GOVERNMENT ARTS COLLEGE, PARAMAKUDI

UG DEPARTMENT OF PHYSICS

PROJECT TITLE:

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

SUBMITTED BY:

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DEPARTMENT OF PHYSICS

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PROJECT REPORT

I) INTRODUCTION

OVERVIEW

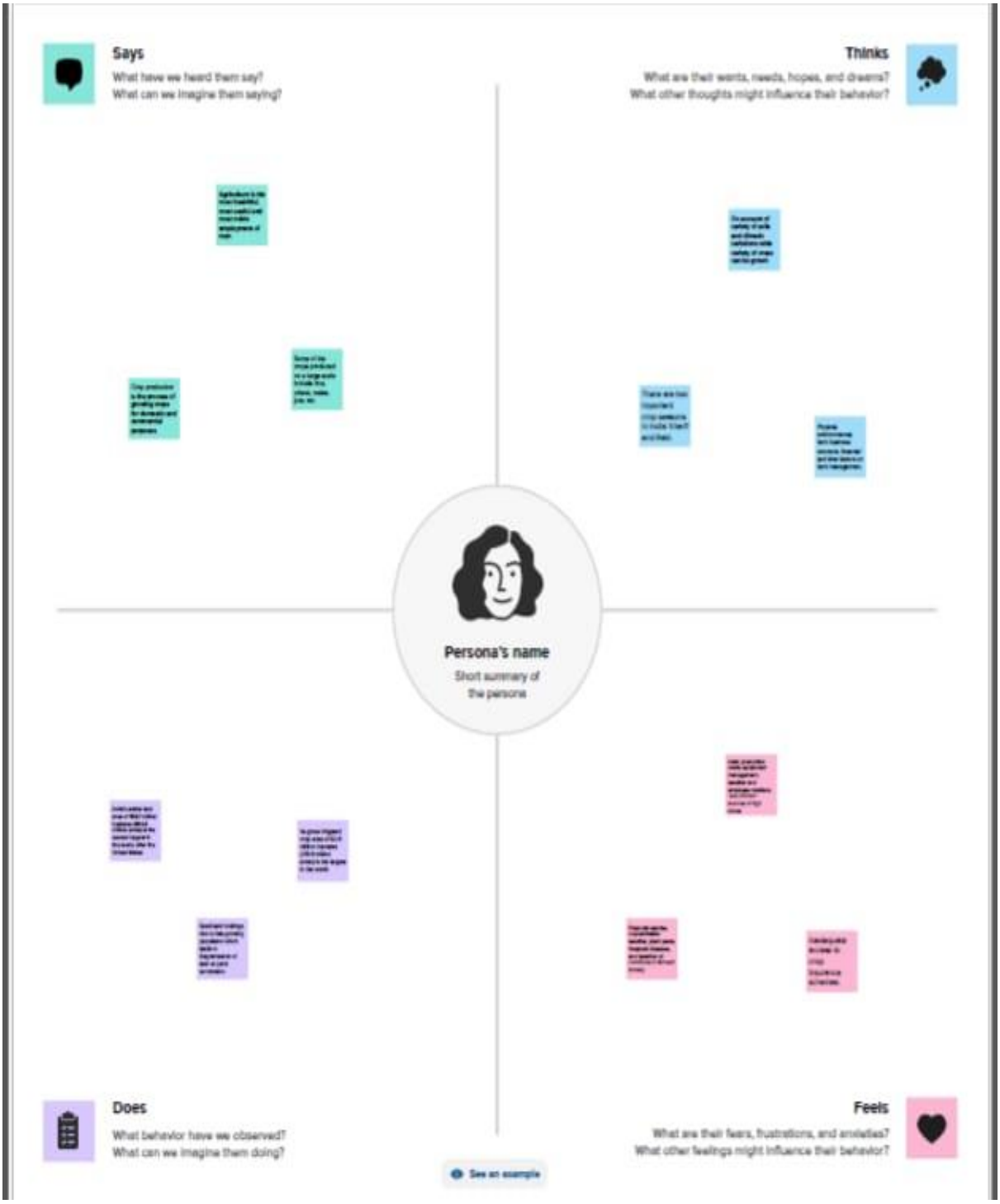
According to the World Bank, India is a global agricultural powerhouse. It is the world's largest producer of milk, pulses, and spices, and has the world's largest cattle herd (buffaloes), as well as the largest area under wheat, rice and cotton. It is the second largest producer of rice, wheat, cotton, sugarcane, farmed fish, sheep & goat meat, fruit, vegetables and tea. While agriculture's share in India's economy has progressively declined to less than 15% due to the high growth rates of the industrial and services sectors, the sector's importance in India's economic and social fabric goes well beyond this indicator.

