

India's Agricultural Crop Production Analysis 1997-2021

1. Introduction

1.1 Overview

Crop residue management plays an important role in determining agricultural greenhouse gas emissions and related changes in soil carbon stocks. However, no publicly-available global dataset currently exists for how crop residues are managed. Here we present such a dataset, covering the period 1997-2021, on a 0.5 resolution grid. For each grid cell we estimate the total production of residues from cereal crops, and determine the fraction of residues (i) used for livestock feed/bedding, (ii) burnt on the field, (iii) used for other off-field purposes (e.g. domestic fuel, construction or industry), and (iv) left on the field. This dataset is the first of its kind, and can be used for multiple purposes, such as global crop modelling, including the calculation of greenhouse gas inventories, estimating crop-residue availability for biofuel production or modelling livestock feed availability.

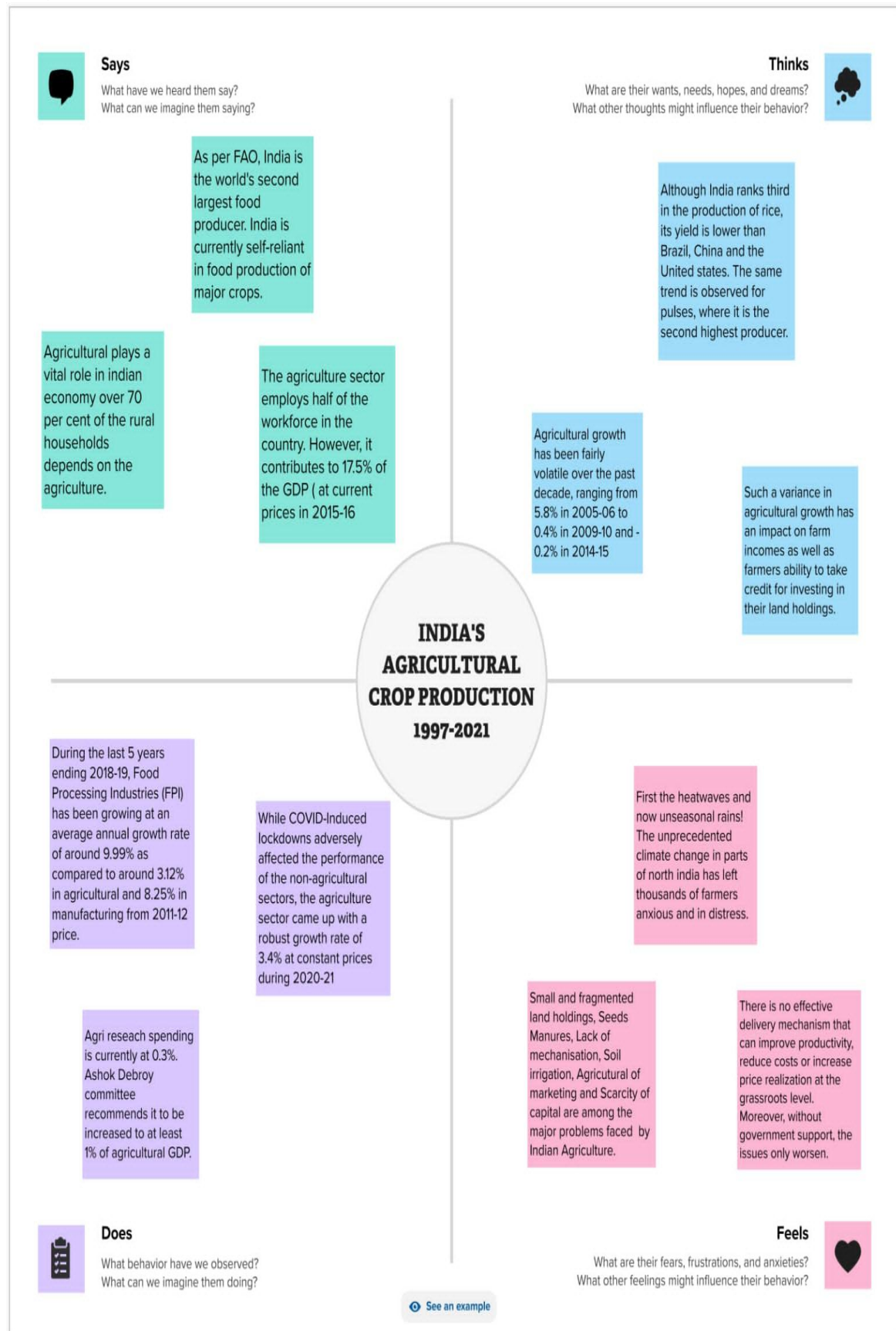
1.2 Purpose

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.

