



NANDHA ARTS AND SCIENCE COLLEGE, ERODE.

PG AND RESEARCH DEPARTMENT OF MATHEMATICS

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A project report entitled as

“India’s Agricultural crop Production Analysis (1997-2021)”.

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INDIA'S AGRICULTURAL CROP PRODUCTION ANALYSIS (1997-2021)

INTRODUCTION

1.1 overview

India is currently the world's second largest producer of several dry fruits, agriculture-based textile raw materials, roots and tuber crops, pulses, farmed fish, eggs, coconut, sugarcane and numerous vegetables. India is ranked under the world's five largest producers of over 80% of agricultural produce items, including many cash crops such as coffee and cotton, in 2010.[13] India is one of the world's five largest producers of livestock and poultry meat, with one of the fastest growth rates, as of 2011.[14]

*One report from 2008 claimed that India's population is growing faster than its ability to produce rice and wheat.[15] While other recent studies claim that India can easily feed its growing population, plus produce wheat and rice for global exports, if it can reduce food staple spoilage/wastage, improve its infrastructure and raise its farm productivity like those achieved by other developing countries such as Brazil and China.[16][17]

*In fiscal year ending June 2011, with a normal monsoon season, Indian agriculture accomplished an all-time record production of 85. million tonnes of wheat, a 6.4% increase from a year earlier. Rice output in India hit a new record at 95.3 million tonnes, a 7% increase from the year earlier.[18] Lentils and many other food staples production also increased year over year. Indian farmers,

thus produced about 71 kilograms of wheat and 80 kilograms of rice for every member of Indian population in 2011

*India has shown a steady average nationwide annual increase in the mass-produced per hectare for some agricultural items, over the last 60 years. These gains have come mainly from India's green revolution, improving road and power generation infrastructure, knowledge of gains and reforms.[24] Despite these recent accomplishments, agriculture has the potential for major productivity and total output gains, because crop yields in India are still just 30% to 60% of the best sustainable crop yields achievable in the farms of developed and other developing countries.[25] Additionally, post harvest losses due to poor infrastructure and unorganised retail, caused India to experience some of the highest food losses in the world.



1.2 PURPOSE

Agriculture is the foundation of the Indian economy. The population of India mostly depends on agriculture for their livelihood and agriculture contributes to 40 percent of the total GDP of the country. While agriculture is one of the most important sectors, it has taken a comparative backseat and the service sector is leading the way.

*Role of Agriculture.

*Role of Agriculture in Indian Economy.

*Agricultural Sector in the Indian Economy.

*Indian economy is mostly agricultural based economy and highly dependent on agriculture for production, distribution, and also consumption. Indian production per farmer is far less than actually needed. However, despite all the limitations agricultural sector is one of the most crucial sectors of the Indian Economy.



2. PROBLEM DEFINITION AND DESIGN THINKING

2.1 Empathy Map



2.2 Ideation & Brainstorming Mapping

Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can quickly generate ideas and start shaping concepts even if you're not sitting in the same room.

10 minutes to prepare
1 hour to collaborate
2-8 people recommended

Before you collaborate

A little bit of preparation goes a long way with a collaborative session. Here's what you need to do to get going.

10 minutes

Define your problem statement

What problem are you trying to solve? Frame your problem statement right. We'll use this as the focus of your brainstorm.

10 minutes

Brainstorm

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

10 minutes

Prioritize

Rank your ideas based on their importance.

20 minutes

Group ideas

You can move your sticky notes while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence describing it. If a cluster is bigger than six sticky notes, try and break it up into smaller sub-groups.

10 minutes

Prioritize

Your ideas 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

After you collaborate

You can export the board as an image or PDF to share with your team or anyone else who might find it helpful.

Quick add note
Share the board
Export the board
Keep moving forward
Strategy Blueprint
Customer experience journey map
Milestones, activities, opportunities & threats
Create template feedback

1 Agriculture: The challenges

- Food security: Indian population suffers from lack of food security and increased malnutrition.
- Subsidy impact: The ineffective execution of subsidies is another problem.
- Rising farmer loans: The farmer loans are on the rise and rural indebtedness is at an all time high.
- Sustainable farming: Eco-friendly agriculture practices like organic farming are yet to catch on.
- Food procurement and distribution: food storage and hoarding lead to rising prices and food wastage.