PURPOSE

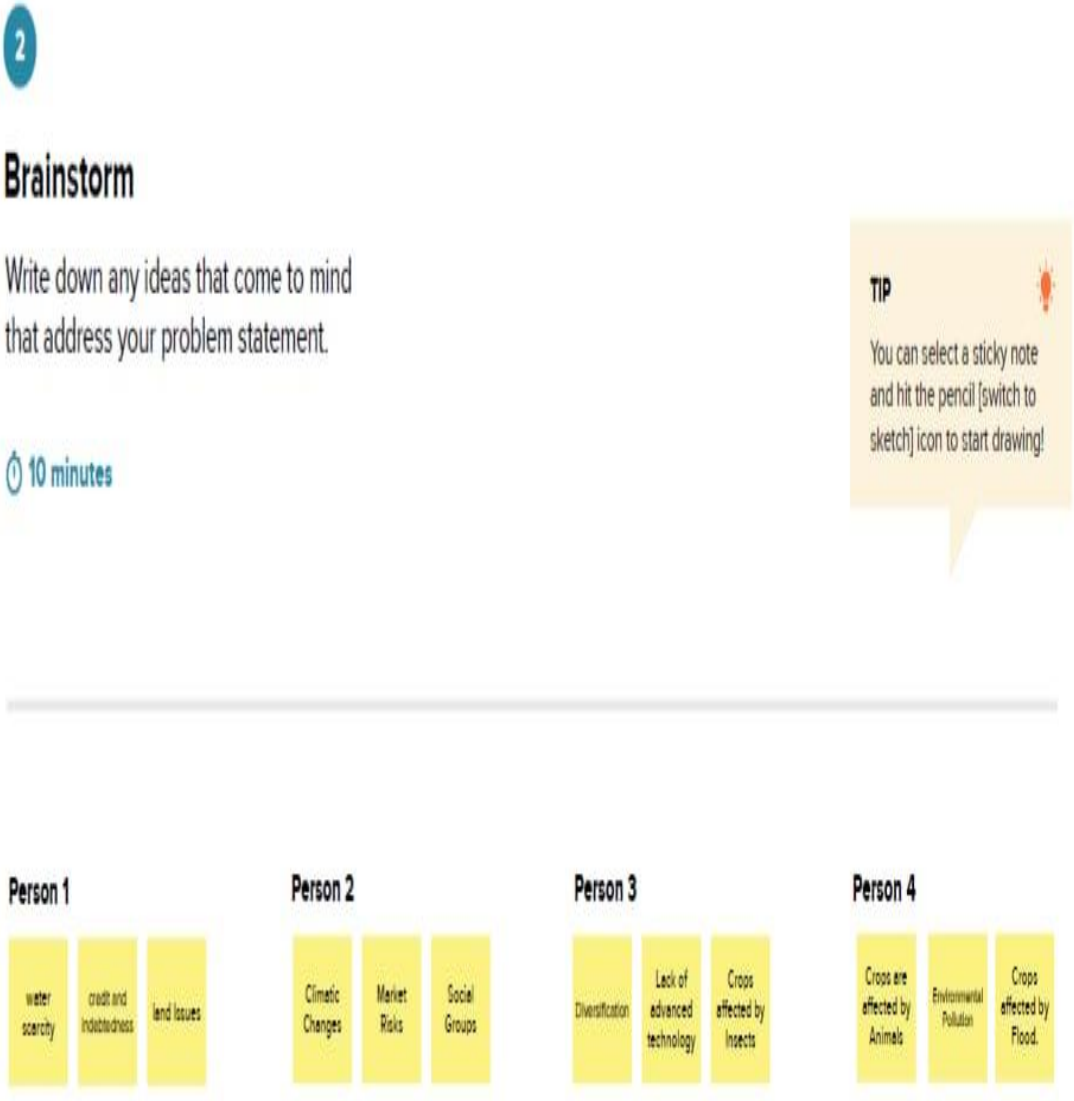
- Food Security: The primary purpose of crop production in India is to ensure an adequate and stable supply of food for its growing population. Crops like rice, wheat, pulses, and vegetables are essential for meeting the dietary needs of the country.
- Livelihoods: Agriculture is a major source of livelihood for a significant portion of India's population. Crop production provides employment opportunities for millions of farmers and laborers, contributing to rural income and economic stability.
- Economic Growth: Crop production is a significant contributor to India's economy. It provides raw materials for various industries, supports the agri-processing sector, and generates income through exports.

