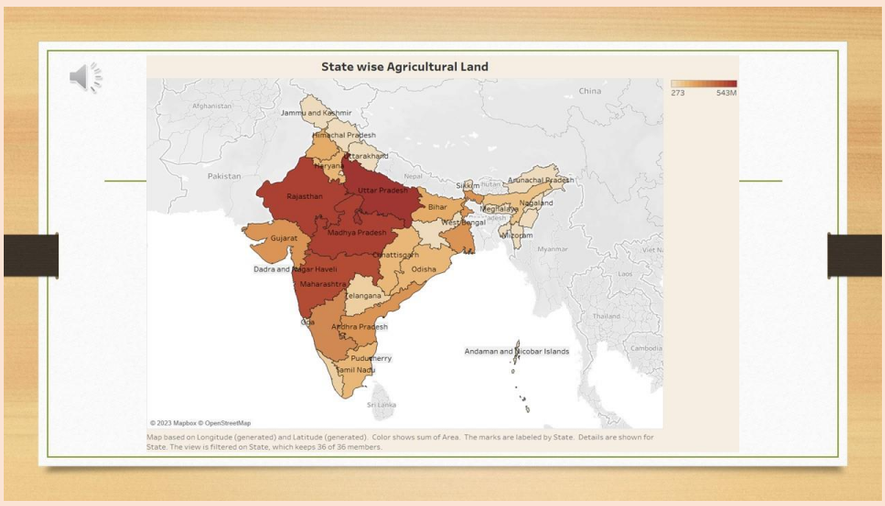
2015-16
2016-17
2017-18
2018-19
2019-20

story2

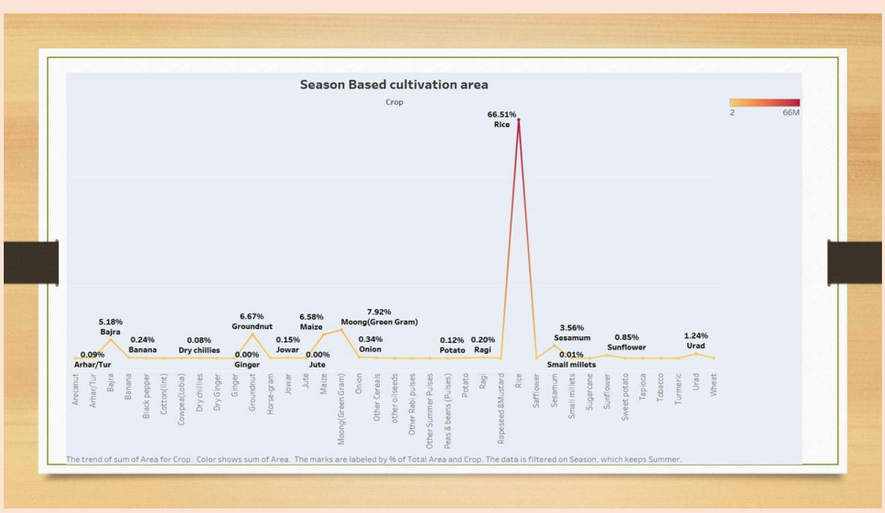


1.State wise Agricultural Land



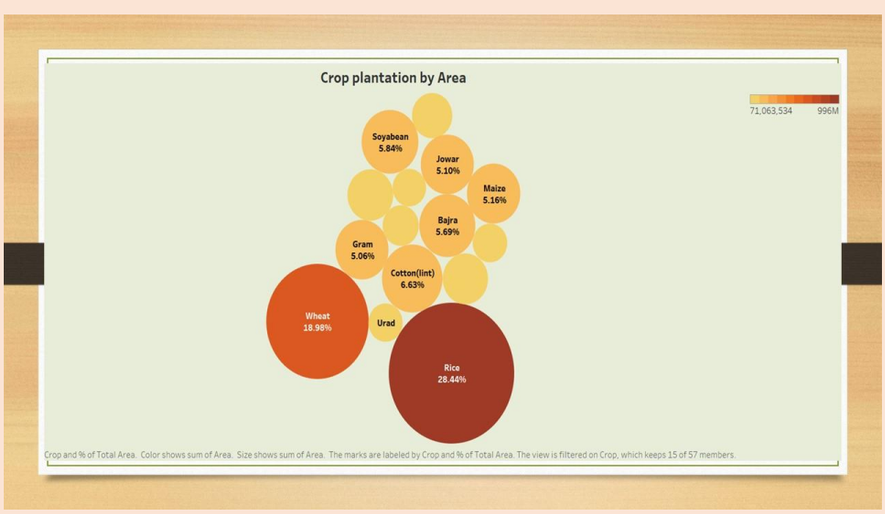
2.Area vs Production

3.Season based cultivation

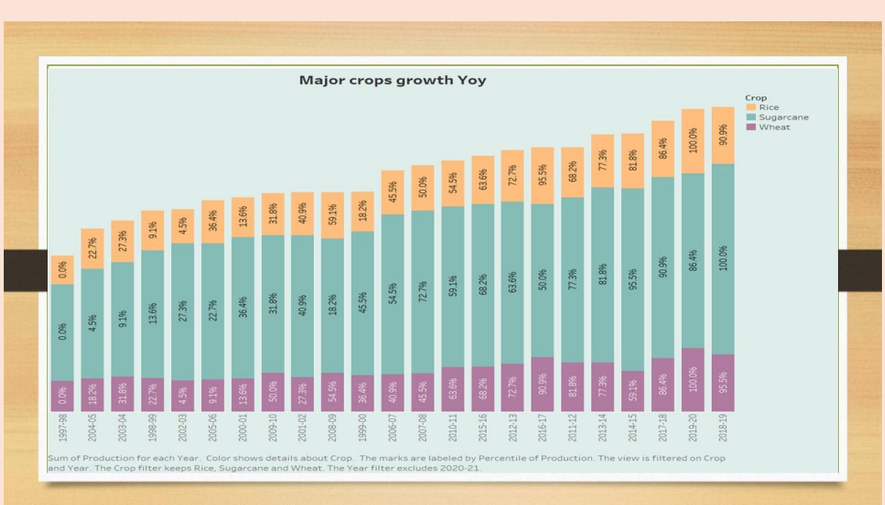


4.Yield by season

5.Crop plantation by area

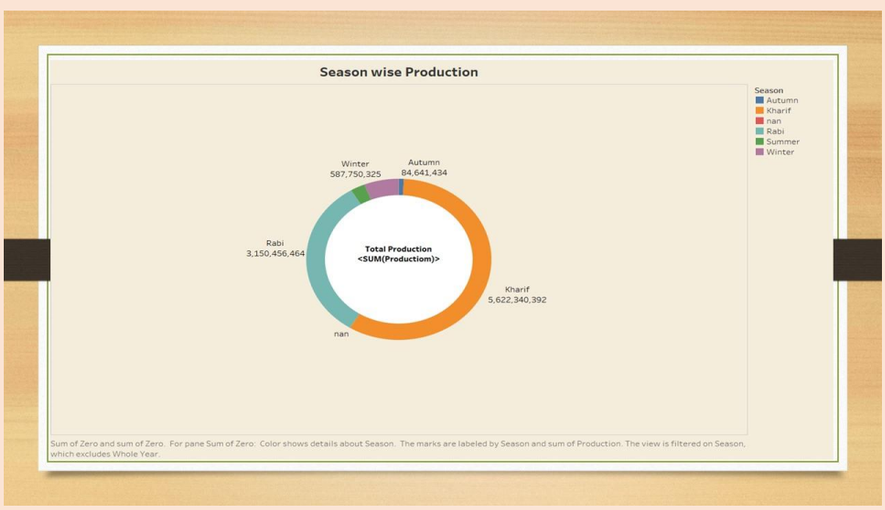


6.Major crops growth by area

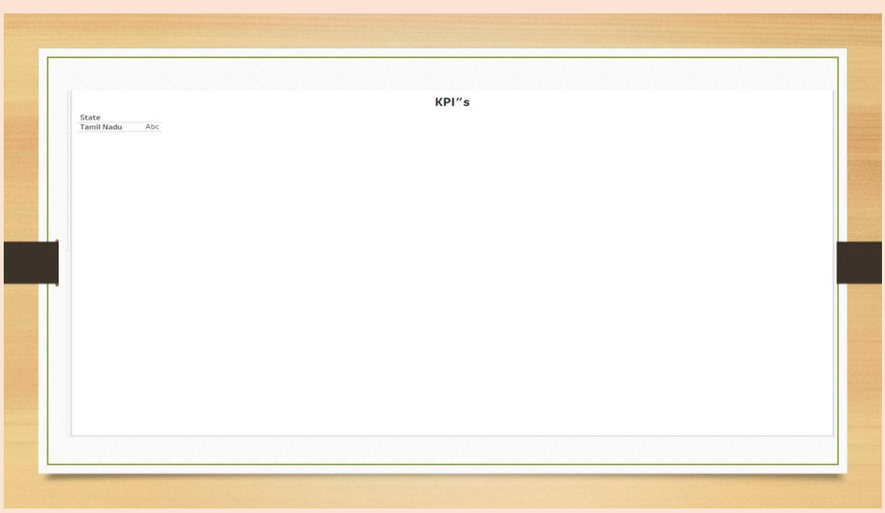


7.Crops

8.Season wise production



9.Kpi’s



Advantage of India’s agricultural crop production in analysis

1. Large agricultural land:

India has a vast agricultural land area, providing opportunities for diverse crop production and analysis. This allows for a comprehensive assessment of different crops and their performance.

2. Diverse agro-climatic conditions:

India's varied agro-climatic conditions, ranging from tropical to temperate regions, offer a wide range of crop options. Analyzing crop production across these conditions helps in understanding the suitability of crops in different regions and optimizing production strategies.

3. Rich crop diversity:

India is known for its rich crop diversity, with a wide range of cereals, pulses, oilseeds, fruits, and vegetables. Analyzing crop production allows for the assessment of various crop types, their yields, and market demand, facilitating informed decision-making.

4. Traditional knowledge and practices:

India has a long history of agricultural practices and traditional knowledge passed down through generations. Analyzing crop production helps in understanding the effectiveness of traditional practices, their integration with

modern techniques, and the potential for sustainable farming methods.

5. Government support and initiatives:

The Indian government has implemented various schemes and initiatives to support agricultural development. Analyzing crop production helps in evaluating the impact of these programs, identifying areas for improvement, and assessing the effectiveness of government interventions.

6. Research and development institutions:

India has several research and development institutions focused on agriculture, such as the Indian Council of Agricultural Research (ICAR) and state agricultural universities. These institutions conduct research on crop production, develop new varieties, and provide valuable data for analysis

.

7. Technological advancements:

India has witnessed advancements in agricultural technologies, such as precision farming, remote sensing, and GIS mapping. Analyzing crop production data combined with these technologies enables more accurate assessments, predictions, and decision-making.

8.Farmer participation:

India has a large population of farmers actively involved in crop production. Their participation in data

collection and analysis processes provides valuable insights into on-ground challenges, opportunities, and best practices.

Disadvantage of India's agricultural crop production in analysis

Another potential disadvantage is the lack of technological advancements and infrastructure in the agricultural sector. Many farmers in India still rely on traditional farming methods and have limited access to modern farming equipment, irrigation systems, and crop management techniques. This can result in lower crop yields and productivity compared to countries with more advanced agricultural practices. Additionally, the lack of infrastructure, such as proper storage facilities and transportation networks, can lead to post-harvest losses and reduce the overall efficiency of the agricultural supply chain. These factors can limit the accuracy and effectiveness of analysis in assessing India's agricultural crop production.

Applications:

1.Crop Management Apps:

These applications help farmers manage their crops effectively by providing information on crop health, growth stages, and recommended farming practices. They can also offer insights on pest and disease management, nutrient management, and irrigation scheduling.

2. Weather and Climate Apps:

Agricultural activities heavily depend on weather conditions and climate patterns. Weather apps tailored for agriculture provide real-time weather updates, forecasts, and historical climate data to help farmers plan their activities accordingly.

3. Market and Price Apps:

These applications provide farmers with information on market prices and trends for various crops. Farmers can track market demand, analyze prices, and make informed decisions on when and where to sell their produce.