2 Agriculture is the main source of income for major part of our country's population.

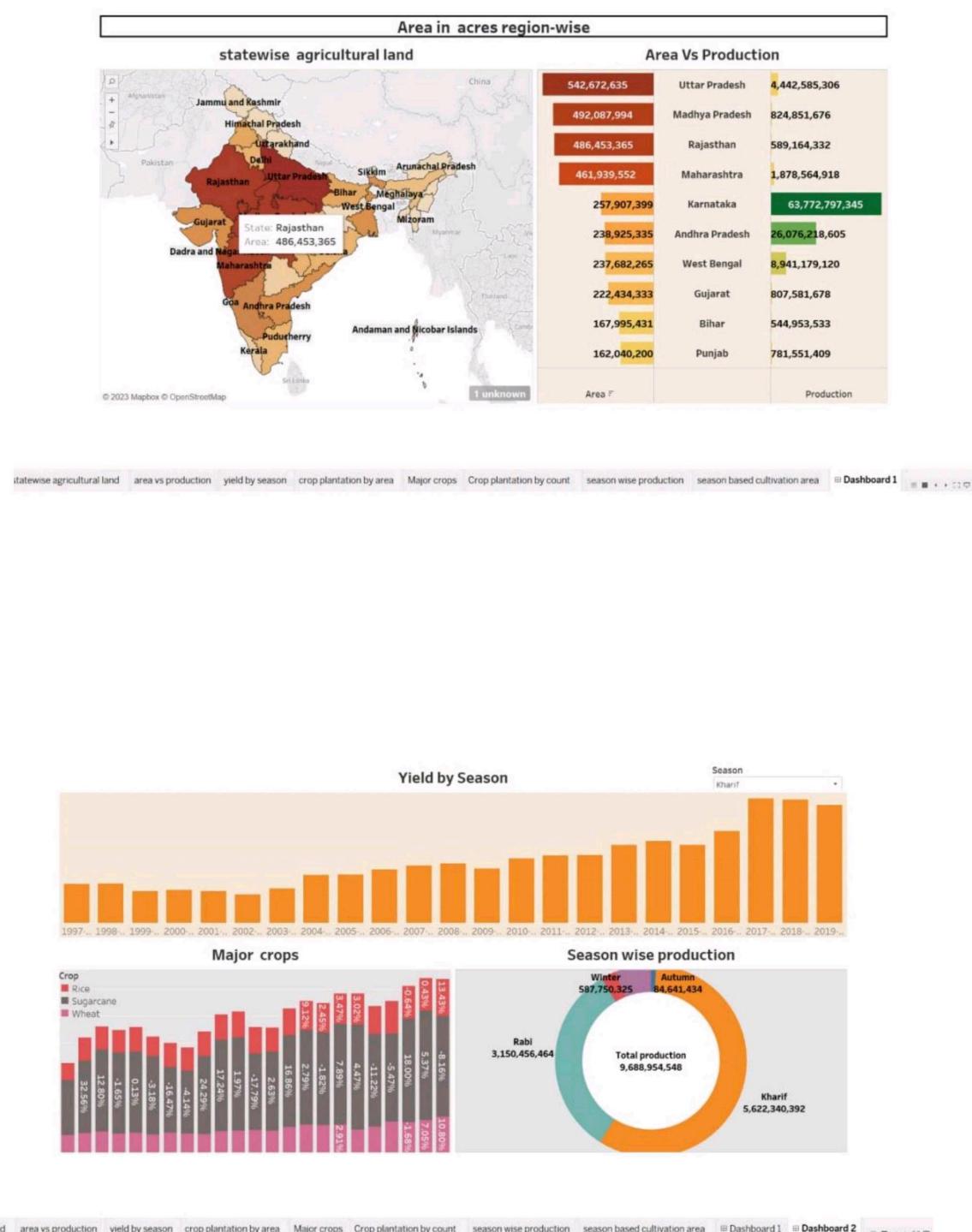
3 Precision agriculture is a rapidly evolving farm management system that involves the use of sensor technology, GIS, and IoT to collect and analyse data about the soil, plant and animals.

4 India is the second largest producer of wheat and rice, the world's major food staples. India is the world's second largest producer of vegetables, pulses, and oilseeds. It is also the second largest producer of fruits and vegetables.