II) PROBLEM DEFINITION & DESIGN THINKING

EMPATHY MAP



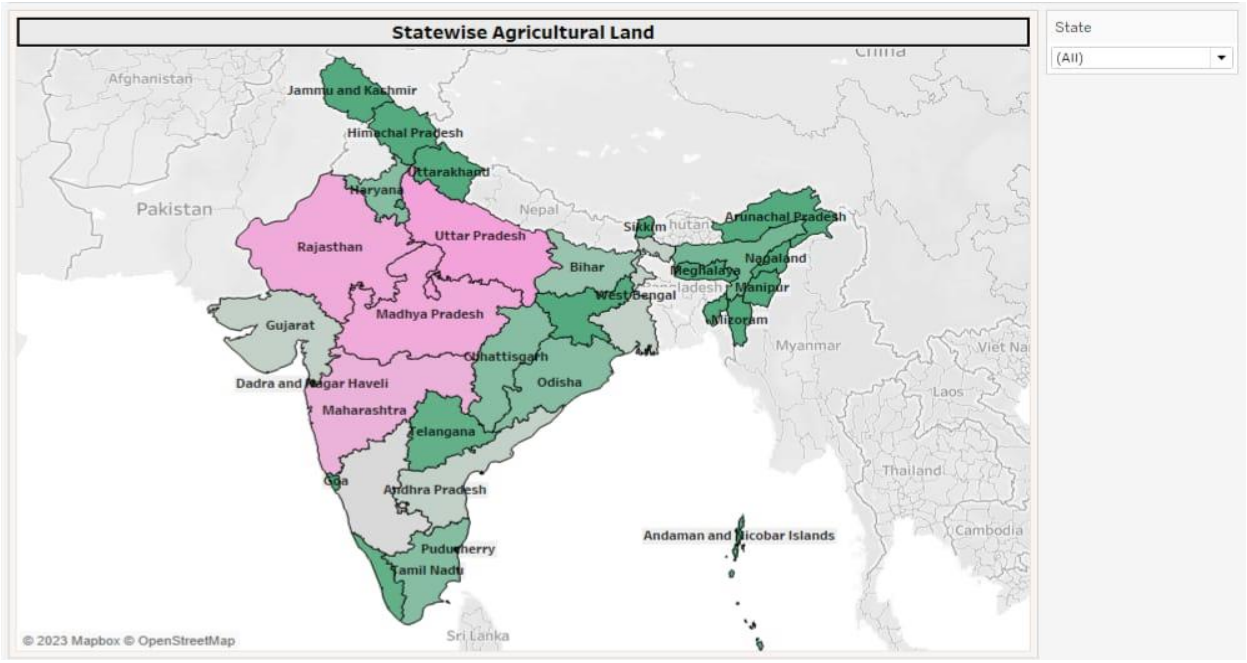
IDEATION & BRAINSTORMING MAP



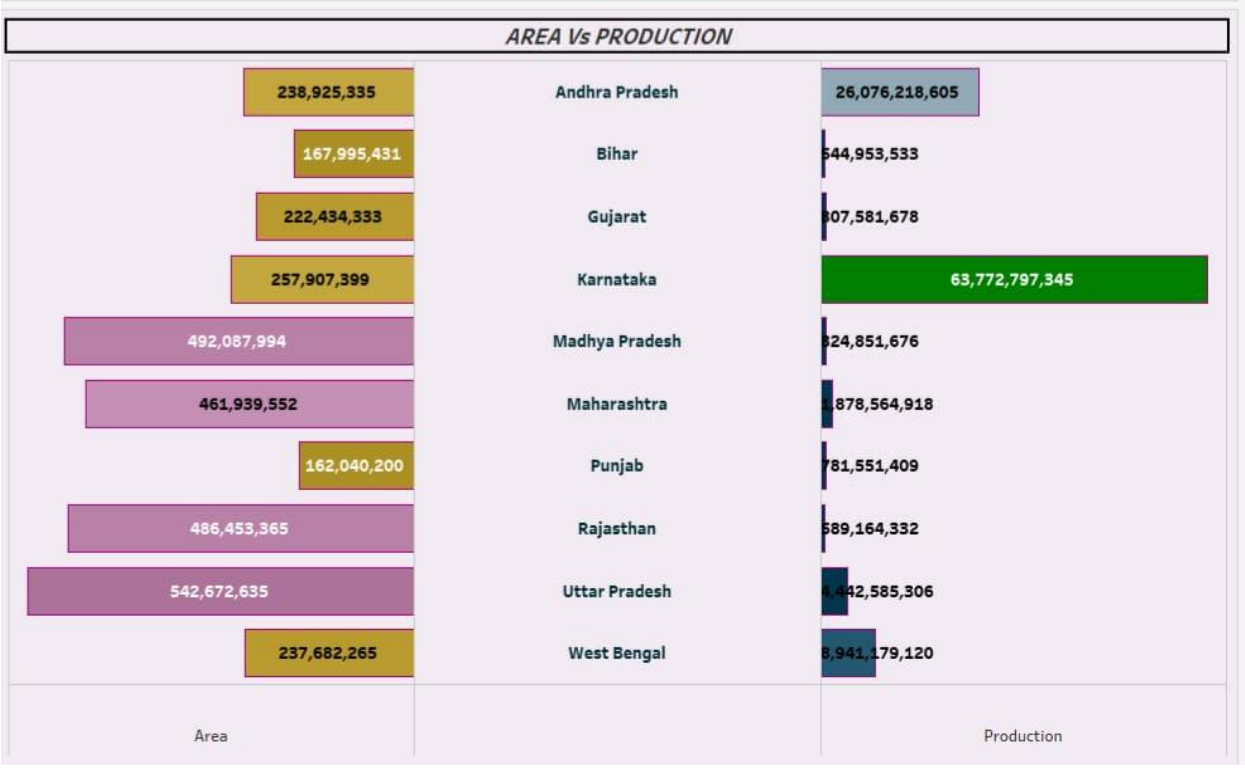
III) RESULT

SHEETS

Statewise Agricultural Land

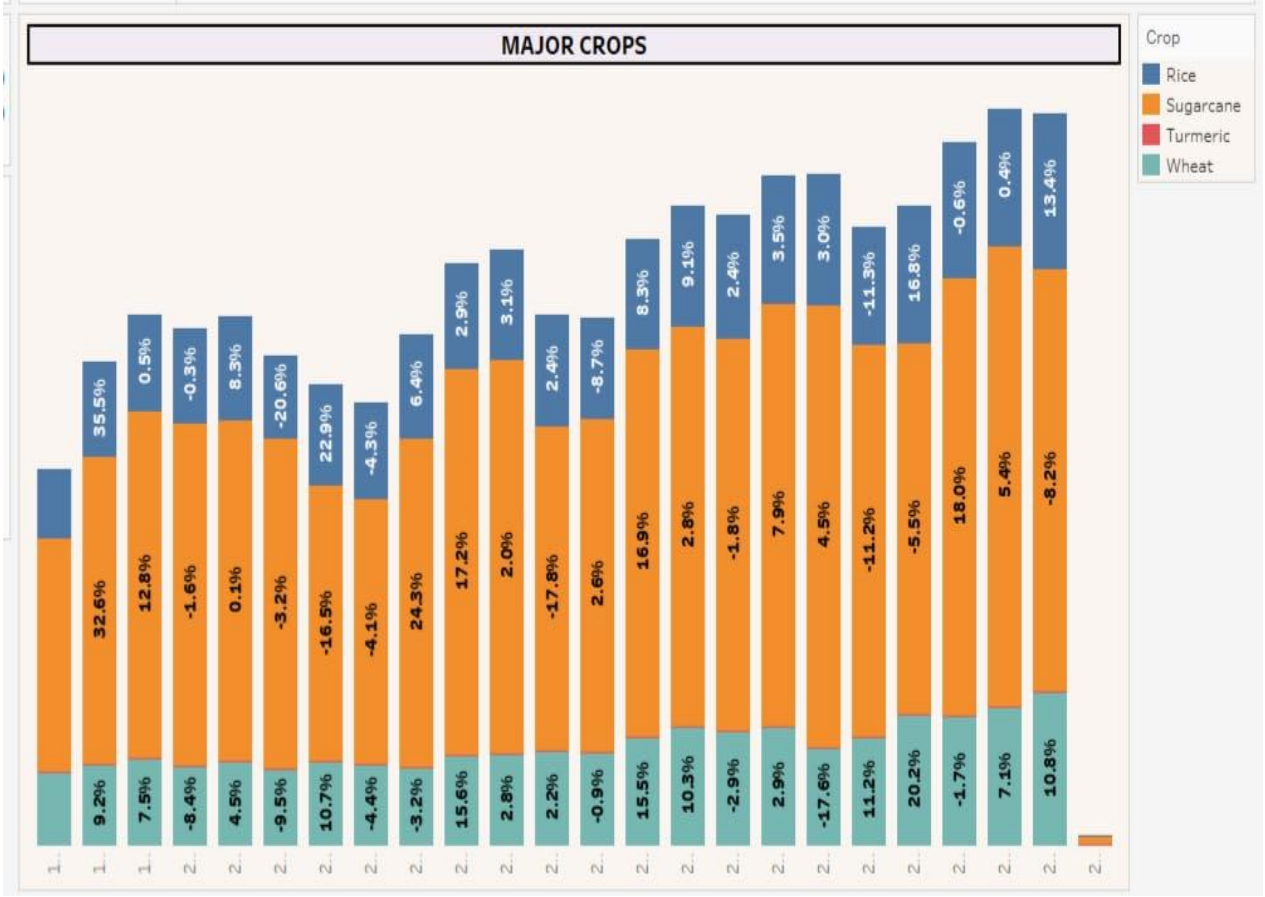


Area vs Production

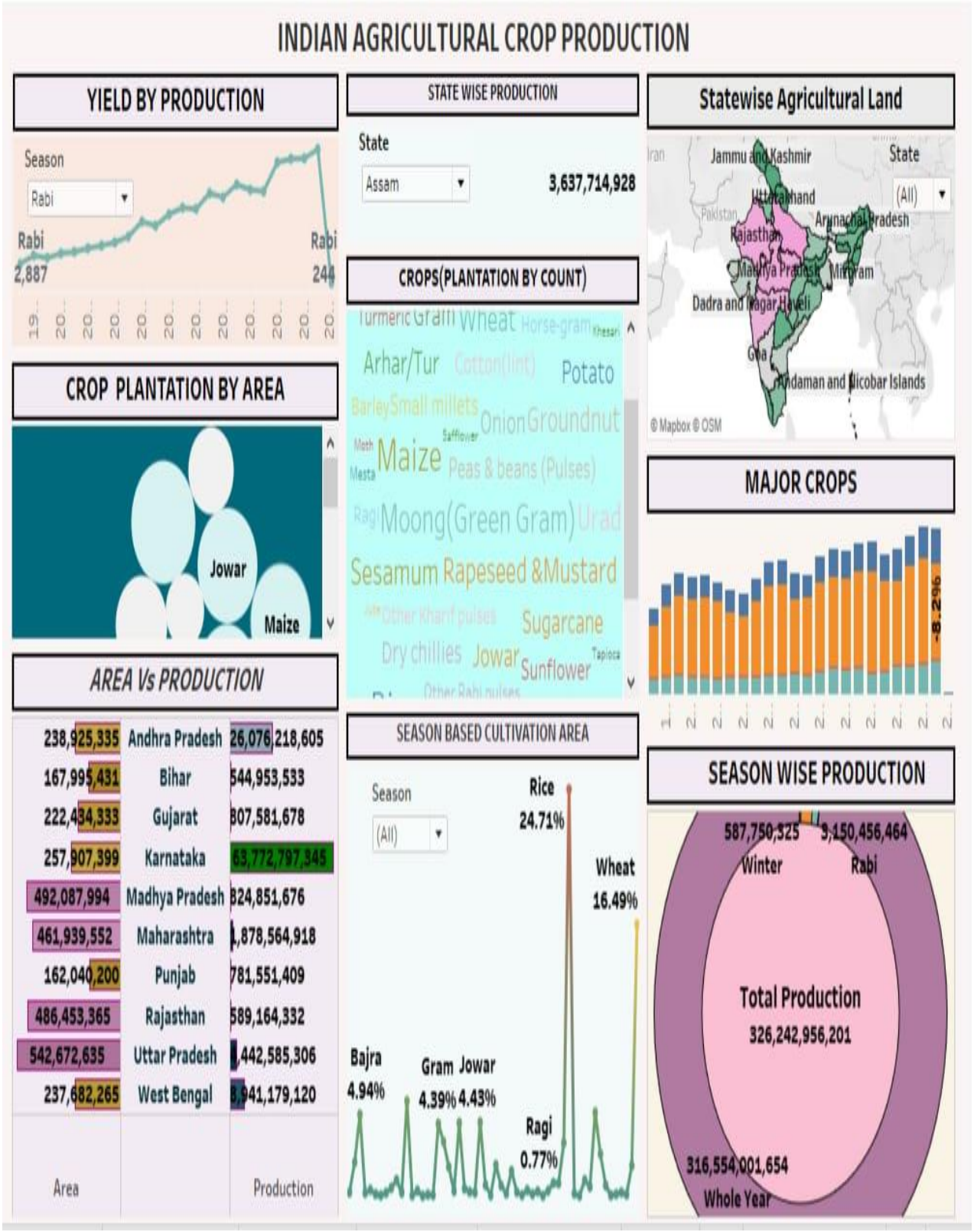


Yield by production

Major Crops



DASHBOARD


INDIAN AGRICULTURAL CROP PRODUCTION
YIELD BY PRODUCTION
Season
Rabi
Rabi
2,887
Rabi
248
STATE WISE PRODUCTION
State
Assam
3,637,714,928
Statewise Agricultural Land
State
(All)
Jammu and Kashmir
Uttarakhand