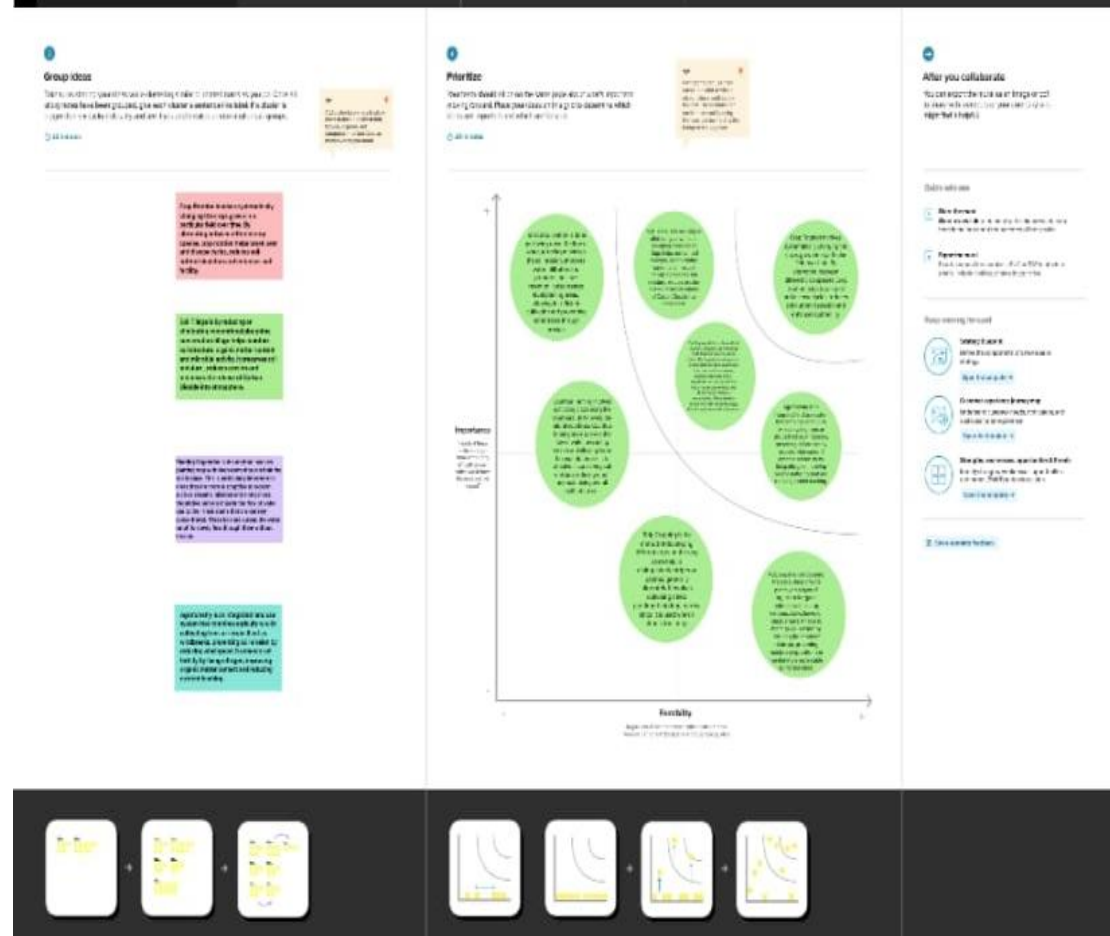
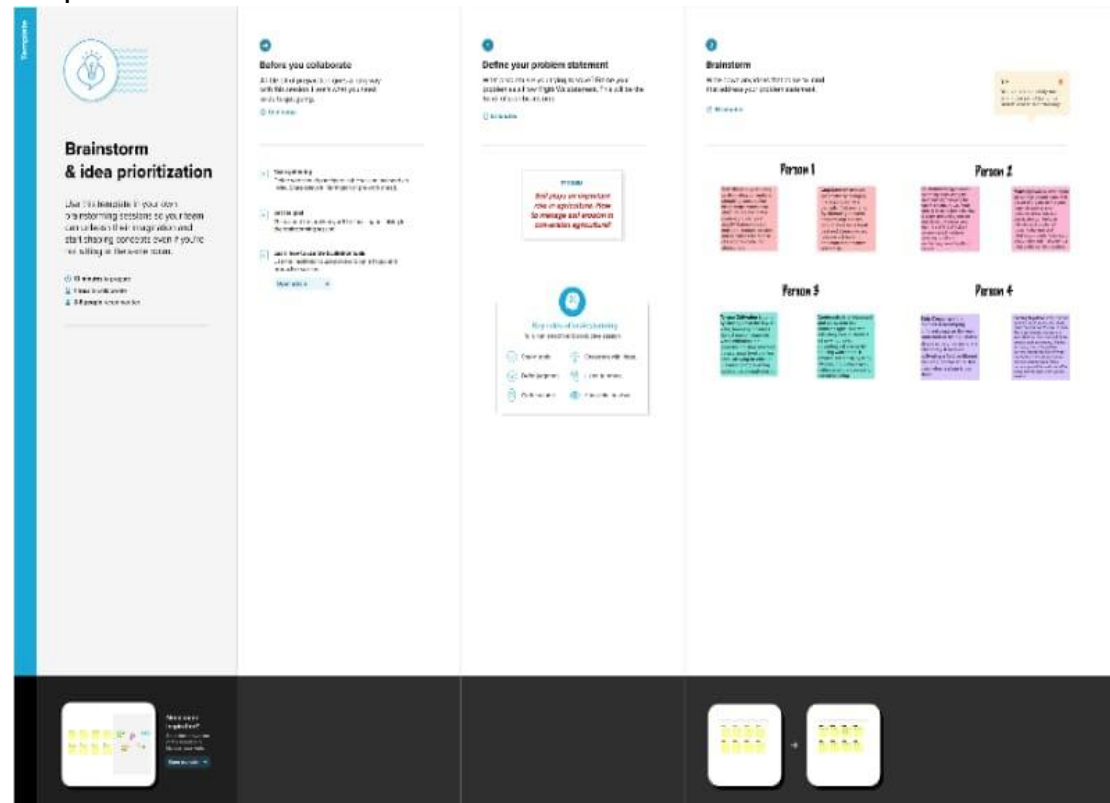
2. Problem Definition & Design Thinking

Problem Understanding, also known as problem Definition or problem identification, is the initial and crucial phase of any data analysis or problem-solving process. It involves gaining a clear and comprehensive understanding of the problem at hand, its context, scope and objectives.