5 Crop production is one of the key determinants of wealth for any farmer.

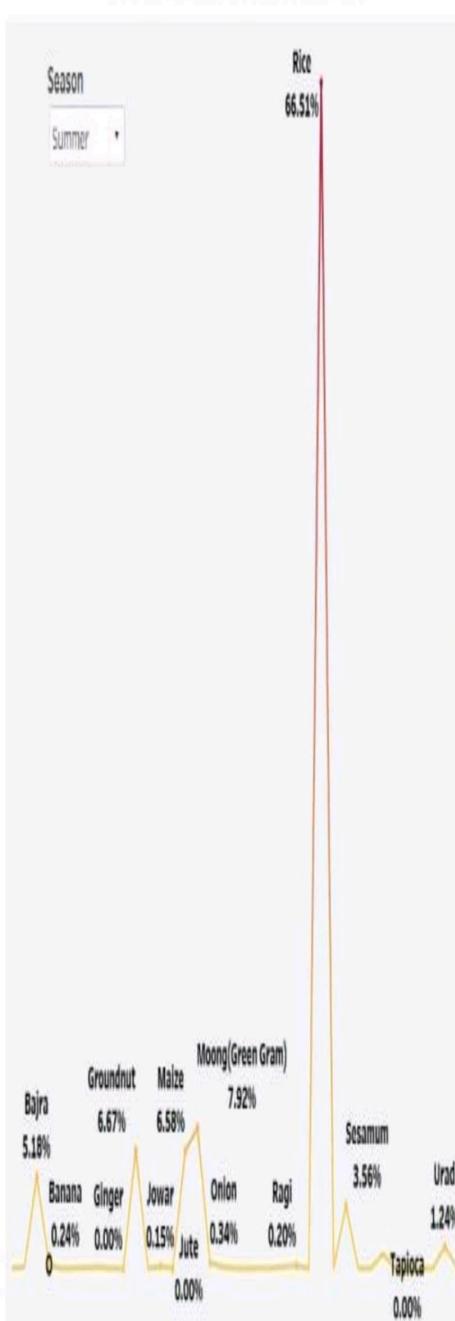
3.RESULT

Dashboard

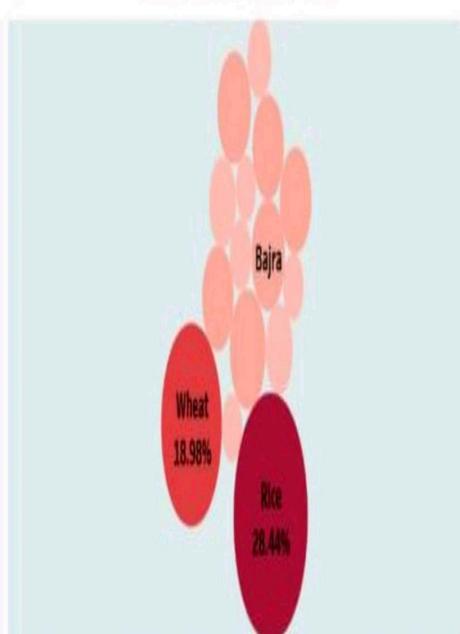


Production in tonnes region-wise