Pakistan
Arunachal Pradesh
Rajasthan
Madhya Pradesh
Mizoram
Dadra and Nagar Haveli
Goa
Andaman and Nicobar Islands
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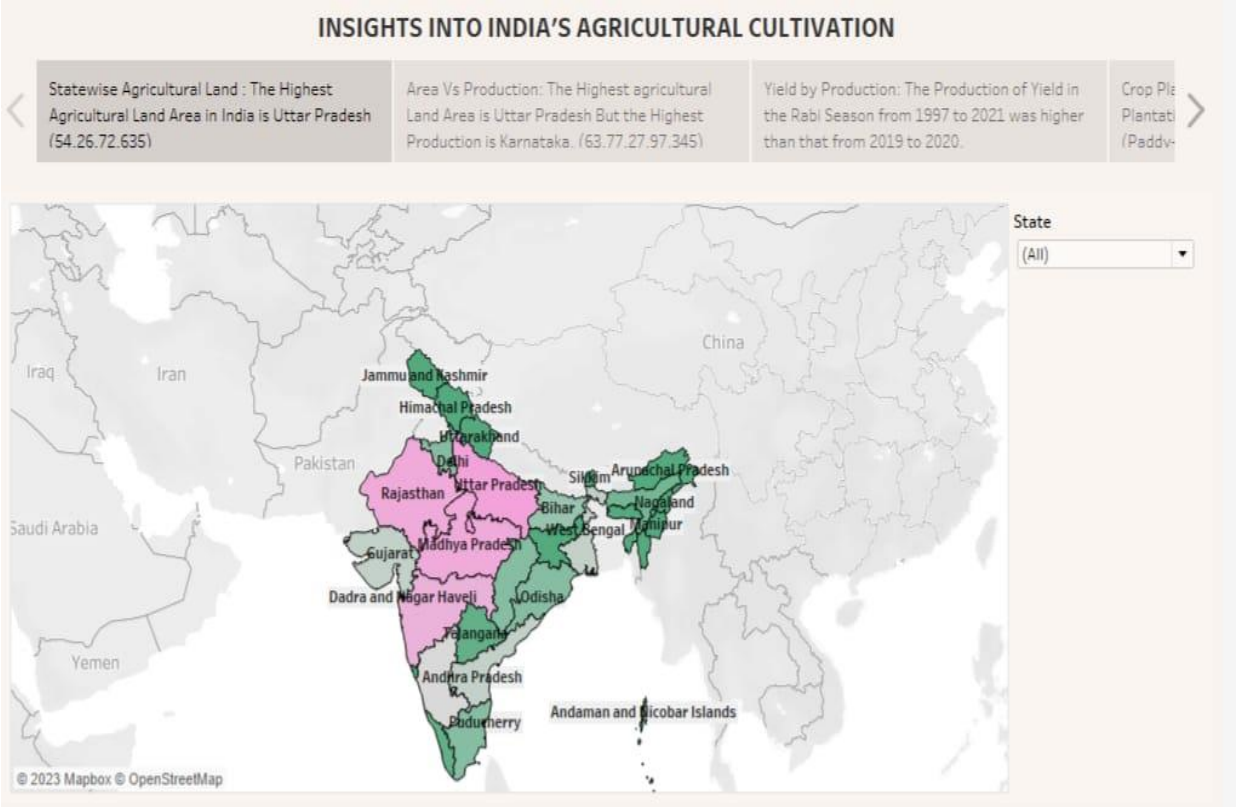
CROPS(PLANTATION BY COUNT)
Turmeric
Wheat
Horse-gram
Arhar/Tur
Cotton(lint)
Potato
Barley
Small millets
Onion
Groundnut
Maize
Peas & beans (Pulses)
Moong(Green Gram)
Sesamum
Rapeseed &Mustard
Other Kharif pulses
Sugarcane
Dry chillies
Jowar
Sunflower
Tapioca
CROP PLANTATION BY AREA
Jowar
Maize
MAJOR CROPS
AREA Vs PRODUCTION
238,925,335 Andhra Pradesh 26,076,218,605
167,995,431 Bihar 544,953,533
222,434,333 Gujarat 807,581,678
257,907,399 Karnataka 63,772,797,345
492,087,994 Madhya Pradesh 824,851,676
461,939,552 Maharashtra 1,878,564,918
162,040,200 Punjab 781,551,409
486,453,365 Rajasthan 589,164,332
542,672,635 Uttar Pradesh 1,442,585,306
237,682,265 West Bengal 941,179,120
Area
Production
SEASON BASED CULTIVATION AREA
Season
(All)
Rice
24.71%
Wheat
16.49%
Bajra
4.94%
Gram
4.39%
Jowar
4.43%
Ragi
0.77%
SEASON WISE PRODUCTION
587,750,325
Winter
3,150,456,464
Rabi
Total Production
326,242,956,201
316,554,001,654
Whole Year

