India’s Agricultural Crop Production Analysis1997-2021

1. Introduction

1.1 Overview

Crop residue management plays an important role in determining agricultural greenhousegas 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 suchadataset, 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 fractionof 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 cropmodelling, including the calculation of greenhouse gas inventories, estimating crop- residue availability for biofuel production or modelling livestock feed availability.

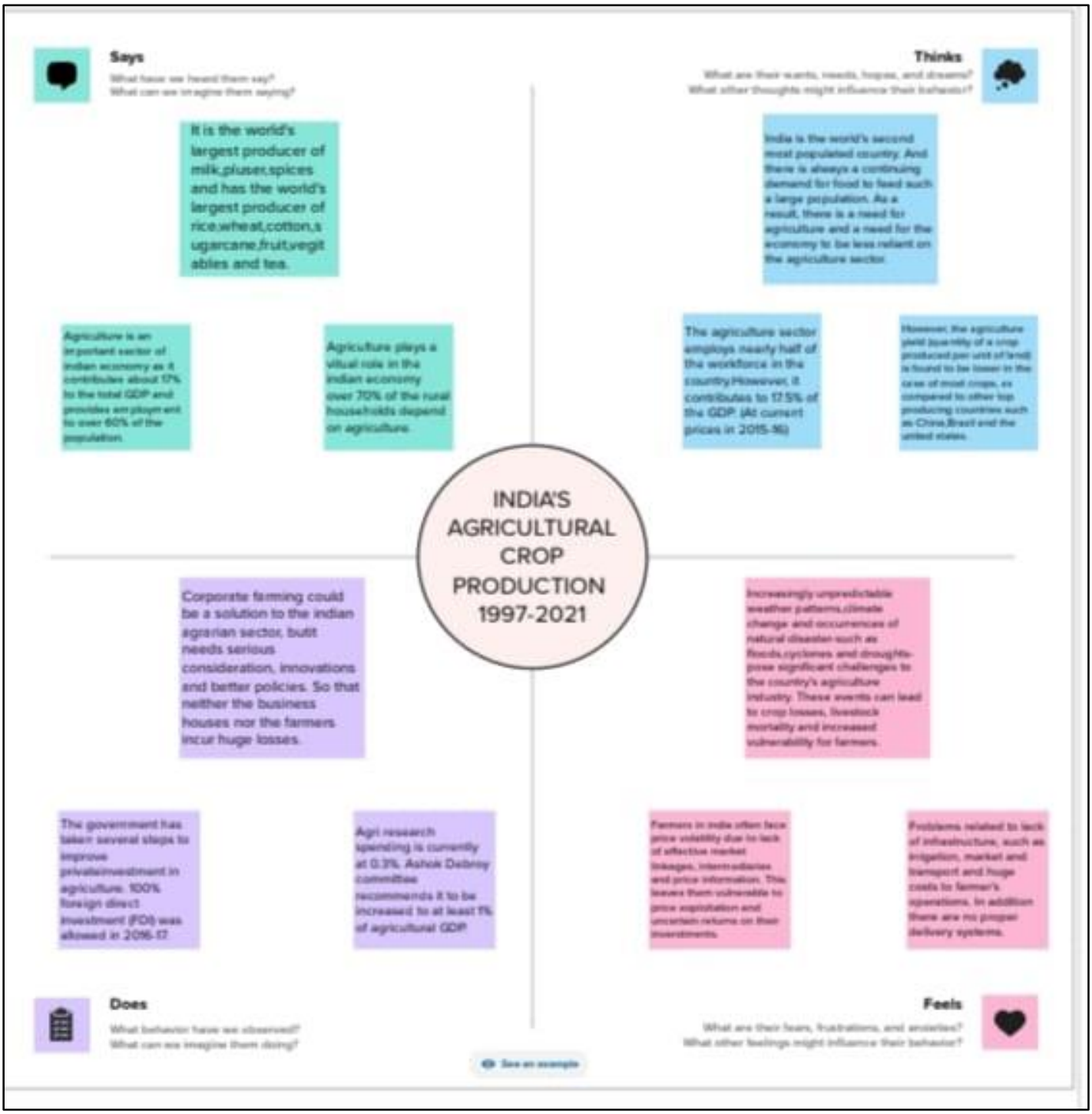
1.2 Purpose

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 thetotal 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.

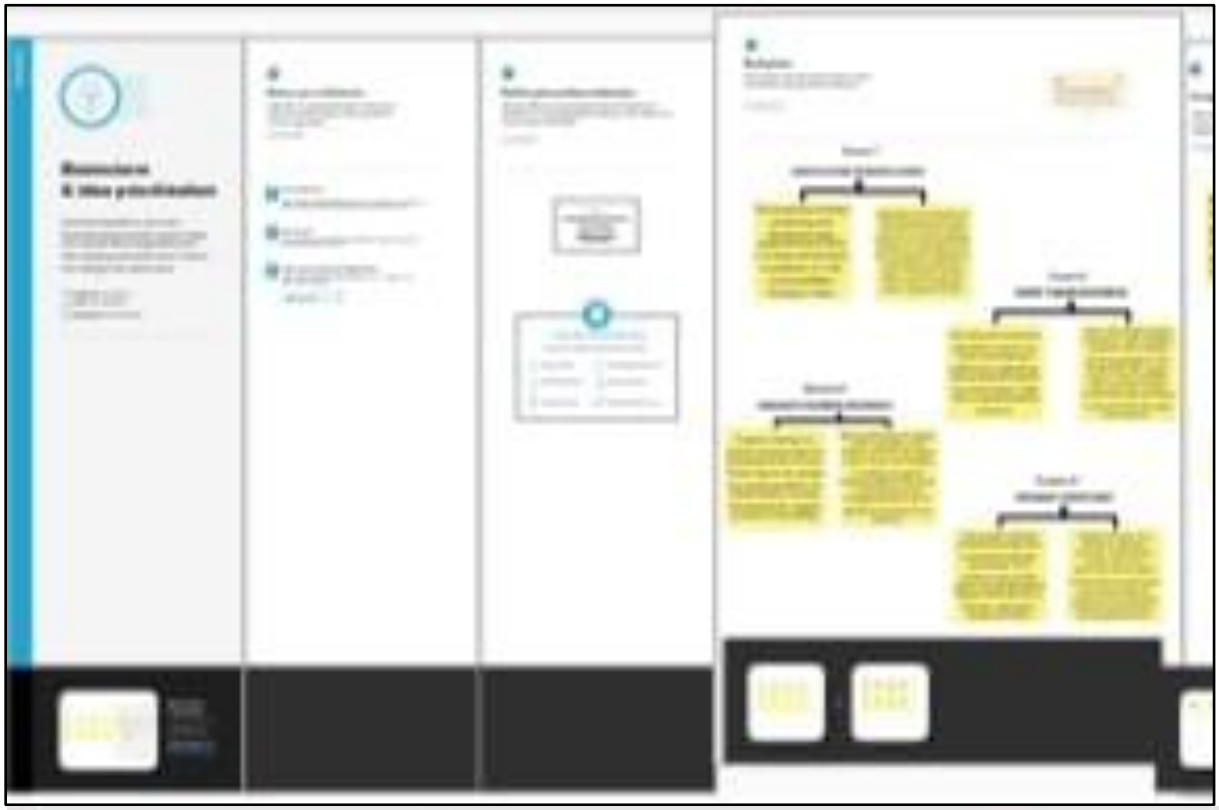
2. Problem Definition & Design Thinking

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.