Season based cultivation area



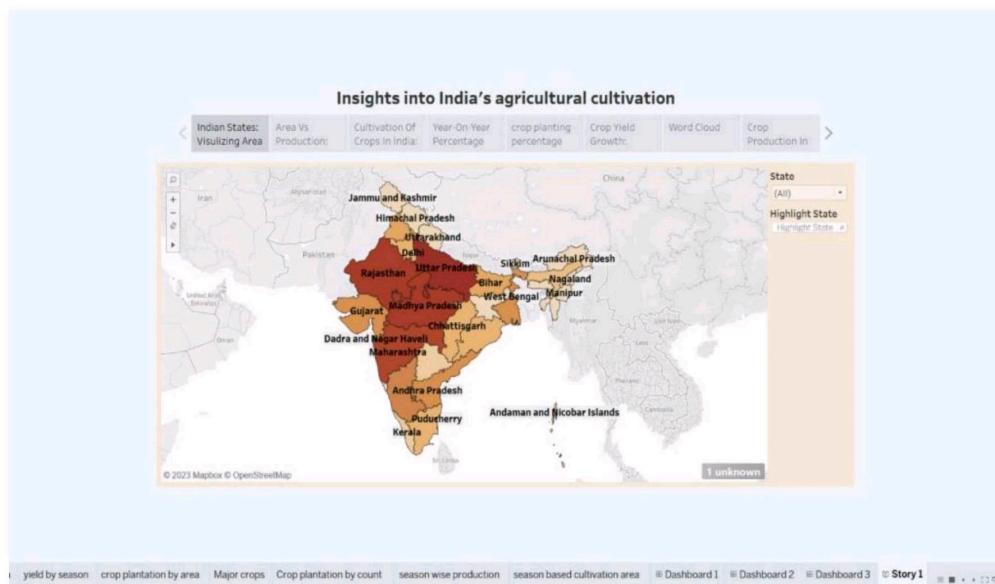
Crop plantation by Area

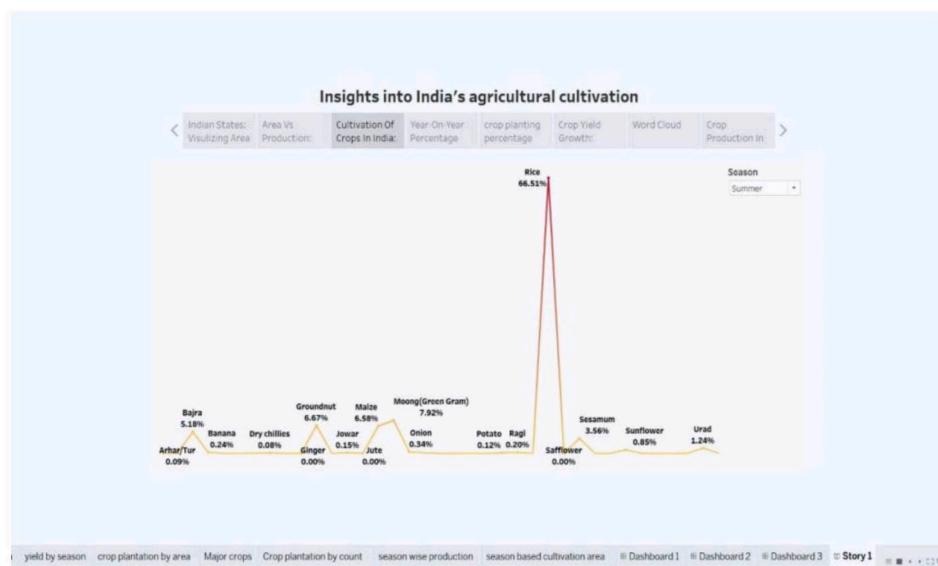
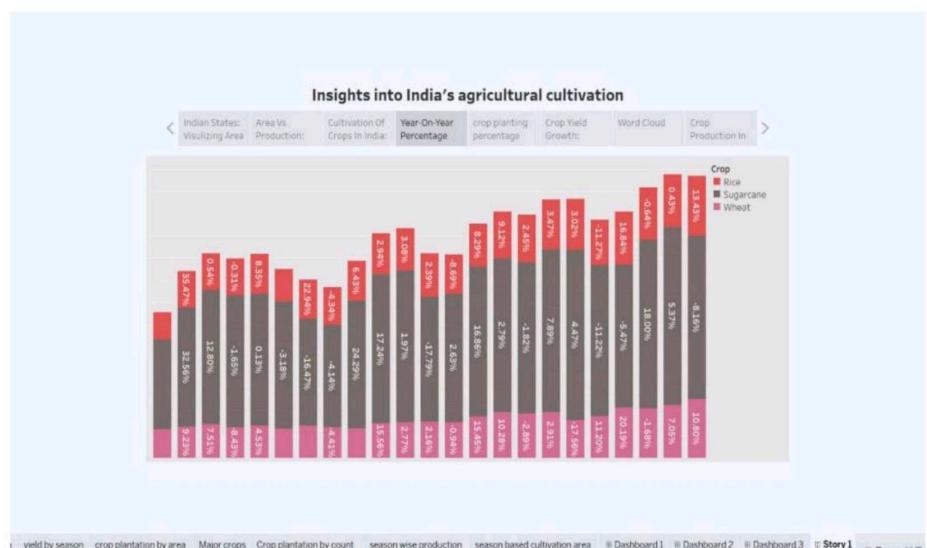


Crops(Plantation by count)