STORY


INSIGHTS INTO INDIA'S AGRICULTURAL CULTIVATION
Statewise Agricultural Land : The Highest Agricultural Land Area in India is Uttar Pradesh (54.26.72.635)
Area Vs Production: The Highest agricultural Land Area is Uttar Pradesh But the Highest Production is Karnataka. (63.77.27.97.345)
Yield by Production: The Production of Yield in the Rabi Season from 1997 to 2021 was higher than that from 2019 to 2020.
State
(All)
China
Iraq
Iran
Pakistan
Saudi Arabia
Yemen
Jammu and Kashmir
Himachal Pradesh
Uttarakhand
Delhi
Rajasthan
Uttar Pradesh
Sikkim
Arunachal Pradesh
Nagaland
Bihar
West Bengal
Manipur
Gujarat
Madhya Pradesh
Dadra and Nagar Haveli
Odisha
Telangana
Andhra Pradesh
Puducherry
Andaman and Nicobar Islands
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238,925,335
Andhra Pradesh
26,076,218,605
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Madhya Pradesh
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Gujarat
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Punjab
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Rajasthan
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Bihar
Area
Production

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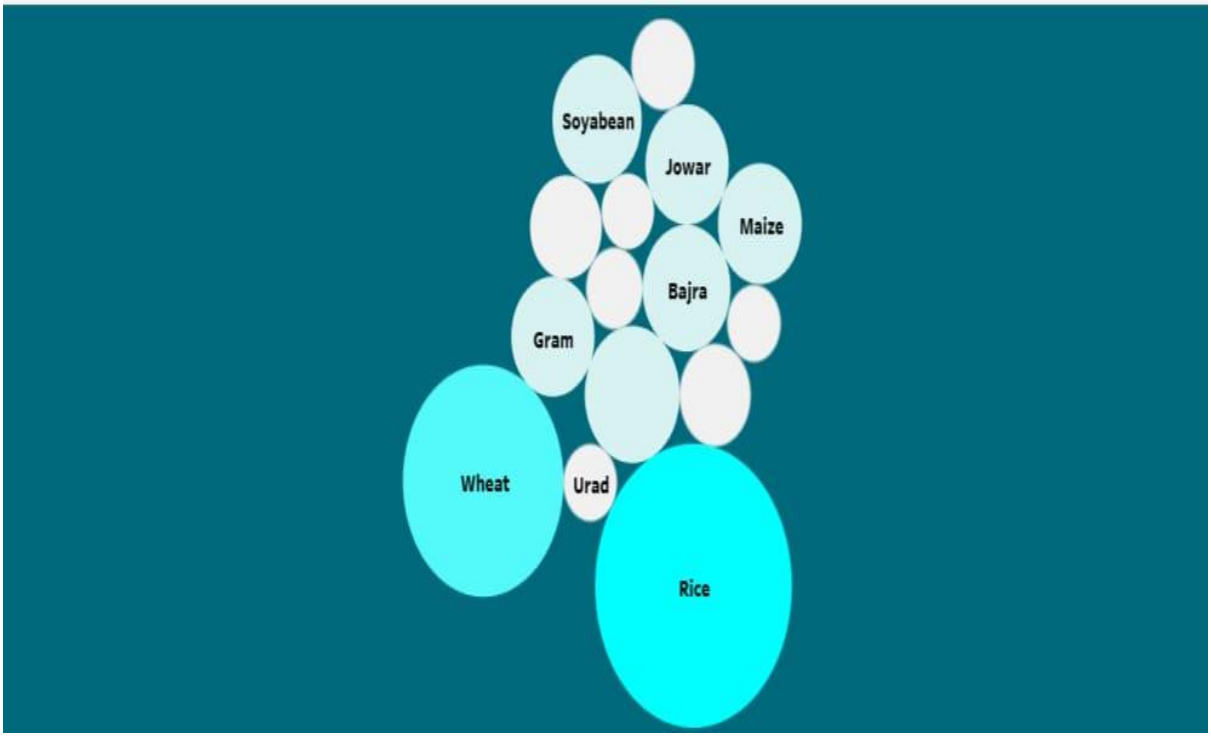
Crop Plantation by Area: India's Largest Plantation of Crop is Rice.
(Paddv-99.58.13.6420