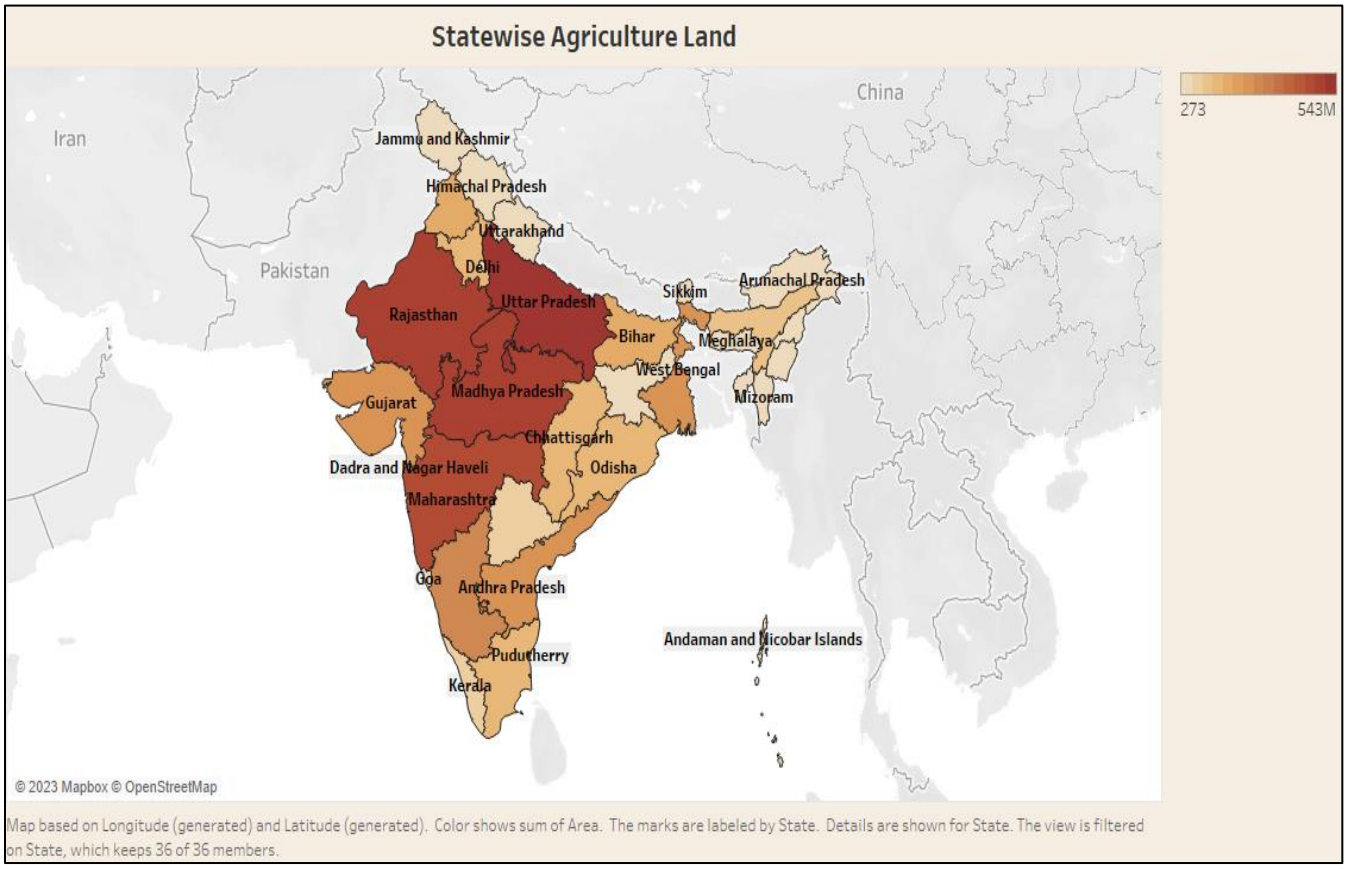
2.1 Empathy Map

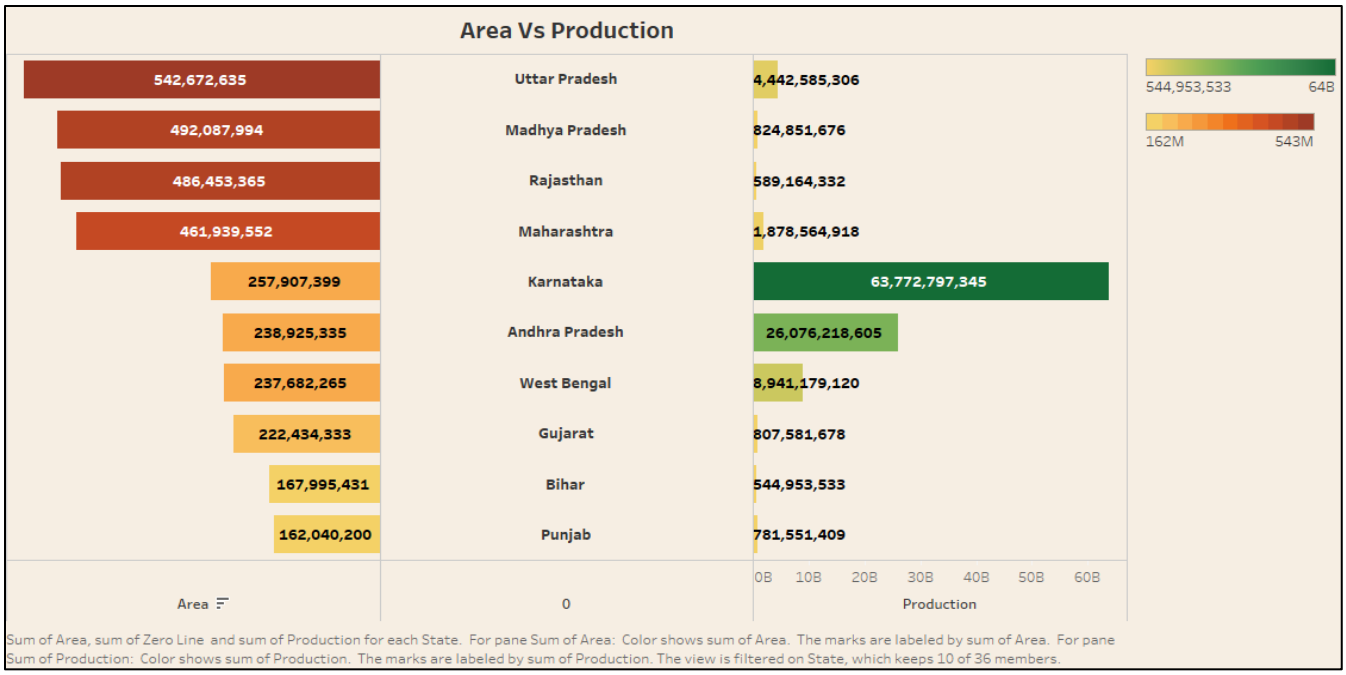


2.2 Brainstroming Map

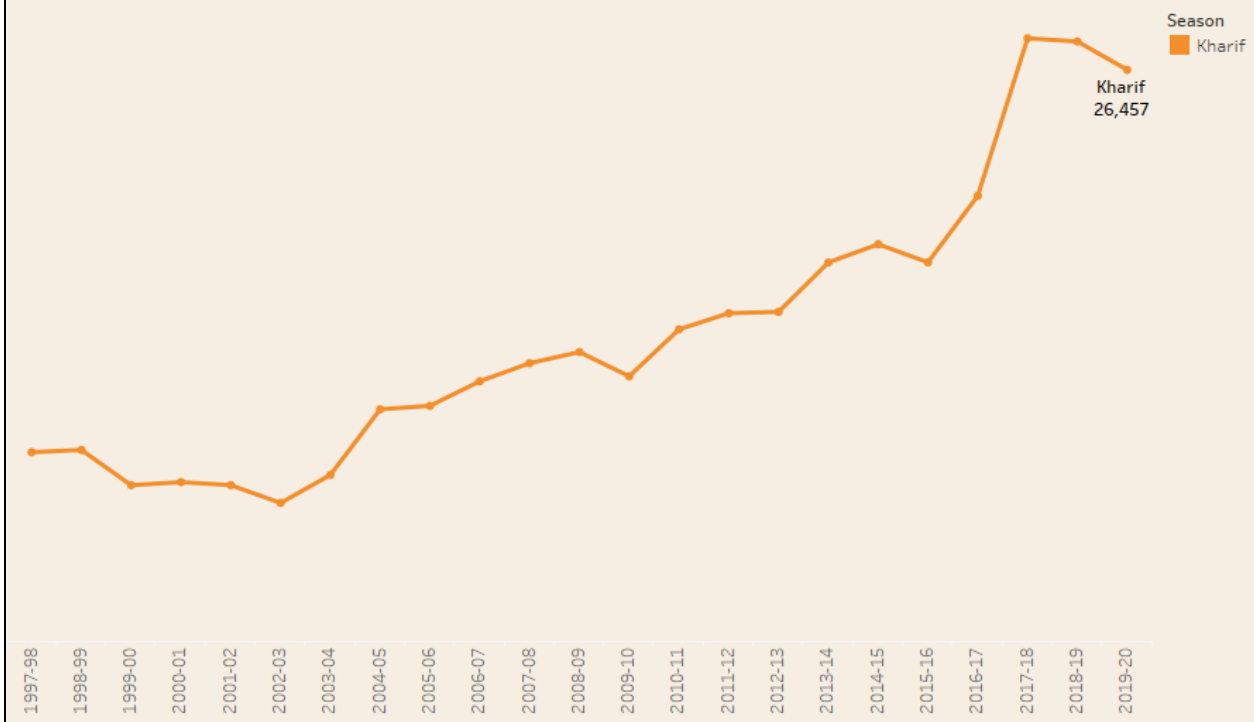


3. Result


Statewise Agriculture Land
China
Iran
Pakistan
Jammu and Kashmir
Himachal Pradesh
Uttarakhand
Delhi
Rajasthan
Uttar Pradesh
Sikkim
Arunachal Pradesh
Bihar
Meghalaya
West Bengal
Madhya Pradesh
Mizoram
Gujarat
Chhattisgarh
Dadra and Nagar Haveli
Odisha
Maharashtra
Goa
Andhra Pradesh
Andaman and Nicobar Islands
Puducherry
Kerala
273
543M
© 2023 Mapbox © OpenStreetMap
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.

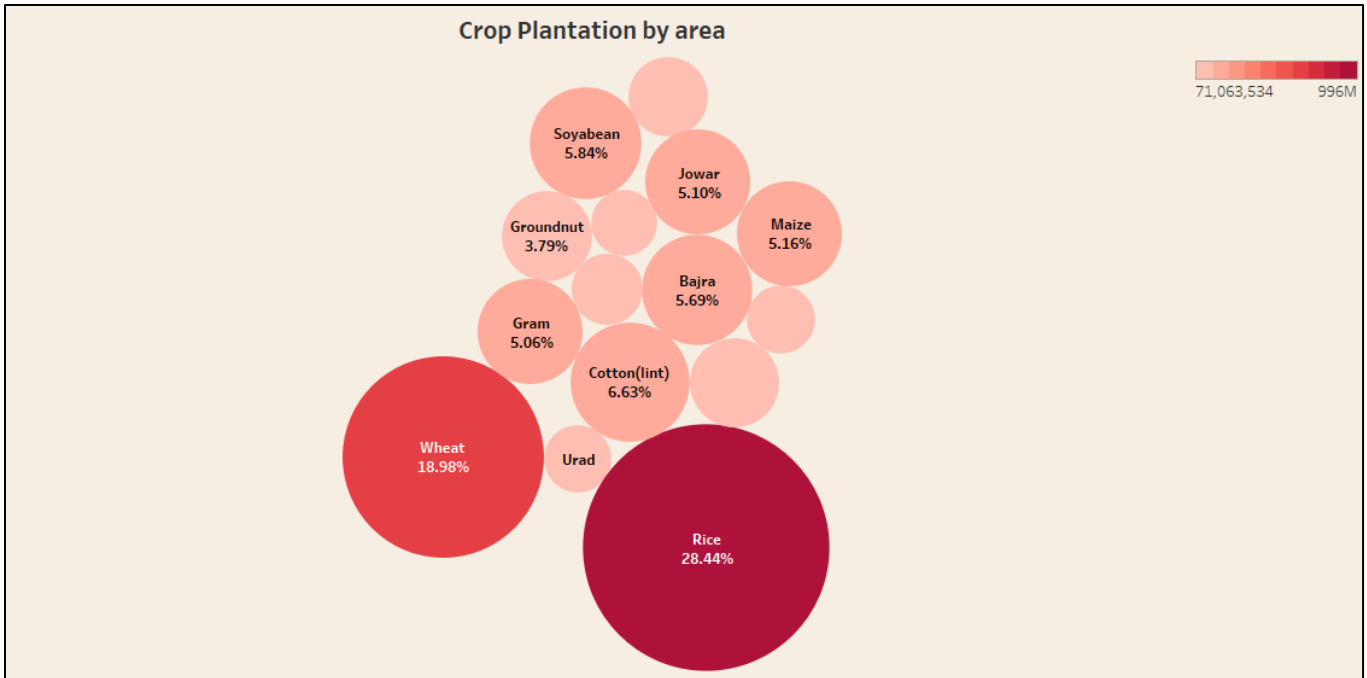

Area Vs Production
542,672,635
Uttar Pradesh
4,442,585,306
492,087,994