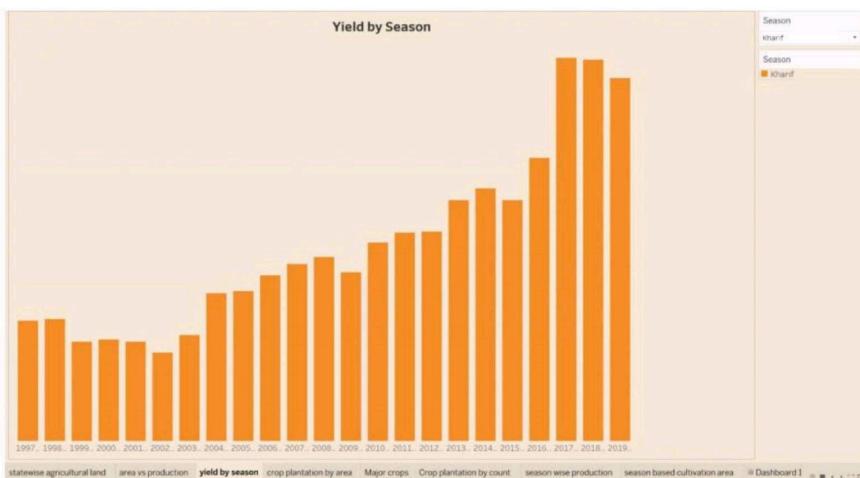
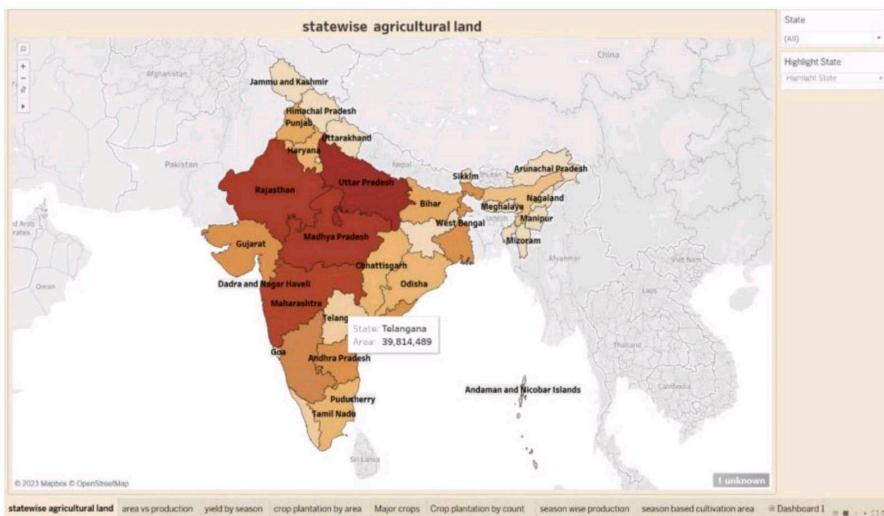