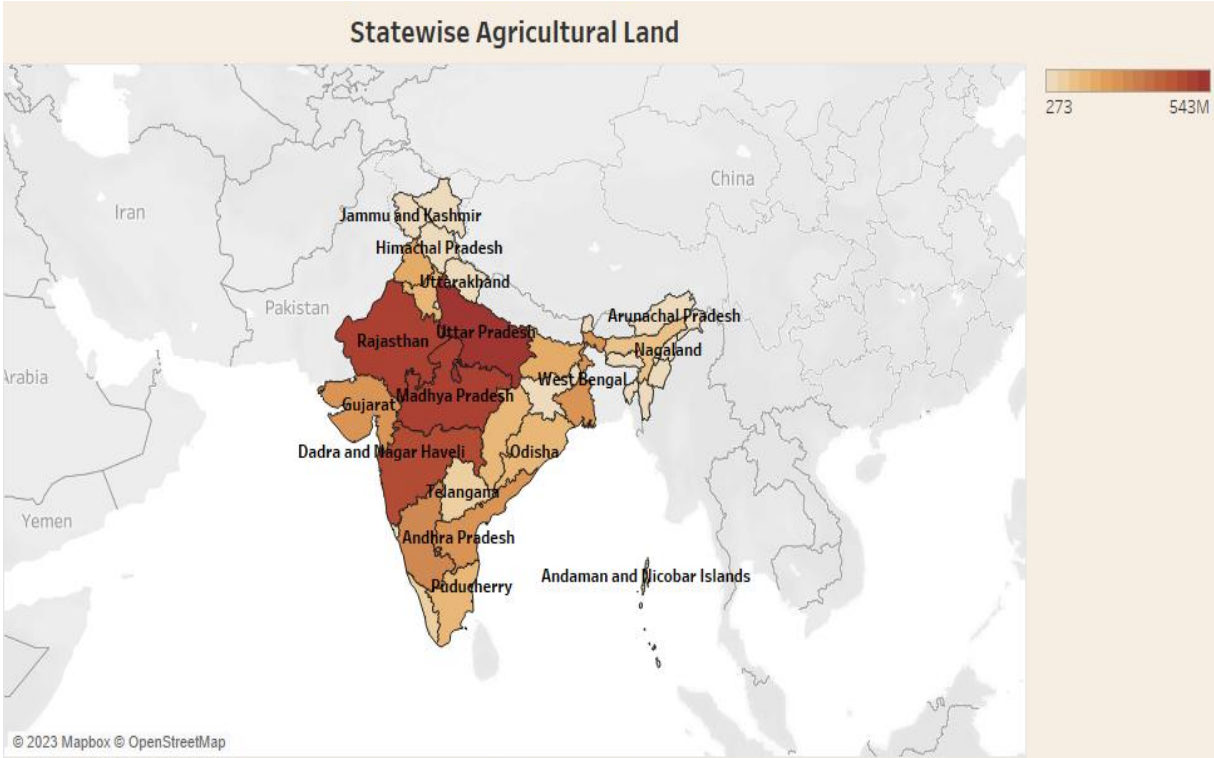
2.1 Empathy Map



2.2 Brainstroming Map



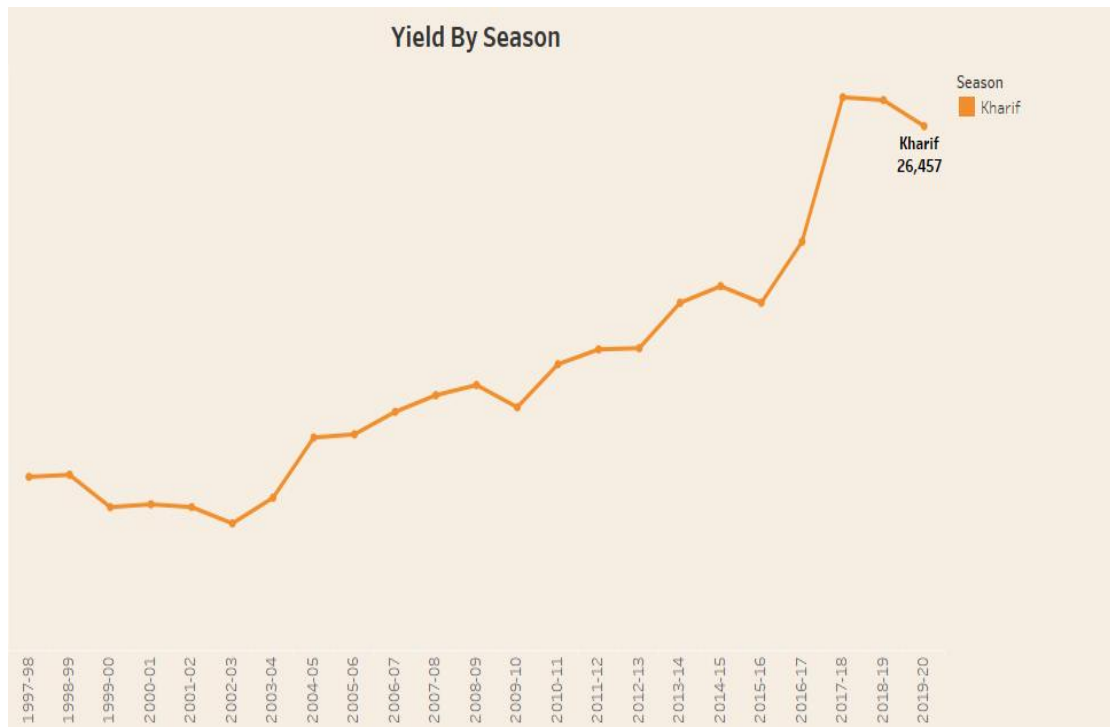
3.
RESULT



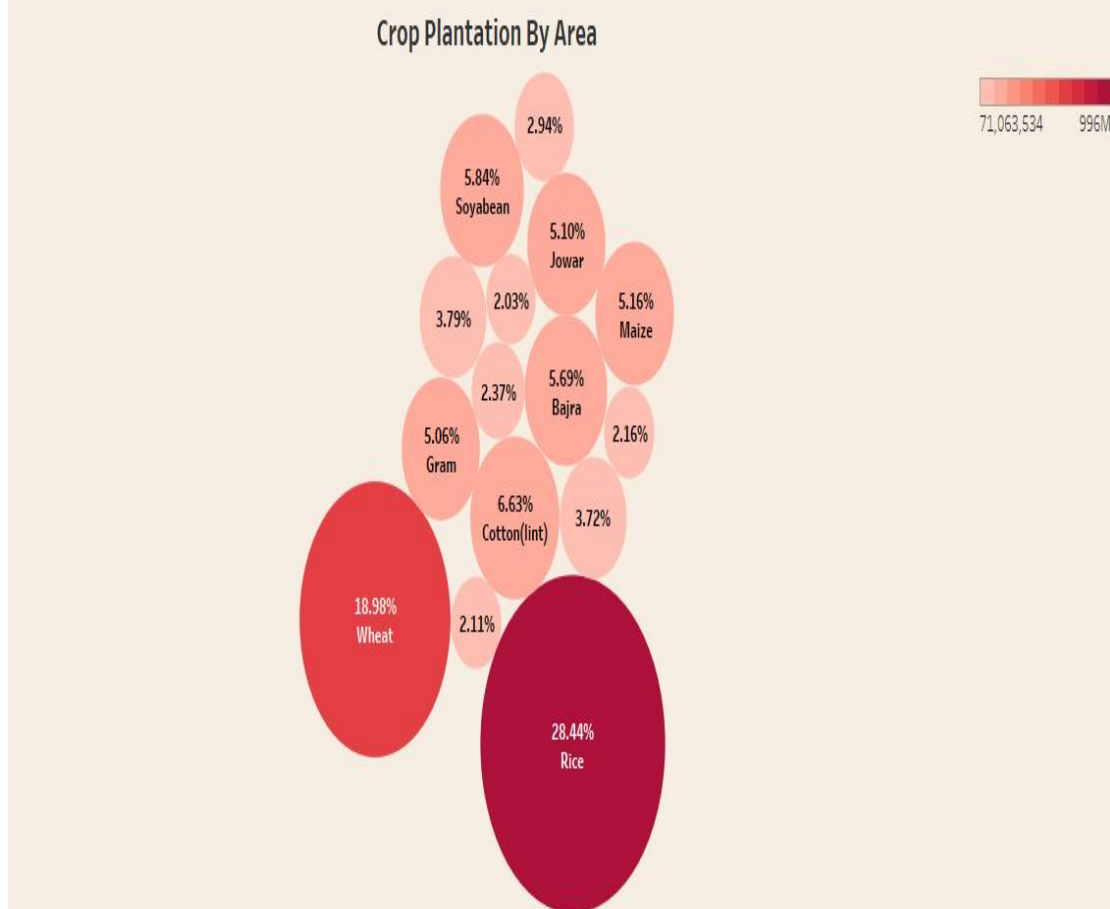
Map based on Longitude (generated) and Latitude (generated). Color shows sum of Area. The marks are labeled by State. Details are shown for State. The view is filtered on State, which keeps 36 of 36 members.