Madhya Pradesh
824,851,676
486,453,365
Rajasthan
589,164,332
461,939,552
Maharashtra
1,878,564,918
257,907,399
Karnataka
63,772,797,345
238,925,335
Andhra Pradesh
26,076,218,605
237,682,265
West Bengal
8,941,179,120
222,434,333
Gujarat
807,581,678
167,995,431
Bihar
544,953,533
162,040,200
Punjab
781,551,409
544,953,533
64B
162M
543M
0B
10B
20B
30B
40B
50B
60B
Area
0
Production
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.

Yield by season

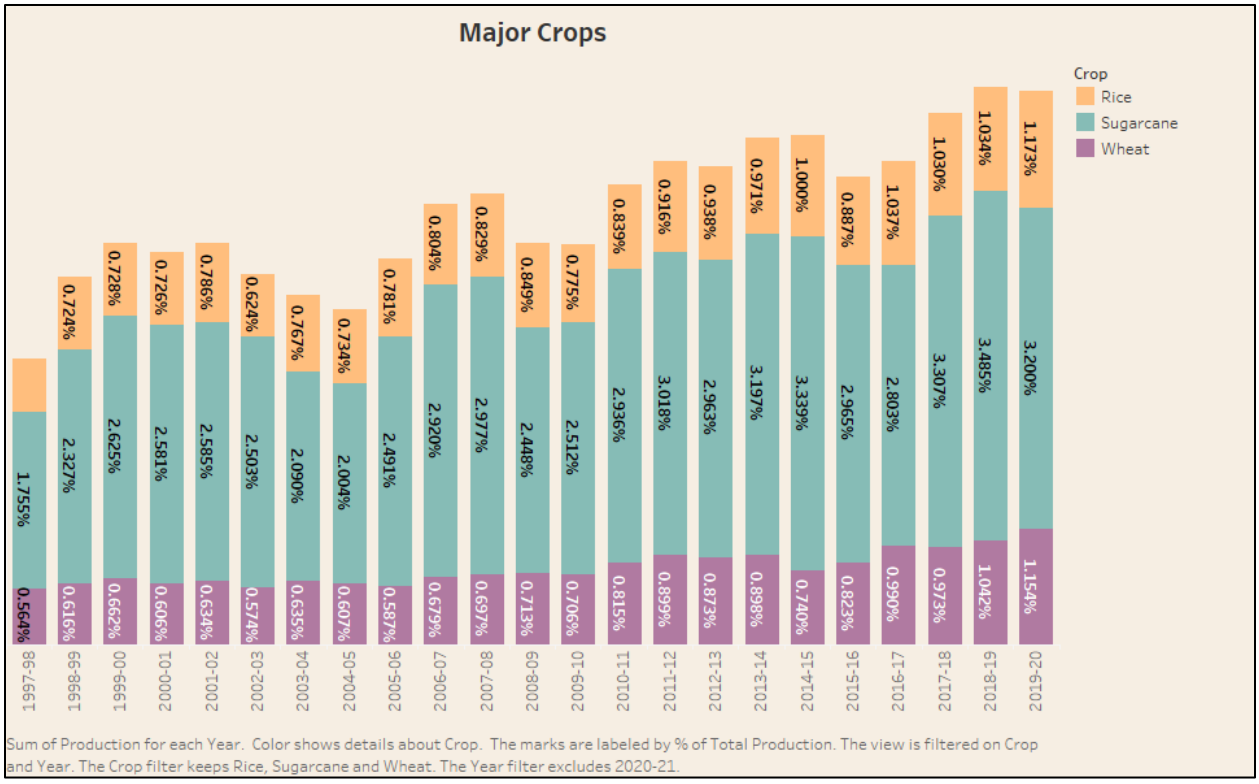


The trend of sum of Yield for Year. Color shows details about Season. The marks are labeled by Season and sum of Yield. The view is filtered on Year and Season. The Year filter excludes 2020-21. The Season filter keeps Kharif.