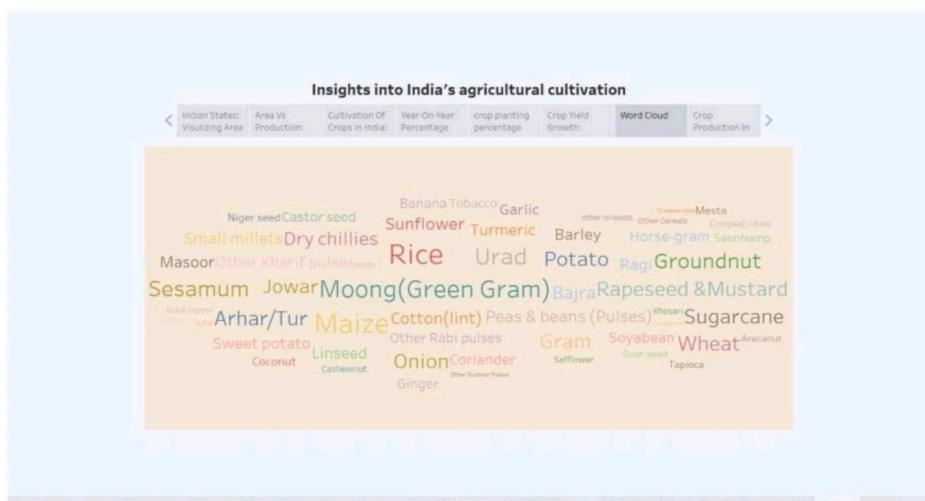
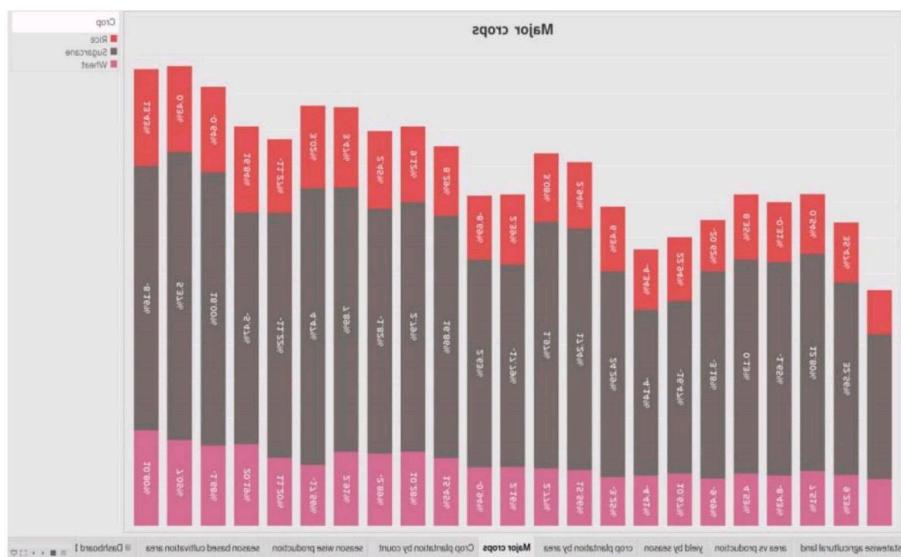
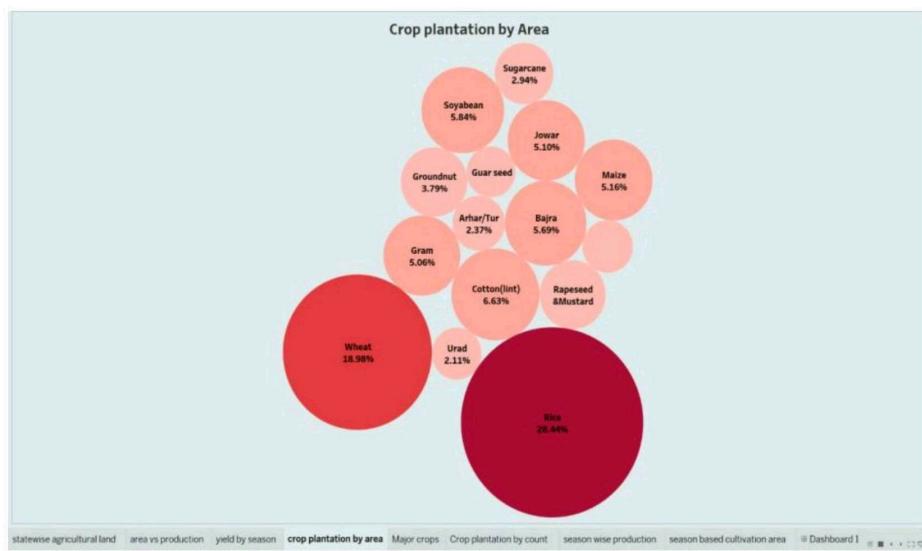
STORY