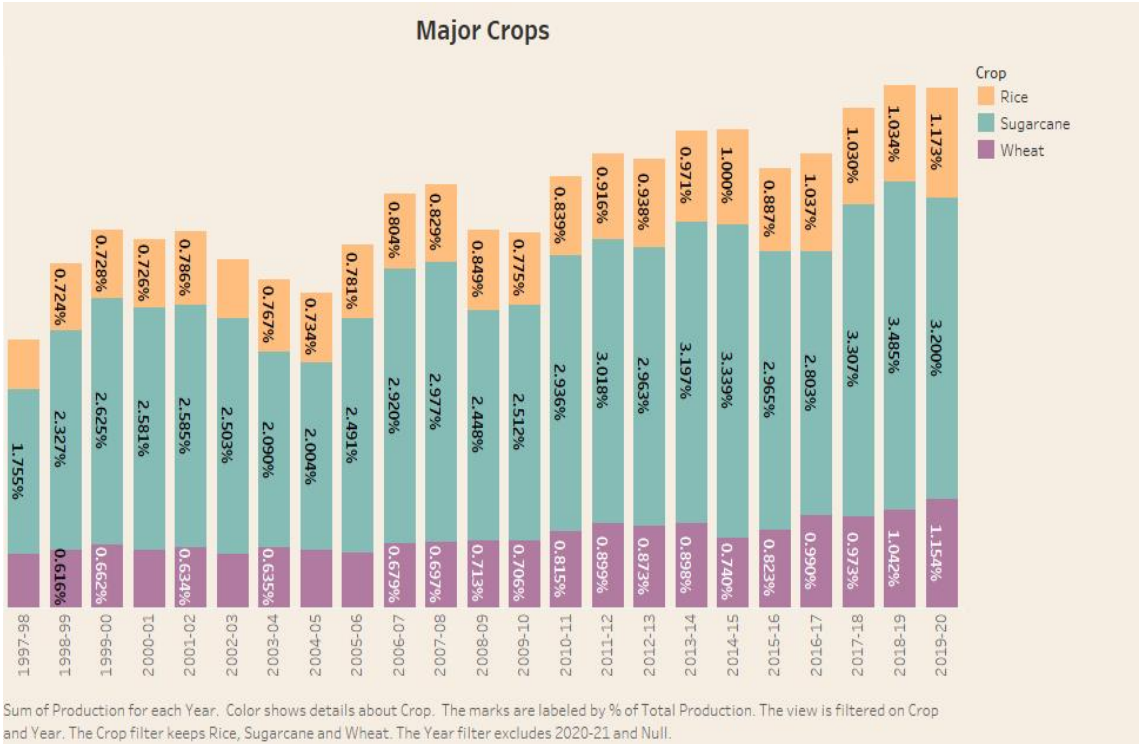
Sum of Area, sum of Zero Line and sum of Production for each State. For pane Sum of Area: Color shows sum of Area. The marks are labeled by sum of Area. For pane Sum of Production: Color shows sum of Production. The marks are labeled by sum of Production. The view is filtered on State, which keeps 10 of 36 members.



The trend of sum of Yield for Year. Color shows details about Season. The marks are labeled by Season and sum of Yield. The view is filtered on Year and Season. The Year filter excludes 2020-21 and Null. The Season filter keeps Kharif.



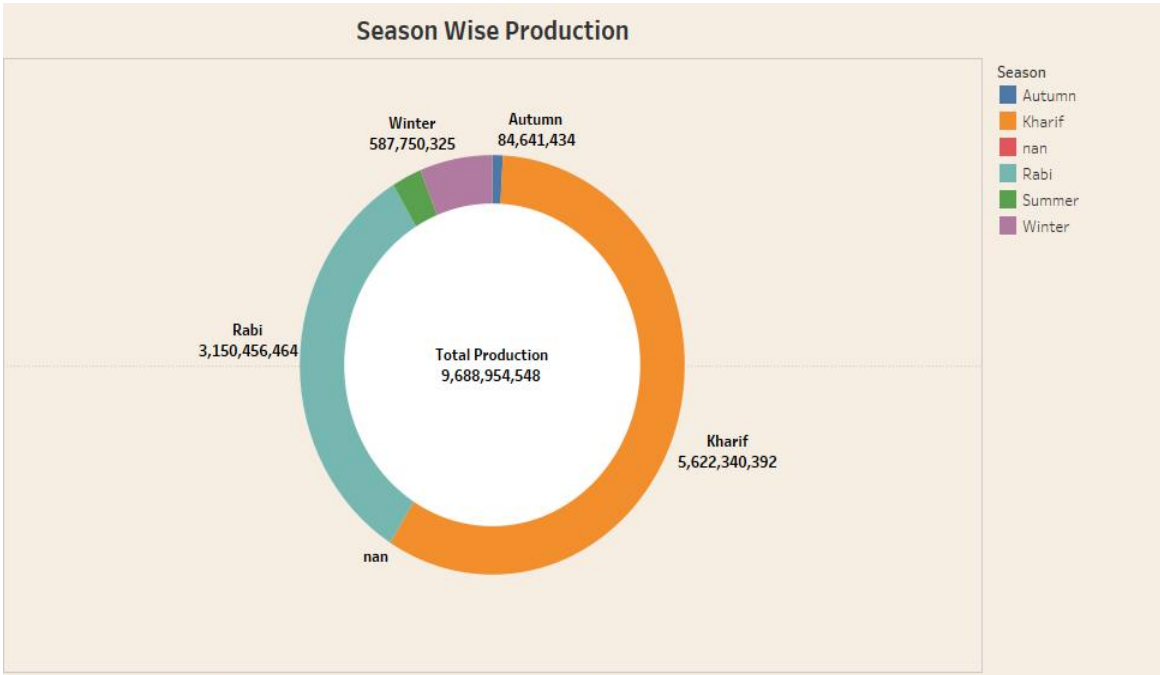
Crop and % of Total Area. Color shows sum of Area. Size shows sum of Area. The marks are labeled by Crop and % of Total Area. The view is filtered on Crop, which keeps 15 of 57 members.