Crop Plantation by area



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.



Sum of Production for each Year. Color shows details about Crop. The marks are labeled by % of Total Production. The view is filtered on Crop and Year. The Crop filter keeps Rice, Sugarcane and Wheat. The Year filter excludes 2020-21.

East
4,030,580,636
Sum of Area.

North
4,030,580,636
Sum of Area.

North-East
4,030,580,636
Sum of Area.

South
4,030,580,636
Sum of Area.

West
4,030,580,636
Sum of Area.

East
326,242,956,201
Sum of Production.

North
326,242,956,201
Sum of Production.

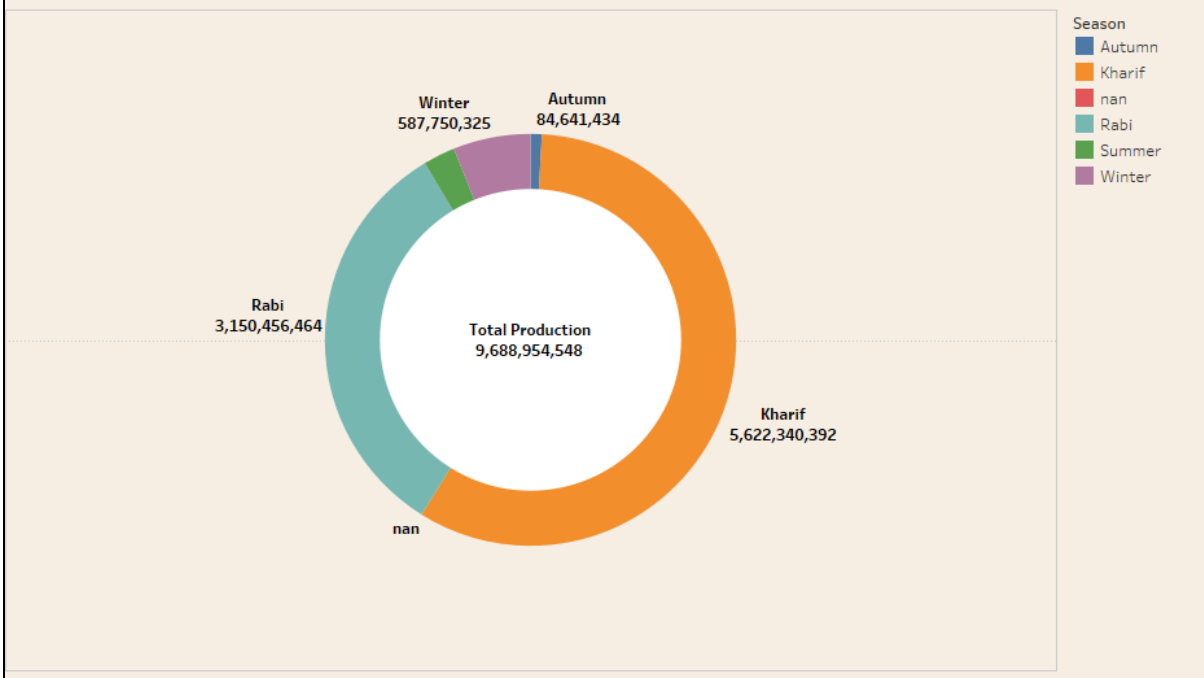
North-East
326,242,956,201
Sum of Production.

South
326,242,956,201
Sum of Production.

West
326,242,956,201
Sum of Production.

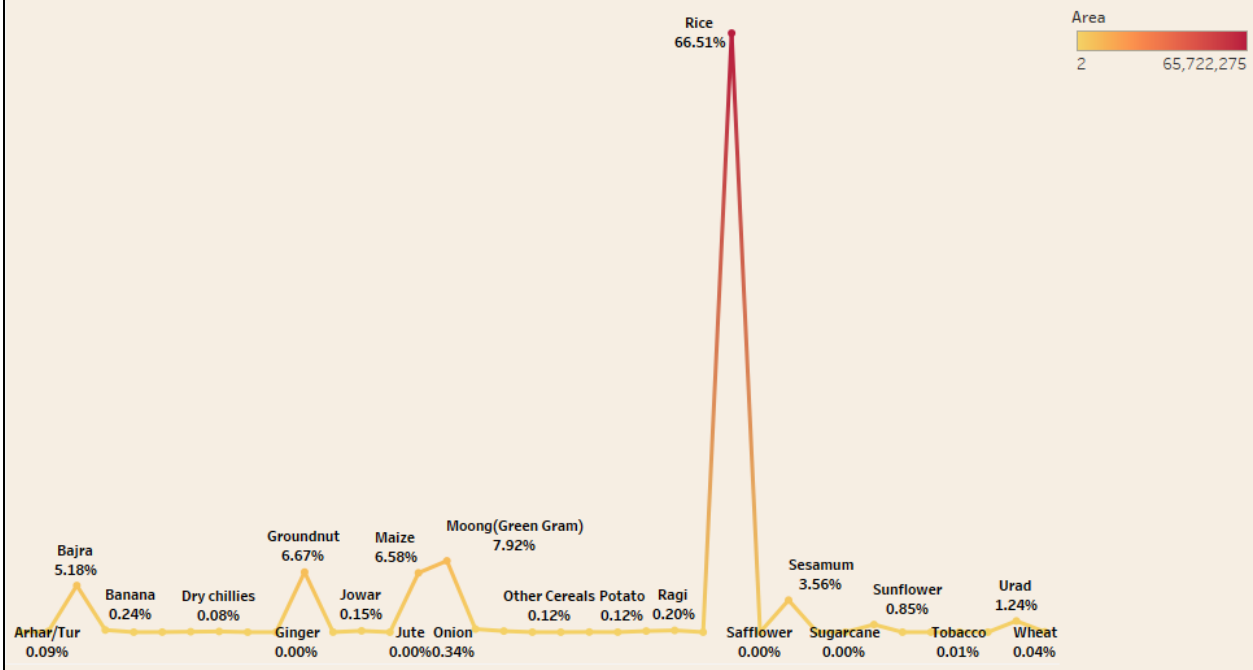

Crop(Plantation by Count)
Coconut
Other Cereals
Ginger
Coriander
Turmeric
Linseed
Bajra
Barley
Other Summer Pulses
Guar seed
Banana
Small millets
Onion
Rice
Urad
Wheat
Horse-gram
Arecanut
Cardamom
Moth
Arhar/Tur
Other Kharif pulses
Peas & beans (Pulses)
Sugarcane
Maize
Garlic
Moong(Green Gram)
Ragi
Groundnut
Dry Ginger
Jute
Sesamum
Dry chillies
Castor seed
Rapeseed &Mustard
Mesta
Black pepper
Other Rabi pulses
Sweet potato
Gram
Tapioca
Sunflower
Khesari
Soyabean
Jowar
Cotton(lint)
Potato
Tobacco
other oilseeds
Masoor
Cowpea(Lobia)
Safflower
Cashewnut
Oilseeds total
Niger seed
Sannhamp
Crop. Color shows details about Crop. Size shows count of Crop.
Crop
Null
Arecanut
Arhar/Tur
Bajra
Banana
Barley
Black pepper
Cardamom
Cashewnut
Castor seed
Coconut
Coriander
Cotton(lint)
Cowpea(Lobia)
Dry chillies
Dry Ginger
Garlic
Ginger
Gram
Groundnut
Guar seed
Horse-gram
Jowar
Jute
Khesari
Linseed
Maize
Masoor
Mesta
Moong(Green Gram)
Moth
Niger seed
Oilseeds total
Onion
Other Cereals
Other Kharif pulses
other oilseeds
Other Rabi pulses
Other Summer Pulses
Peas & beans (Pulses)
Potato
Ragi
Rapeseed &Mustard
Rice
Safflower
Sannhamp
Sesamum
Small millets
Soyabean
Sugarcane
Sunflower
Sweet potato
Tapioca
Tobacco
Turmeric
Urad
Wheat

Season Wise Protuction



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.