4. Soil Testing Apps:

Soil health plays a vital role in agriculture. Soil testing apps assist farmers in assessing soil quality, determining nutrient deficiencies, and suggesting appropriate soil amendment measures. These apps can guide farmers in optimizing fertilizer application and improving soil health.

5. Livestock Management Apps:

For livestock farmers, there are applications that offer features such as herd management, animal health tracking, breeding records, and milk production analysis. These apps help streamline livestock management processes and enhance productivity.

6. Farm Planning and Documentation Apps:

These applications assist farmers in planning and documenting their farm activities. They provide tools for recording expenses, maintaining inventories, keeping track of tasks, and generating reports. Such apps help farmers stay organized and make informed decisions based on comprehensive data.

Conclusions:

1. Yield Trends:

By analyzing historical data, we can observe patterns and trends in crop yields. This information helps us understand the factors influencing crop productivity and identify opportunities for improvement.

2. Impact of Inputs:

Evaluating the impact of different inputs such as seeds, fertilizers, and pesticides on crop production allows us to determine which inputs are most effective and optimize their application to achieve higher yields.

3. Crop Health:

Monitoring crop health and identifying diseases or pest infestations helps in implementing timely interventions to prevent crop losses. By analyzing historical data, we can identify patterns and make informed decisions to mitigate such risks.

4. Weather Impacts:

Examining the relationship between weather conditions and crop production reveals the influence of climate factors on yield. This information allows farmers to adapt their farming practices and implement climate-smart strategies for more resilient crop production.

5. Cost-Effectiveness:

Analyzing production costs in relation to crop yields provides insights into the profitability of different crops and production methods. By understanding cost dynamics, farmers can make informed decisions about crop selection and resource allocation.

6. Data-Driven Decision Making:

Utilizing crop production analysis tools enables farmers to make data-driven decisions and optimize their farming practices. By leveraging insights from data analysis, farmers can enhance efficiency, reduce costs, and improve overall crop productivity.

Scope:

1.India's agricultural crop production scope is vast and diverse. The country is known for its wide range of crops, including staple food crops like rice and wheat, as well as cash crops like cotton and sugarcane. Additionally, India produces a variety of fruits and vegetables, oilseeds, and pulses.

2.Rice and wheat are the main staple food crops in India, with the country being one of the largest producers of both globally. These crops are essential for ensuring food security and meeting the dietary needs of the population.

3.Pulses, such as lentils and chickpeas, are also significant crops in India. They provide an important source of protein for the population, especially for vegetarian diets. India is one of the largest producers and consumers of pulses in the world.

4.Cash crops like cotton and sugarcane play a crucial role in India's agricultural economy. Cotton is a major cash crop, with India being one of the largest producers and exporters of cotton globally. Sugarcane is primarily grown for sugar production and is an important source of income for farmers.

5.Oilseeds, including mustard, soybean, and groundnut, are grown for oil extraction. These crops contribute to India's edible oil production and reduce dependence on imports.

6.Fruits and vegetables are grown throughout the country and contribute to both domestic consumption and exports. India produces a wide range of fruits and vegetables, including mangoes, bananas, tomatoes, onions, and potatoes.

8.APPENDIX

GitHub Link:

https://github.com/bru072122a0096/NM2023TMID01703

Dashboard 1:

https://public.tableau.com/views/Dashboard1_16971905140220/Dashboard1?:language=en-US&:display_count=n&:origin=viz_share_link

Dashboard 2:

https://public.tableau.com/views/Dashboard2_16971907240140/Dashboard2?:language=en-US&:display_count=n&:origin=viz_share_link

Dashboard 3:

https://public.tableau.com/views/Book1_16970949944880/Dashboard3?:language=en-US&:display_count=n&:origin=viz_share_link

Story 1:

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Story 2:

https://public.tableau.com/views/Story2_16971908664150/Story2?:language=en-US&:display_count=n&:origin=viz_share_link

Video demonstration link:

https://drive.google.com/file/d/1o8RhG5it6w7aXbZaPRBqD3KjnMy6zXCf/view?usp=drivesdk