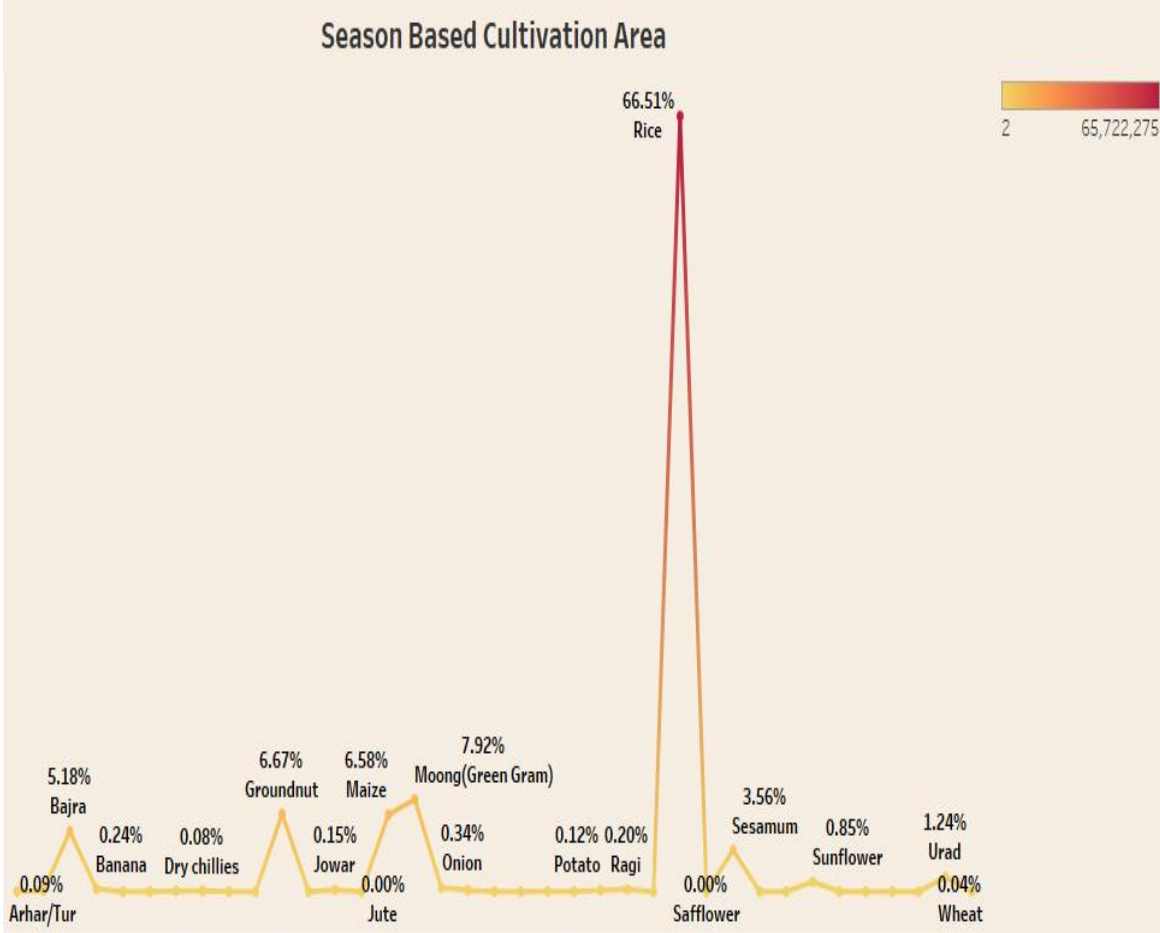
East	North	North east
4,030,580,636	4,030,580,636	4,030,580,636
Sum of Area.	Sum of Area.	Sum of Area.
South	West	East
4,030,580,636	4,030,580,636	326,242,956,201
Sum of Area.	Sum of Area.	Sum of Production.
North	North east	South
326,242,956,201	326,242,956,201	326,242,956,201
Sum of Production.	Sum of Production.	Sum of Production.
West		
326,242,956,201		
Sum of Production.		

Crop (Plantation by count)





Sum of Zero and sum of Zero. For pane Sum of Zero : Color shows details about Season. The marks are labeled by Season and sum of Production. The view is filtered on Season, which excludes Whole Year.

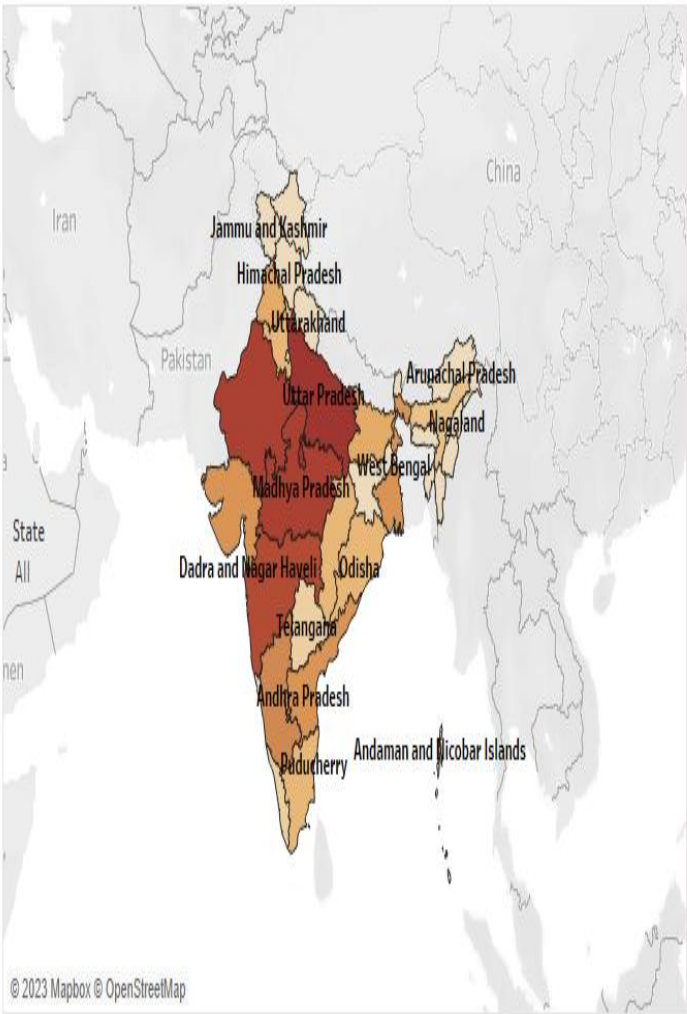


The trend of sum of Area for Crop. Color shows sum of Area. The marks are labeled by Crop and % of Total Area. The data is filtered on Season, which keeps Summer.