Seasoned Based Cultivation

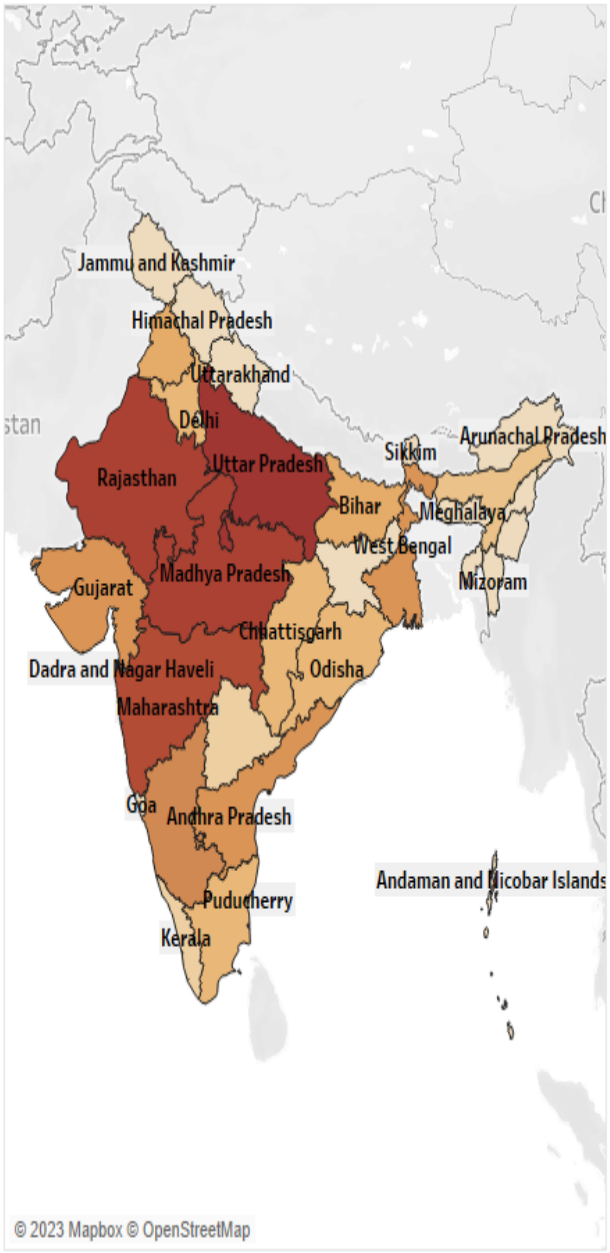


The trend of sum of Area for Crop. Color shows sum of Area. The marks are labeled by Crop and % of Total Area. The data is filtered on Season, which keeps Summer.

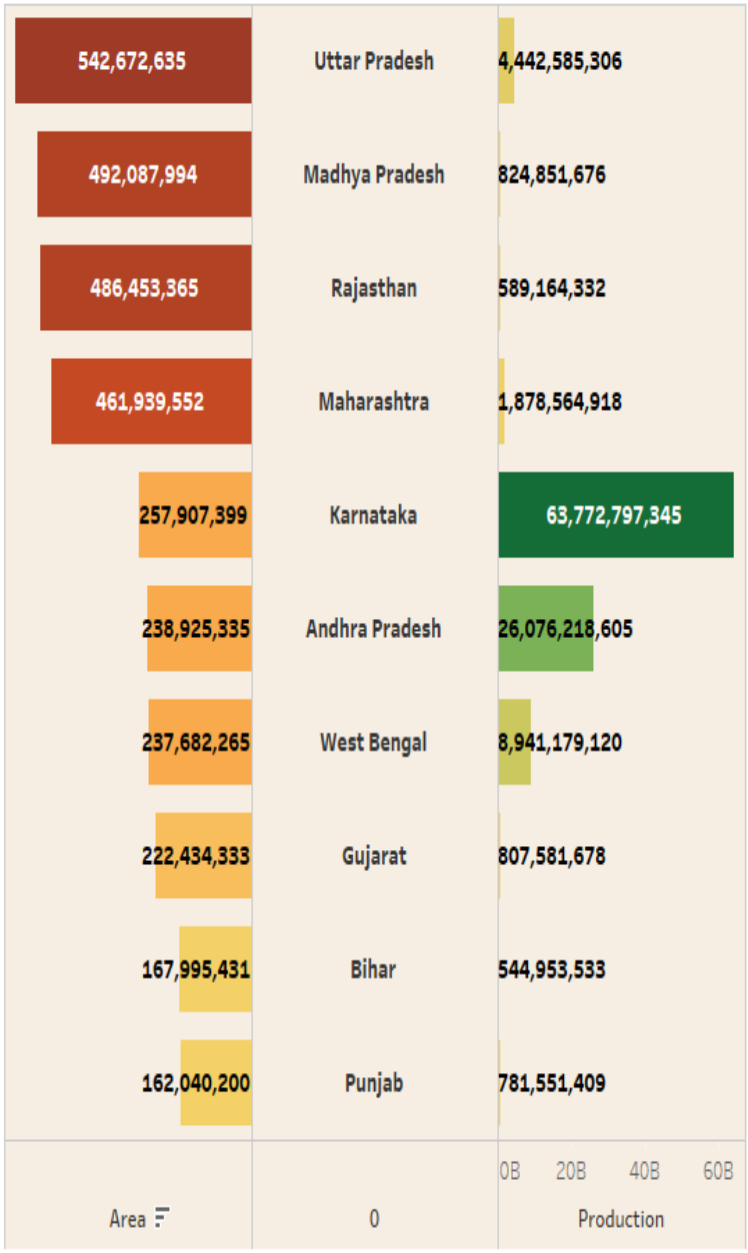
Area in acress region-wise

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 Agriculture Land



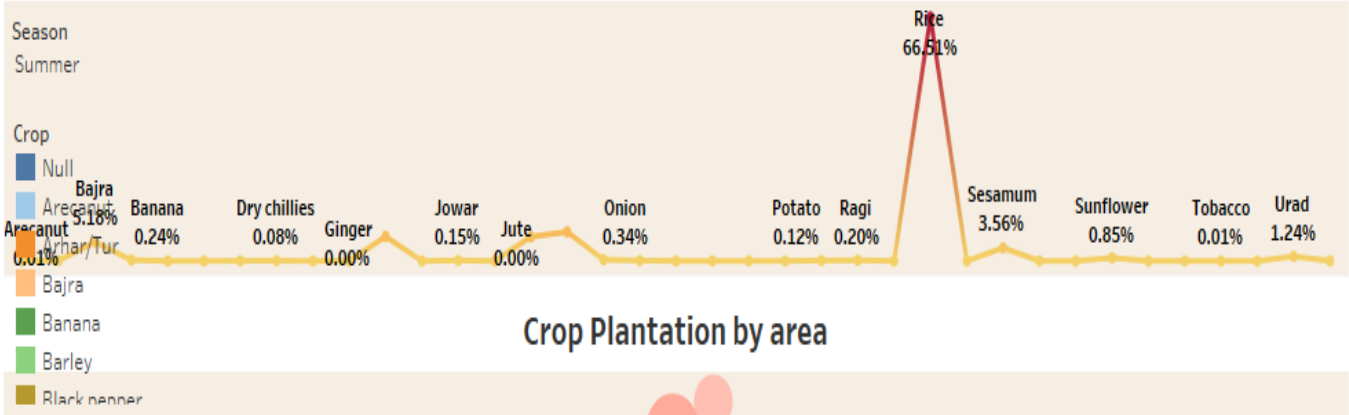
Area Vs Production



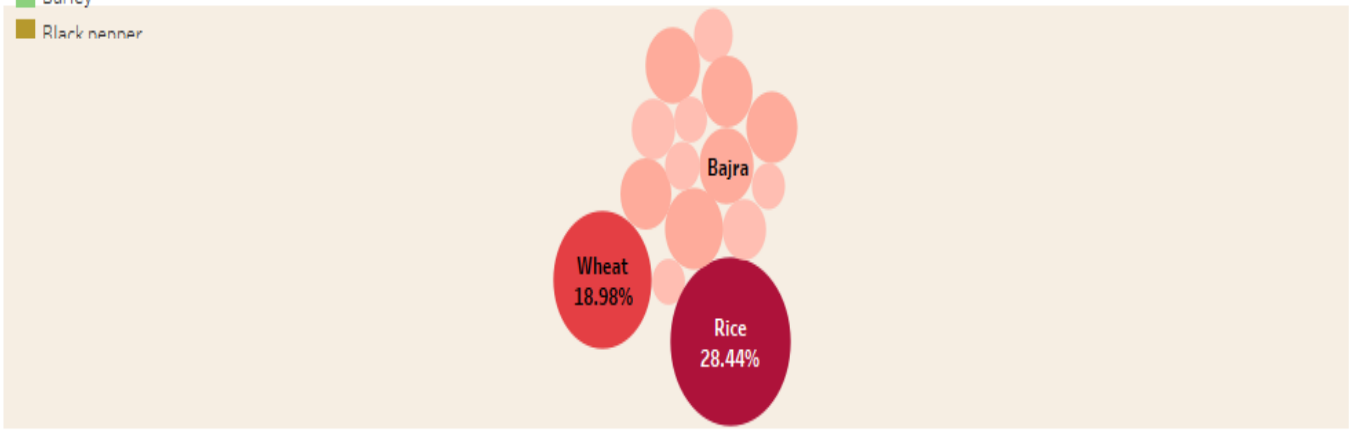
Production in tonnes region-wise

East	North	North-East	South	West
326,242,956,201	326,242,956,201	326,242,956,201	326,242,956,201	326,242,956,201