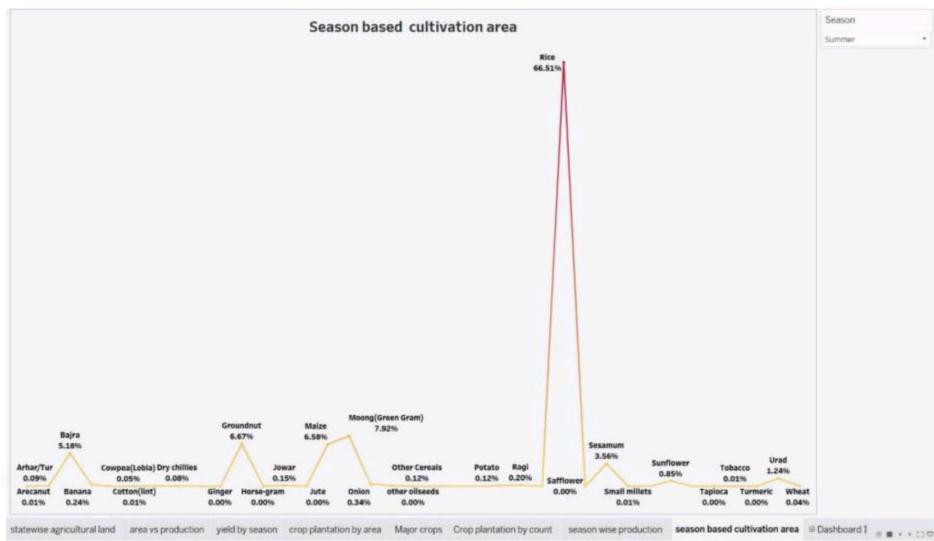
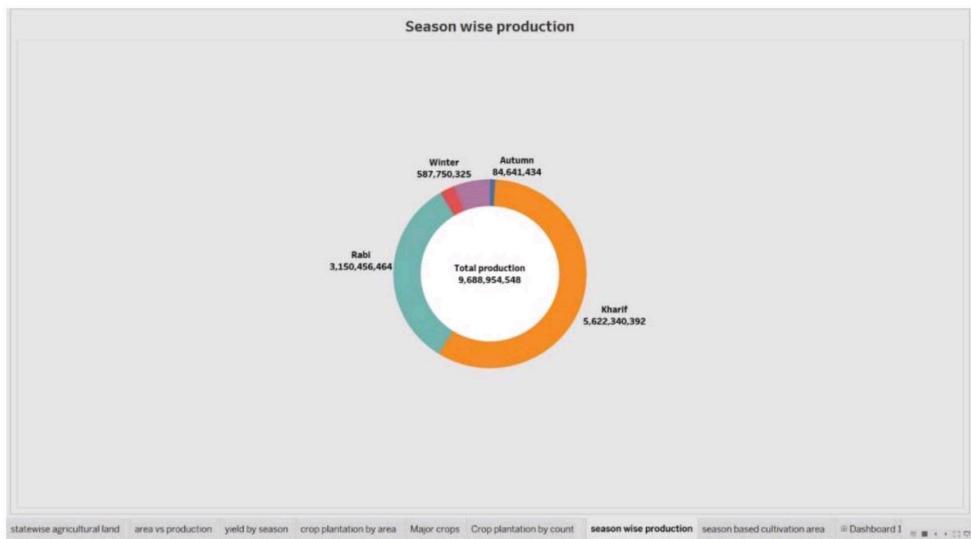




VISUALIZATION







ADVANTAGES & DISADVANTAGE

4.1 Advantages

*It provide food,raw material for industries and some product for export.

*It accounts for about 25% of the gross domestic product.

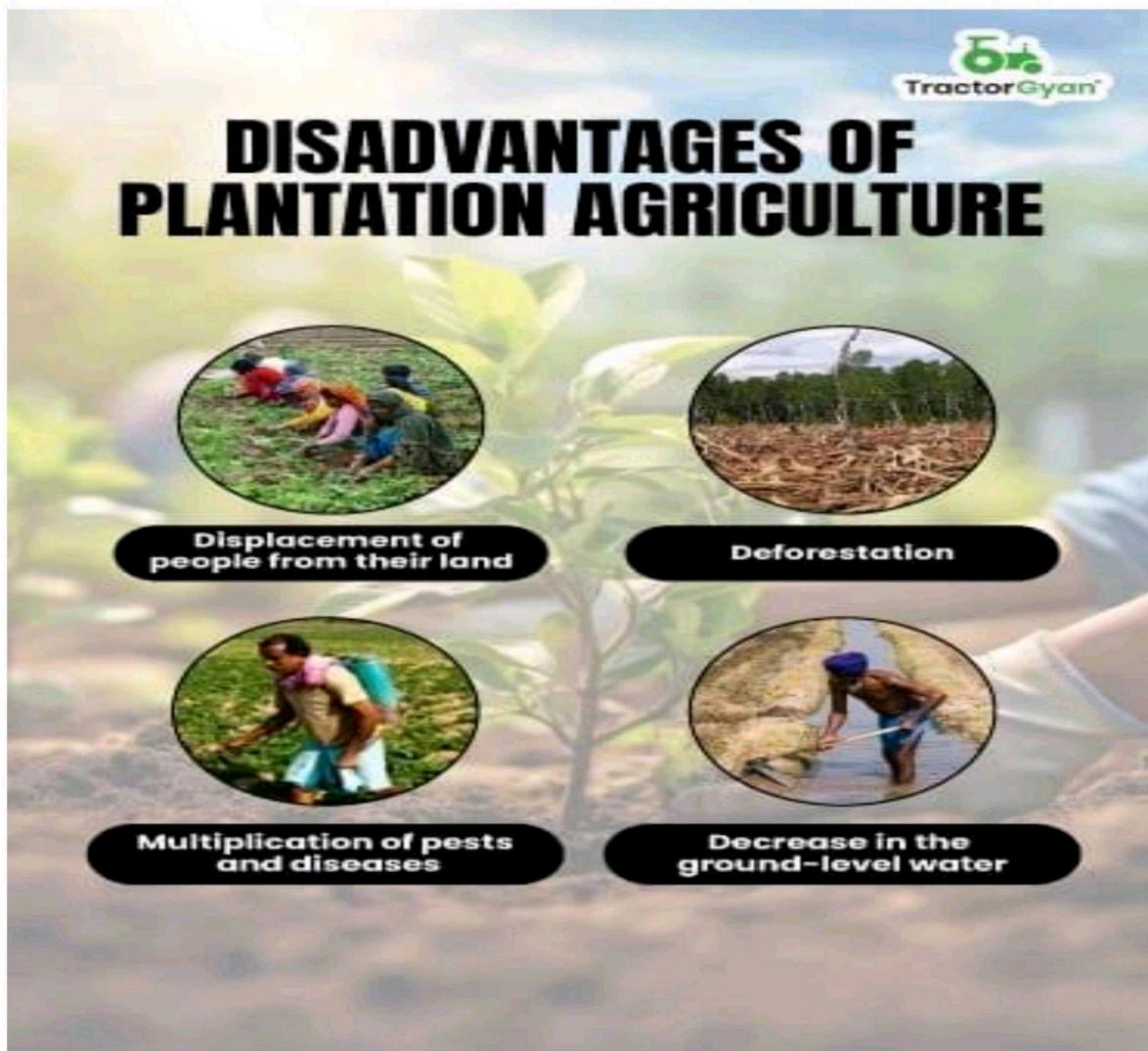
*Nearly two-thirds of its population depends directly on agriculture for its livelihood.