Major
Produc
Produc



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Crops: crop al

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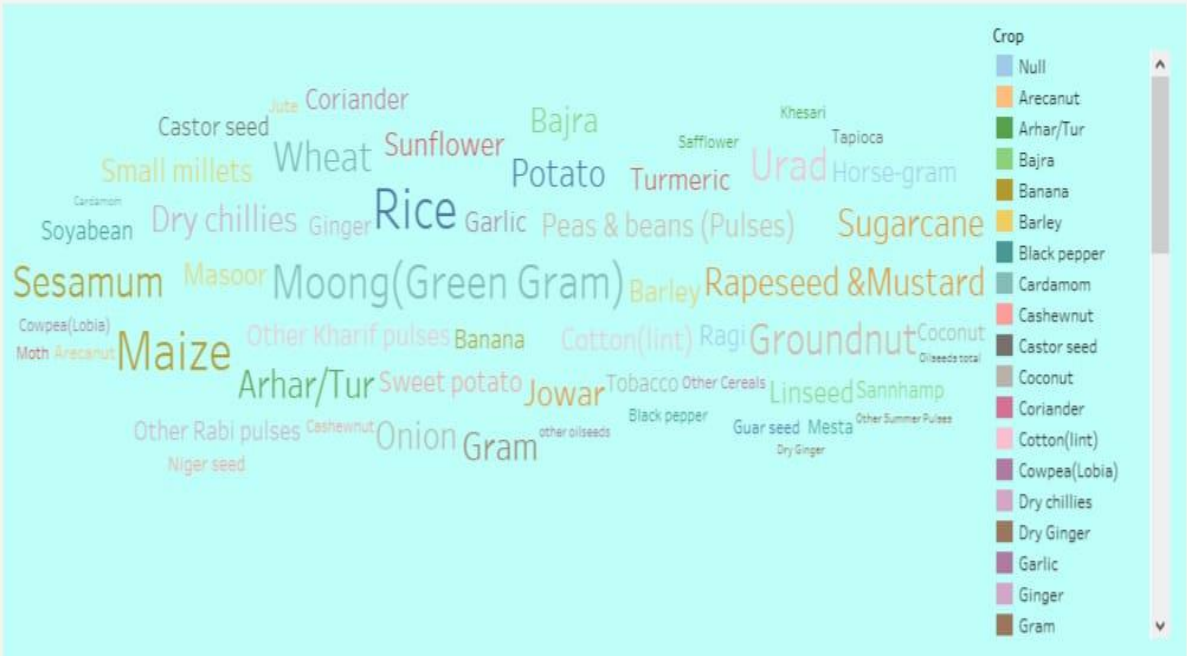
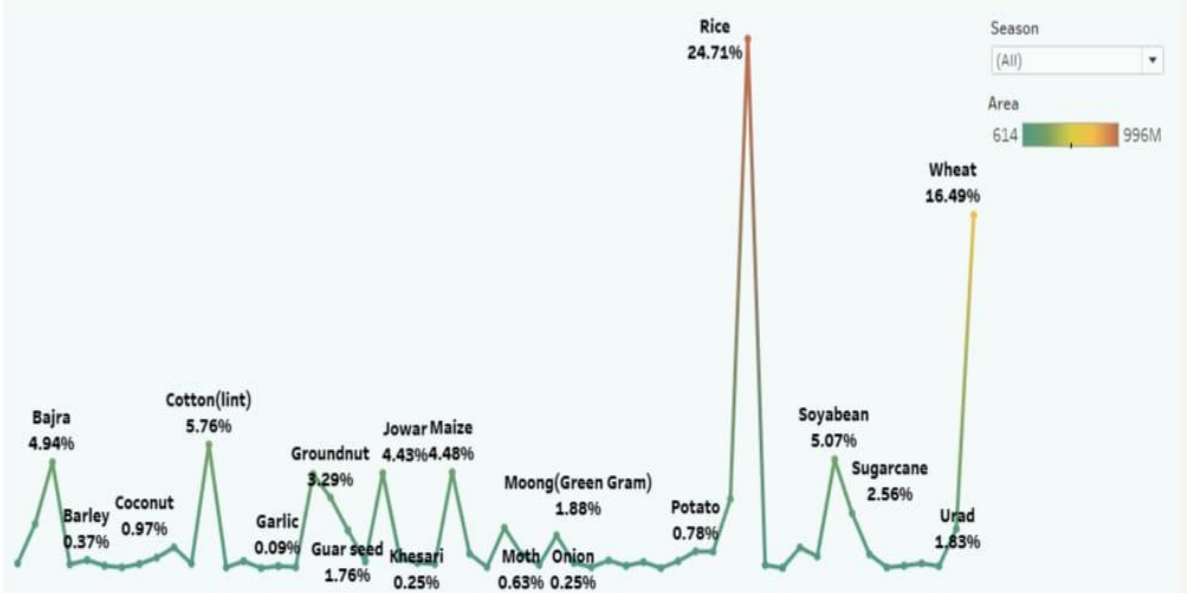
Crops: This slide shows the Plantation of each crop along with its Area.

Seasor Seasor



INSIGHTS INTO INDIA'S AGRICULTURAL CULTIVATION

f each | Season wise Production: The Peak Production, Season wise is Whole Year(3,16,55,40,01,654) | Kpi's: Its gives the State wise Production in Count. | Season based cultivation Area: To compare all seasons, Rice has peak production.



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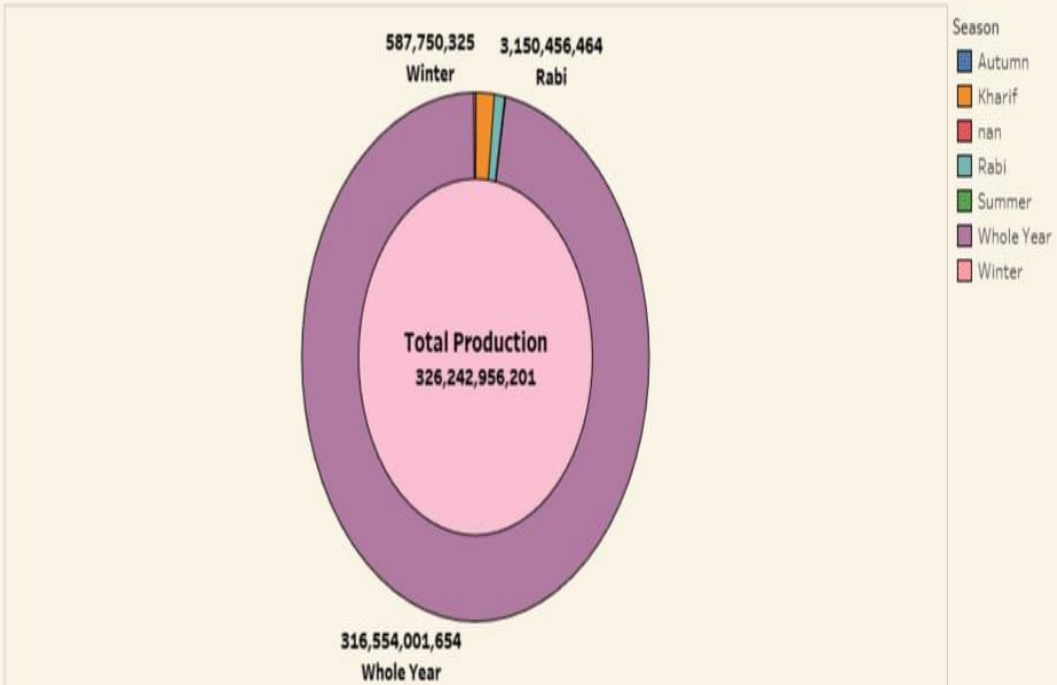

ADVANTAGES &DISADVANTAGES

ADVANTAGES OF INDIA'S AGRICULTURE

Indian agriculture offers several advantages, which contribute to its significance in the country's economy and the well-being of its population. Some of the key advantages of Indian agriculture include:

1. Diverse Agro-climatic Zones: India has a wide range of agro-climatic zones, which allows for the cultivation of a variety of crops and supports diverse farming practices.