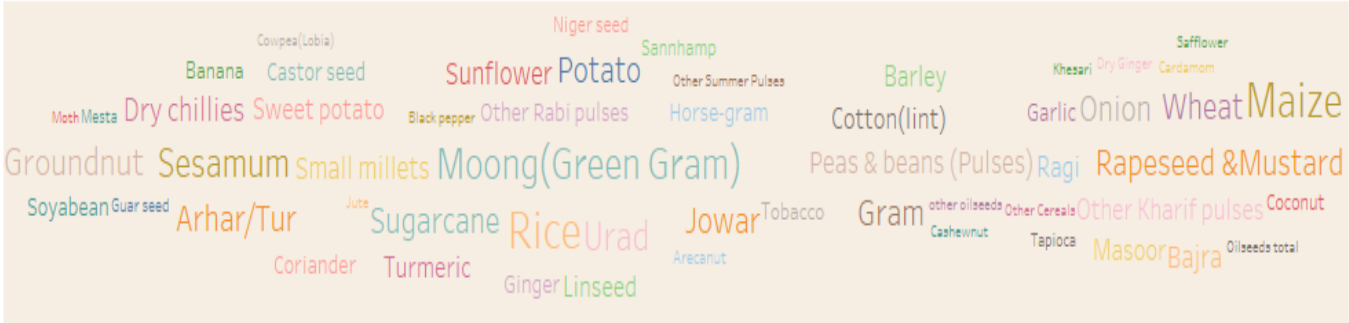
Seasoned Based Cultivation

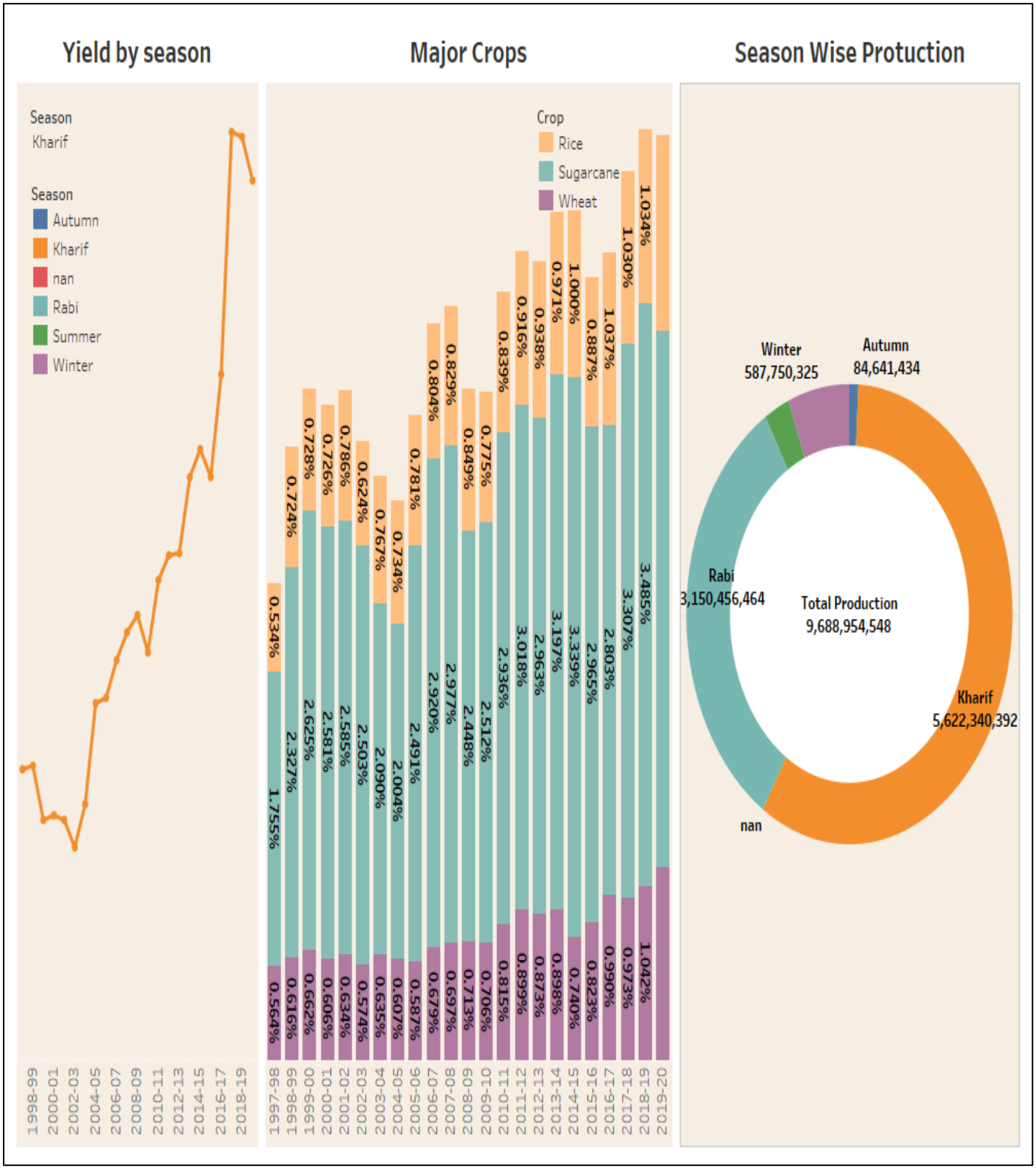


Crop Plantation by area



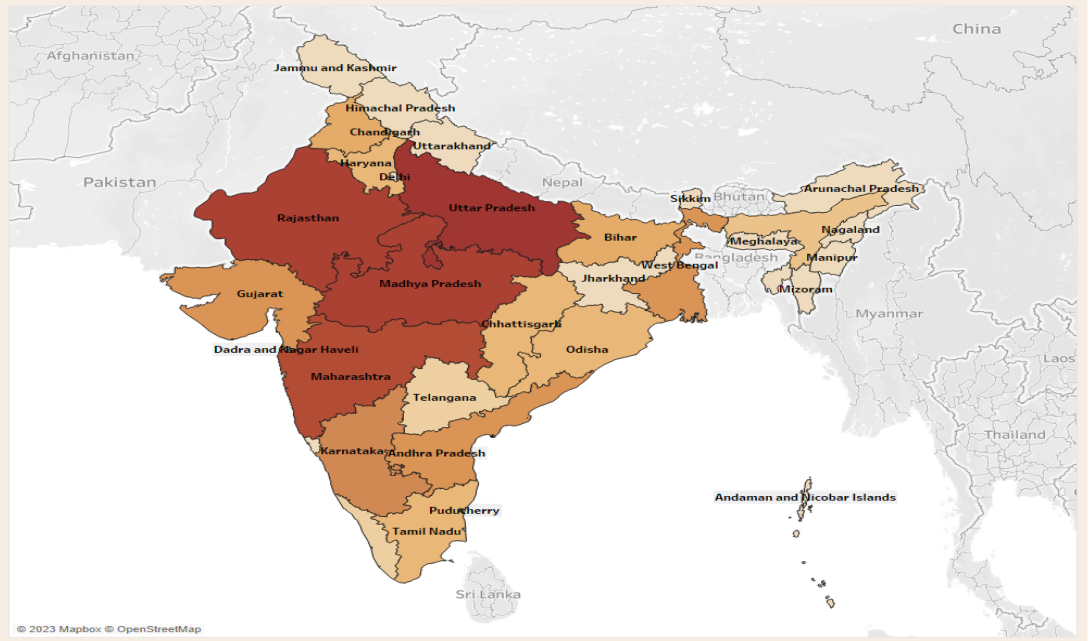
Crop(Plantation by Count)