Area in acres region-wise

East	North	North east	South	West
4,030,580,636	4,030,580,636	4,030,580,636	4,030,580,636	4,030,580,636

Statewise Agricultural Land



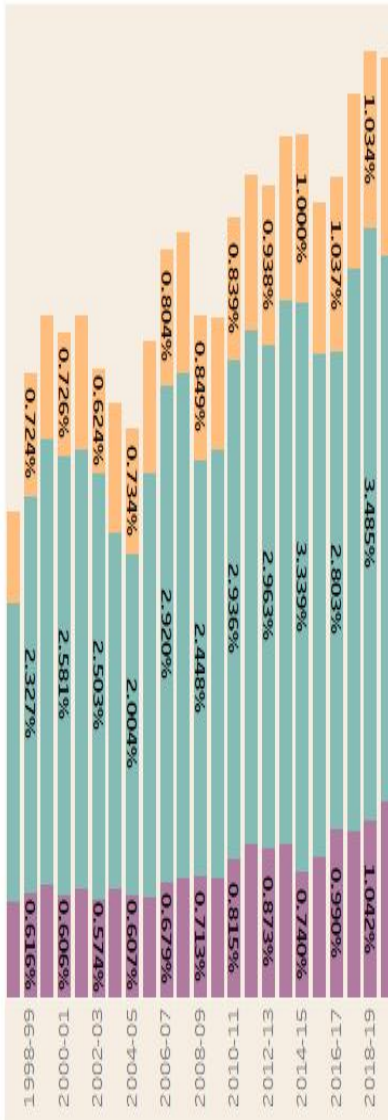
Area Vs Production

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
Area		Production

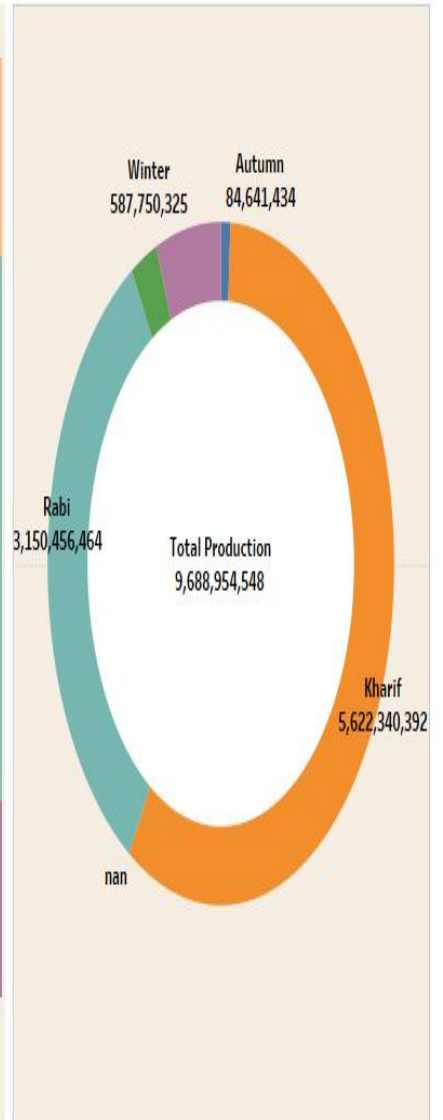
Yield By Season



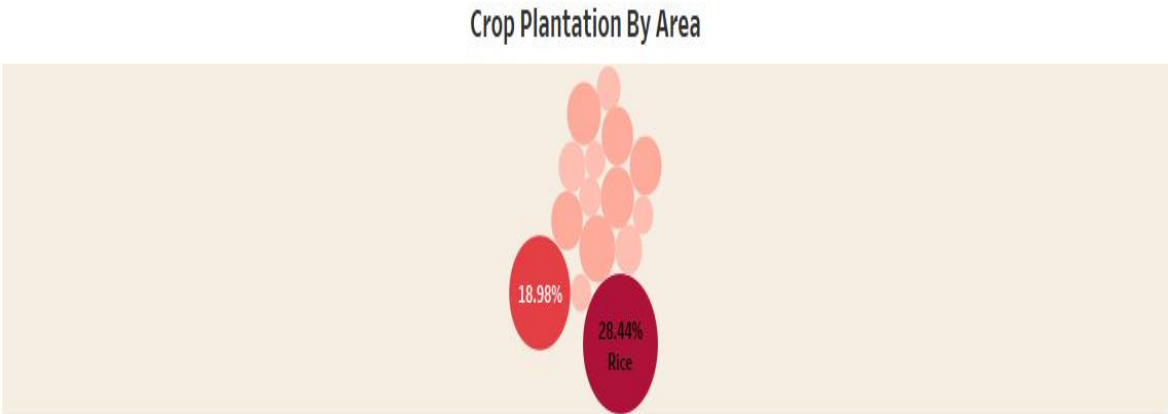
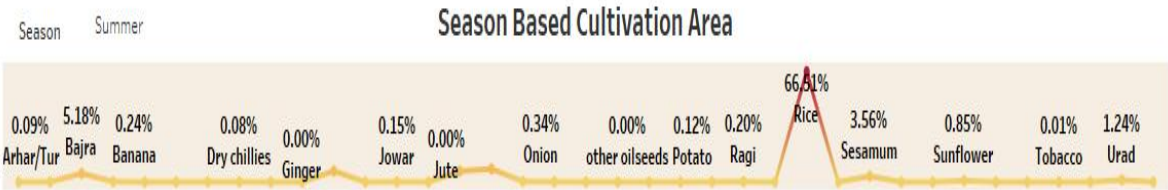
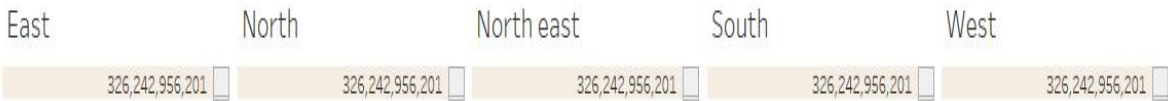
Major Crops