2. Large Workforce: Indian agriculture provides employment to a substantial portion of the population, especially in rural areas, contributing to livelihoods and income generation.

3. Food Security: It plays a crucial role in ensuring food security by producing staple crops like rice, wheat, and pulses to meet the dietary needs of the population.

4. Crop Diversity: India produces a wide range of crops, including cereals, pulses, oilseeds, fruits, vegetables, and spices, contributing to dietary diversity and balanced nutrition.

5. Export Opportunities: The country is a major exporter of agricultural products, including rice, spices, cotton, and seafood, earning valuable foreign exchange.

6. Biodiversity: The country possesses a rich genetic diversity of crops and plant species, contributing to global biodiversity.

7. Smallholder Farming: While there are challenges, the prevalence of smallholder farming allows for more equitable distribution of income and resources.

8. Green Revolution: India's Green Revolution in the 1960s and 1970s led to increased crop yields and helped the country achieve self-sufficiency in food production.

9. Research and Innovation: India has a growing agricultural research sector, which is working on improving crop varieties, pest and disease management, and sustainable farming practices.

10. Rural Development: Agriculture plays a significant role in the development of rural areas, providing infrastructure, supporting local businesses, and creating a demand for services.

DISADVANTAGES OF INDIA'S AGRICULTURE

Indian agricultural crop production faces several disadvantages and challenges, which impact its efficiency, sustainability, and the livelihoods of those involved in the sector. Some of the notable disadvantages include:

1. Land Fragmentation: Indian agriculture is characterized by small landholdings, which can limit economies of scale, mechanization, and efficient land use.

2. Lack of Irrigation Infrastructure: Dependence on monsoon rains can lead to inconsistent and unreliable water supply for crops, affecting yields and cropping patterns.

3. Pest and Disease Management: Inadequate pest and disease control measures can lead to crop losses and increased use of chemical pesticides, which can have adverse environmental and health effects.

4. Soil Degradation: Overuse of land and improper soil management practices can lead to soil erosion, nutrient depletion, and reduced long-term productivity.

5. Water Scarcity: Many parts of India face water scarcity, which affects both crop production and livestock rearing.

6. Lack of Mechanization: Traditional farming methods and the limited use of modern machinery can result in labor-intensive and time-consuming farming practices.

7. Crop Insurance Challenges: The reach and effectiveness of crop insurance schemes can be limited, leaving farmers vulnerable to crop losses.

8. Aging Farming Population: The average age of farmers in India is increasing, which can hinder the adoption of new technologies and practices.

APPLICATIONS:

- India is the World's Second most populated County. And there is always a continuing demand for food to feed such a large population. As a result, there is a need for agriculture and a need for the Economy to be less reliant on the Agriculture sector.
- Agriculture supplies raw materials to various ago based industries like sugar, jute, cotton textile and vanaspati industries. Food processing in Industries are similarly dependent on agriculture. Therefore, the development of these industries entirely is dependent on agriculture.
- Agriculture has been practiced in India for thousands of years, and two-thirds, i.e., 60-70 percentage of India's Population, depend on agriculture for their livelihood. Agriculture is a primary activity in India that produces most of the food that people consume.

CONCULSION

In conclusion, Indian agriculture is at a crucial juncture with both opportunities and challenges. The sector's future depends on embracing modern technologies, sustainable practices, diversification, and climate resilience. Government support, education, and private sector involvement will play essential roles in the transformation of Indian agriculture. The

Indian economy is an agro-economy and depends highly on the Agricultural Sector. Despite just supporting the Indian Economy, the agricultural sector also supports the Industrial Sector and international trade in imports and exports. Although the contribution of the Agricultural Sector to the Indian Economy is reducing. It is the sector with the most number of people working in it around the country.

FUTURE SCOPS

The future of Indian Agriculture holds several key prospects and Challenges:

- Technological Advancements: Adoption of modern technologies like precision farming IT, and AI can boost productivity and efficiency.
- Sustainable Agriculture: Emphasizing sustainable practices to conserve resources, reduce environmental impact and ensure long-term food security.
- Diversification: Encouraging crop diversification beyond traditional staples to enhance income and nutrition.
- Market Access: Improved market access through digital platforms can benefit both farmers and consumers.
- Climate Resilience: Developing crops and practices that can with stand the changing climate, given India's vulnerability to climate change.
- Government Initiatives: Continued support through policies, subsidies and infrastructure development.
- Education and Training: Enhancing the skills and knowledge of farmers through education and training programs.
- Private Sector Participation: Increased involvement of the private sector can bring in investment and innovation.

- **Export Opportunities:** Exploring international markets for Indian agricultural products.
- **Reducing Post-Harvest Losses:** Implementing better storage and transportation facilities to reduce wastage.
- **Organic Farming:** The growing demand for organic produce presents opportunities for Indian farmers.
- **Farmer Welfare:** Addressing issues of farmer distress and income security.

To realize these prospects, India must navigate challenges like land fragmentation, water Scarcity, and the need for significant investments in infrastructure and research and development.