Yield by season
Season
Kharif
Season
Autumn
Kharif
nan
Rabi
Summer
Winter
1998-99
2000-01
2002-03
2004-05
2006-07
2008-09
2010-11
2012-13
2014-15
2016-17
2018-19
Major Crops
Crop
Rice
Sugarcane
Wheat
0.534%
0.724%
0.728%
0.726%
0.786%
0.624%
0.767%
0.734%
0.781%
0.804%
0.826%
0.849%
0.775%
0.839%
0.916%
0.938%
0.971%
1.000%
0.887%
1.037%
1.030%
1.034%
1.755%
2.327%
2.625%
2.581%
2.585%
2.503%
2.090%
2.004%
2.491%
2.920%
2.977%
2.448%
2.512%
2.936%
3.018%
2.963%
3.197%
3.339%
2.965%
2.803%
3.307%
3.485%
0.564%
0.616%
0.662%
0.606%
0.634%
0.574%
0.635%
0.607%
0.587%
0.679%
0.697%
0.713%
0.706%
0.815%
0.899%
0.873%
0.898%
0.740%
0.823%
0.990%
0.973%
1.042%
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
Season Wise Protuction
Winter
587,750,325
Autumn
84,641,434
Rabi
3,150,456,464
Total Production
9,688,954,548
Kharif
5,622,340,392
nan

Insights into India's agriciultural cultivation

Indian states: Visualizing Area | Area Vs Production: Top 10 Indian states | Cultivation of crops in India | Year-on-Year Percentage



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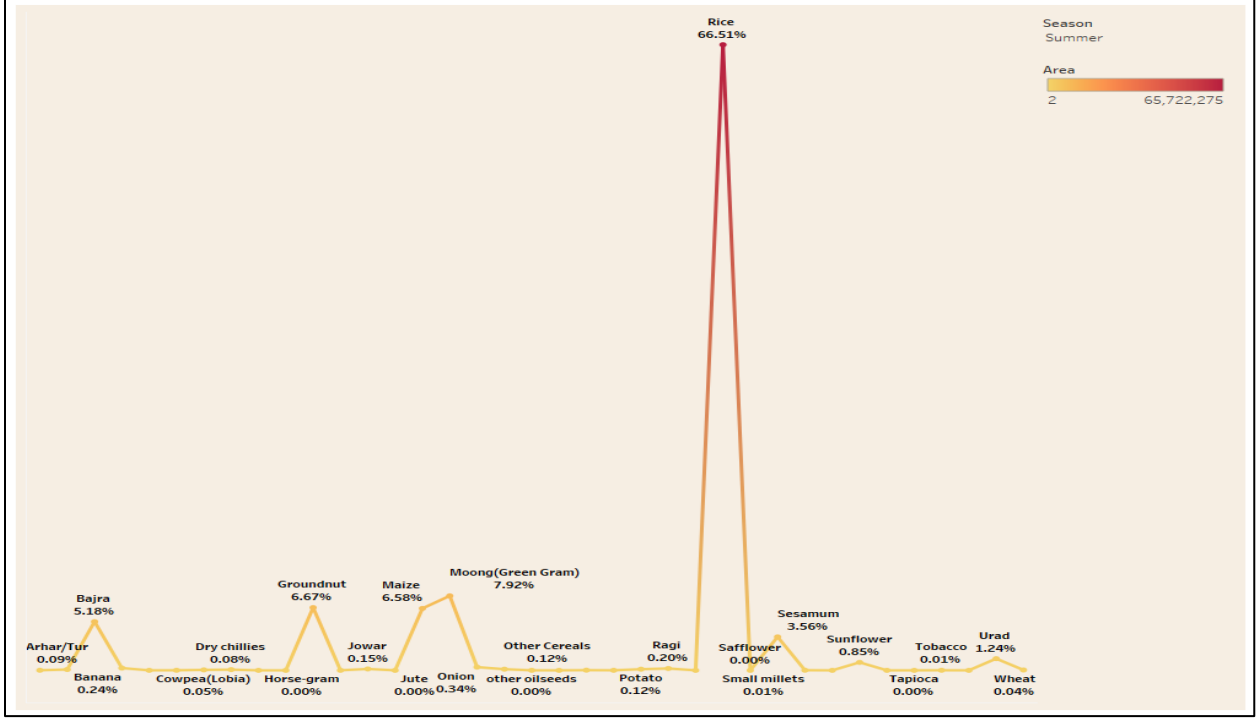

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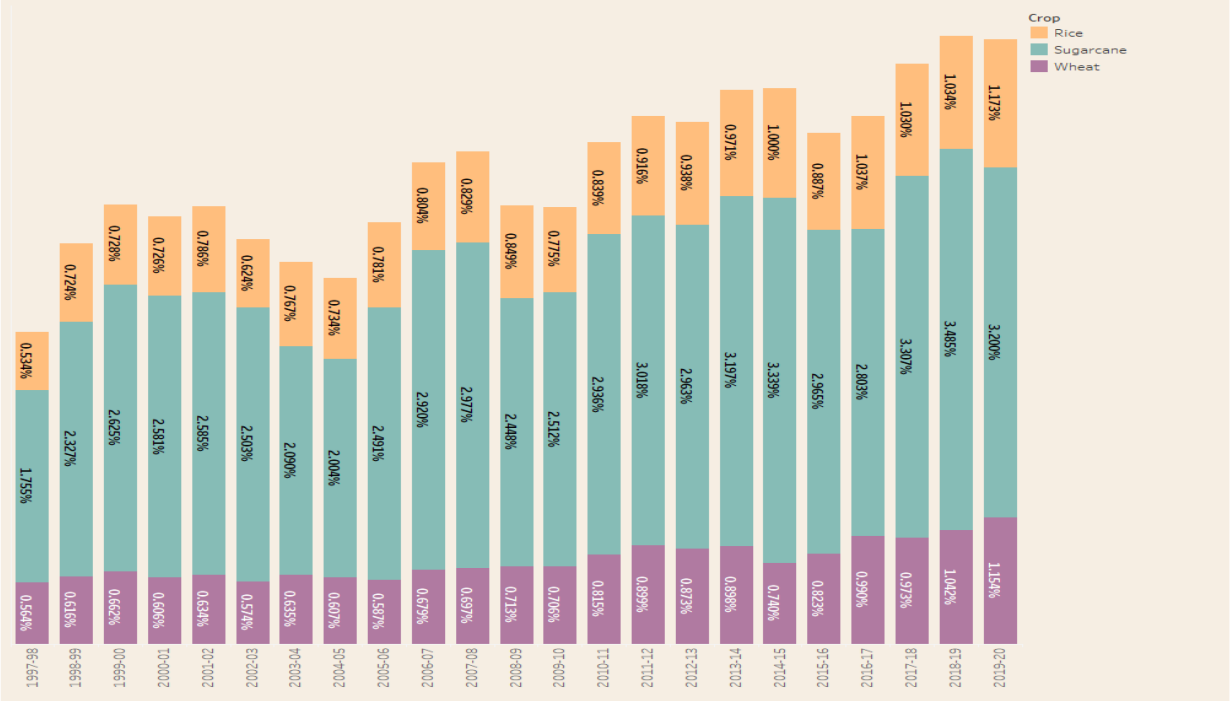
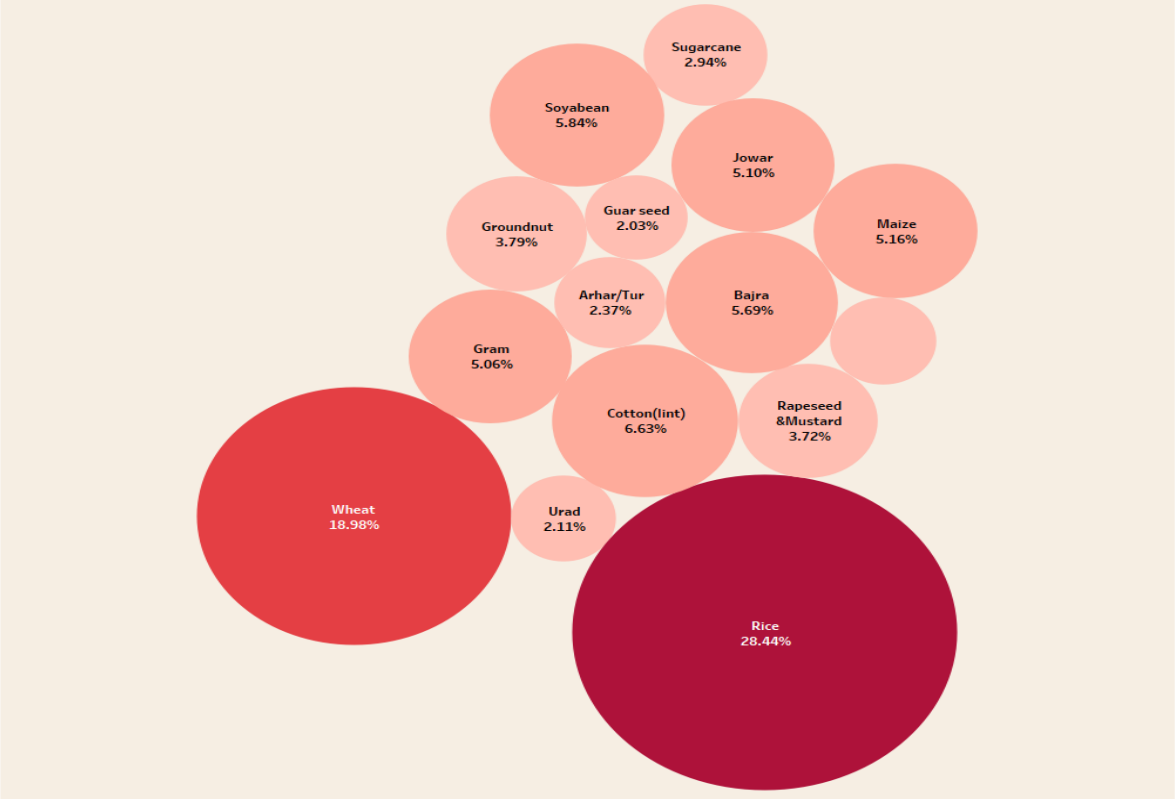