Season Wise Production

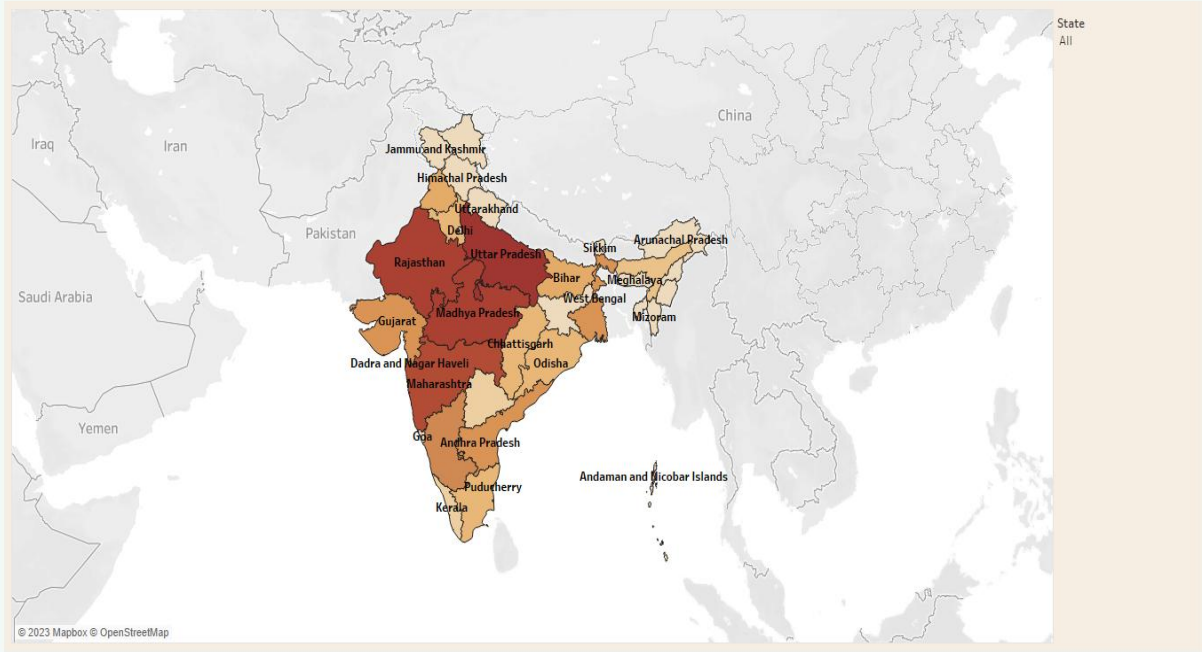


Production in tonnes region-wise



Insights into India's agricultural cultivation

Indian States: Visualizing Area	Area Vs Production: Top 10 In...	Cultivation of in india	Crops	Year-on-Year Percentage
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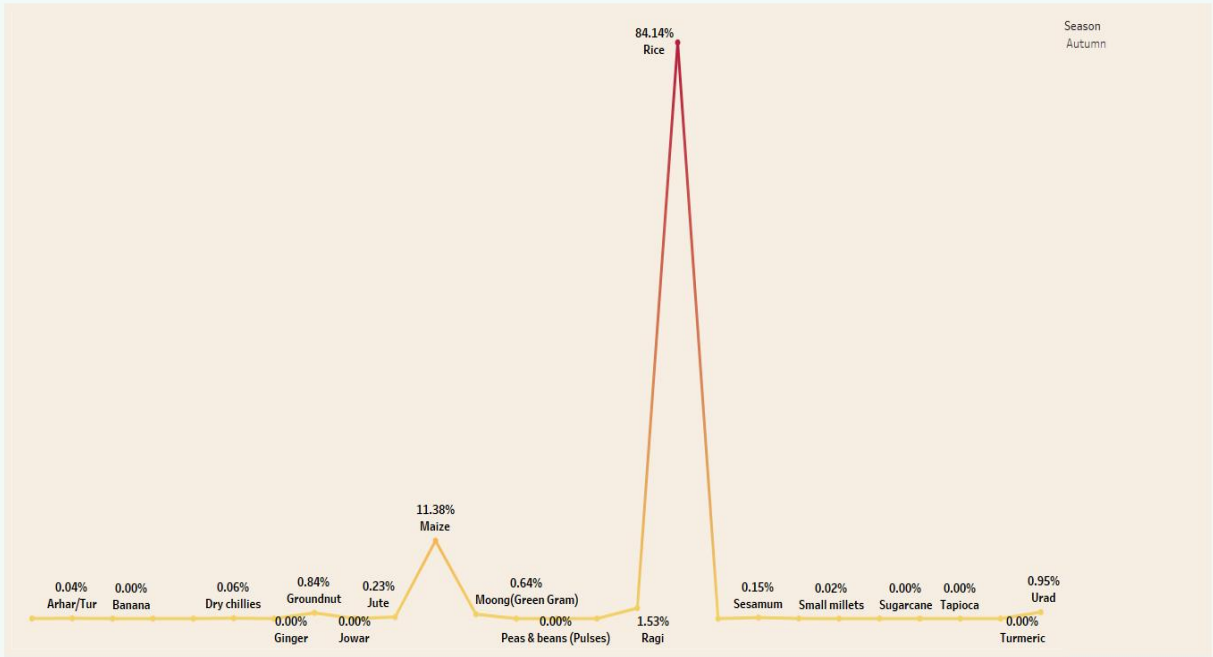
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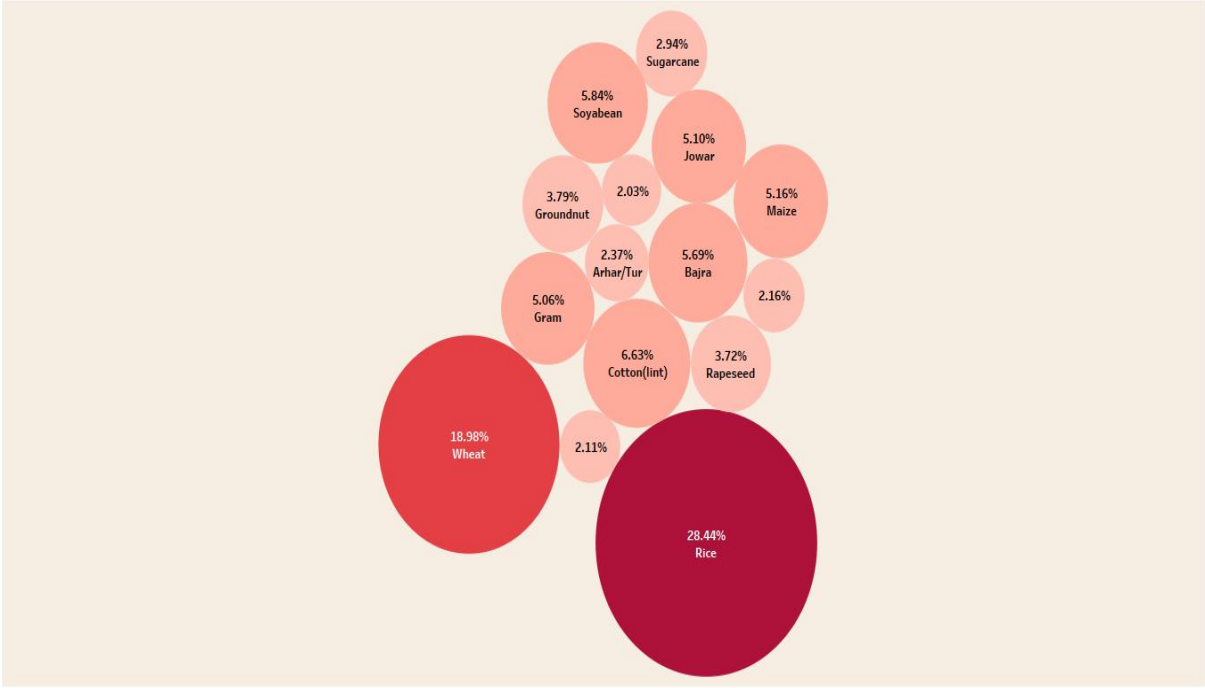
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Insights into India's agricultural cultivation