*Agriculture is the main stay of India's economy.



4.2 Disadvantages

- *Unreliable rainfall.
- *Soil erosion.
- *Methods of cultivation.
- *Faulty cultivation of crops.
- *Reduction in net sown area.



5.APPLICATION

The few techniques like artificial neural networks, Information Fuzzy Network, Decision Tree, Regression Analysis, Bayesian belief network. Time series analysis, Markov chain model, k-means clustering, k nearest neighbor, and support vector machine are applied in the domain of agriculture were presented



*Due to globalisation increase in household incomes and health consciousness the demand for fruits and vegetables, dairy products, fish and meat is going to increase in future. Research, technology improvements, protected cultivation of high-value greens and other vegetables will be more

*Millets are a group of small-seeded grains cultivated for thousands of years in many parts of the world. They are a great source of nutrition, high in fibre and rich in vitamins, minerals and proteins.

6.CONCLUSION

The productivity in Indian agriculture has increased significantly in the period from 1970–71 to 2012–13. Total production of foodgrains has increased from 108.42 million tonnes to 257.13 million tonnes during this period

The agricultural sector is of vital importance for the region. It is undergoing a process of transition to a market economy, with substantial changes in the social, legal, structural, productive and supply set-ups, as is the case with all other sectors of the economy.

7.FUTURE SCOPE

Due to globalisation, increase in household incomes and health consciousness the demand for fruits and vegetables, dairy products, fish and meat is going to increase in future. Research, technology improvements, protected cultivation of high-value greens and other vegetables will be more

Millets are a group of small-seeded grains cultivated for thousands of years in many parts of the world. They are a great source of nutrition, high in fibre and rich in vitamins, minerals and proteins.

8.APPENDIX

GITHUB LINK:

<http://Github.com/saravanangowri/Indian-Agriculture-NM2023TMID16921>

DASHBOARD 1:

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DASHBOARD 2:

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DASHBOARD 3:

<https://public.tableau.com/app/profile/bala.gokul/viz/productionintonnerregion-wise/Dashboard3?publish=yes>

VISUALIZATION 1:

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VISUALIZATION 2:

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VISUALIZATION 3:

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VISUALIZATION 4:

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VISUALIZATION 5:

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VISUALIZATION 6:

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VISUALIZATION 7:

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VISUALIZATION 8:

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STORY:

<https://public.tableau.com/app/profile/bala.gokul/viz/insightsintoindiasagriculturalcultivation/Story1?publish=yes>

VIDEO DEMONSTRATION:

<https://drive.google.com/file/d/1pJdWEKPPzfN4uU5uPPmnP4vPT6jcNPd/view?usp=drivesdk>