Insights into India's agricultural Cultivation

Crop planting Percentage | Crop yield growth year wise | Wordcloud: The following wordcloud .. | Crop production in Tonnes: Season-poro..



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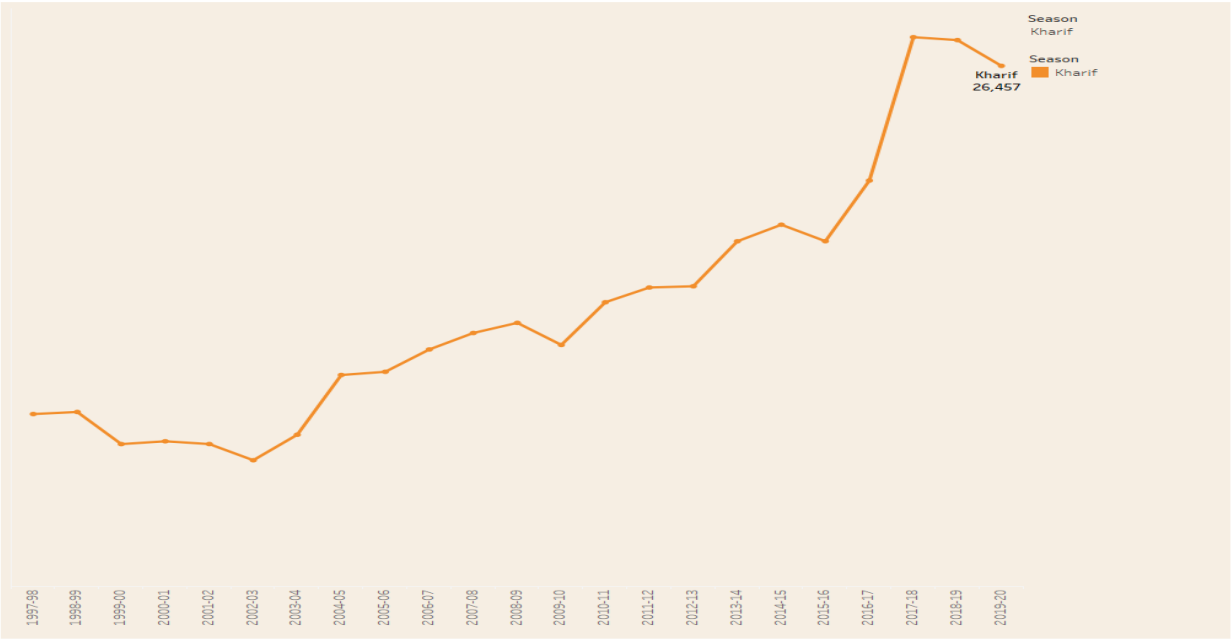

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Crop planting Percentage | Crop yield growth year wise | **Wordcloud: The following wordcloud ..** | Crop production in Tonnes: Season-poro..

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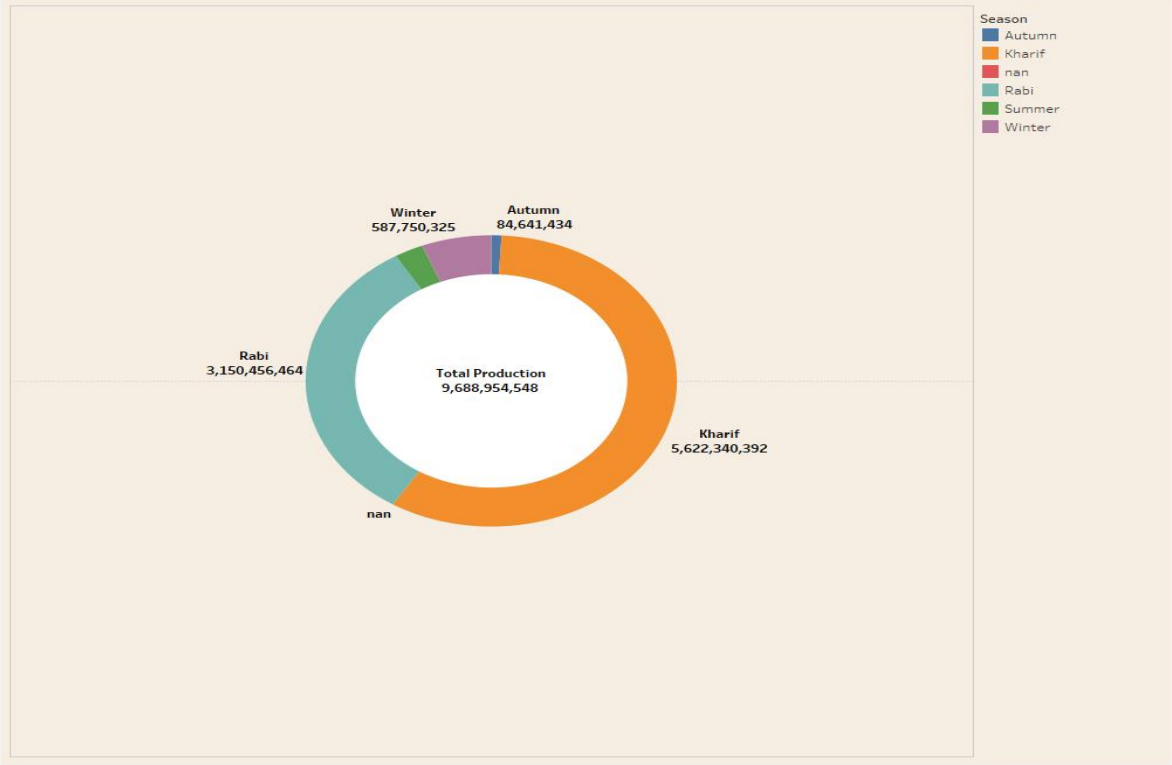
Crop planting Percentage | Crop yield growth year wise | Wordcloud: The following wordcloud .. | **Crop production in Tonnes: Season-poro..**



4.0 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 abletowithstand 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, flooder, insufficient vegetation cover, etc., reduces form 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 needs 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 andthe agricultural sector supports the industrial as well as international trade in bothimports 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.