Crop planting Percentage	Crop Yield Year Wise	Growth:	WordCloud: The following wordcloud ...	Crop production in Tonnes: Season-prod...
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Insights into India's agricultural cultivation

Crop planting Percentage	Crop Yield Year Wise	Growth:	WordCloud: The following wordcloud ...	Crop production in Tonnes: Season-prod...
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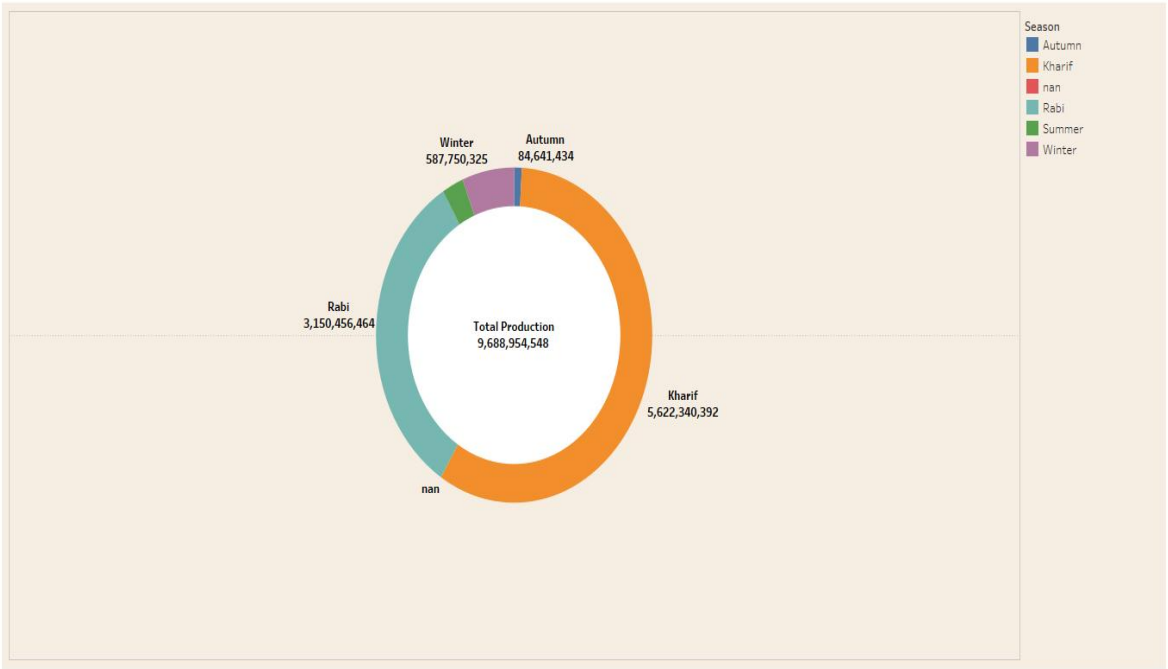
Insights into India's agricultural cultivation

Crop planting Percentage	Crop Yield Year Wise	Growth:	WordCloud: The following wordcloud...	Crop production in Tonnes: Season-prod...
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Insights into India's agricultural cultivation

Crop planting Percentage	Crop Yield Year Wise	Growth:	WordCloud: The following wordcloud...	Crop production in Tonnes: Season-prod...
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4. ADVANTAGES & DISADVANTAGES

4.1 Advantages

- 1) The soil fertility of India is considered to be very good for the agriculture, which is one of the biggest advantage for agriculture in India.
- 2) Using High Yielding Varieties (HYV) crops are shorter so are more able to withstand high winds and heavy rain.
- 3) It provides employment opportunity to the rural agricultural as well as non-agricultural labourers. It is the source of food and fodder. It also plays an important role in international business in import and export activities.

4.2 Disadvantages

- 1) Erosion of soil by heavy rain, flood, insufficient vegetation cover, etc., reduces farm productivity.
- 2) Inadequate irrigation facilities and poor management of water resources have led to a great decline in agricultural productivity.
- 3) High Yielding Varieties (HYV) crops need a lot of fertilizers and pesticides to grow increasing cost and pollution.

5. APPLICATION

- 1) It relating to cultivating, characterizing or modifying soil.
- 2) It involves in producing, growing, improving, protecting treating or modifying crops or forest products.
- 3) It relates to raising, harvesting, improving, protecting, treating or modifying livestock, poultry, fish or shellfish.

6. CONCLUSION

Indian economy is predominantly dependent on the agricultural sector and the agricultural sector supports the industrial as well as international trade in both imports and exports. Even though the contribution of agriculture is reducing gradually, it is still the most important sector on which most of the working population depends on.

7. FUTURE SCOPE

Agriculture sector have an enormous scope in India as of the future reference because agriculture sector is the largest sector with 49% of country's population works in agriculture sector by occupation. India is also a developing country with about 16% of its GDP is contributed by this sector.