



India's Agriculture Crop Production Analysis (1997-2021)

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INTRODUCTION:

Agriculture encompasses crops and livestock production, aquaculture, fisheries and forestry for food and non-food products. Agriculture was the key development in the rise of sedentary human civilization, whereby farming of domesticated species created food surpluses that enabled people to live in cities.

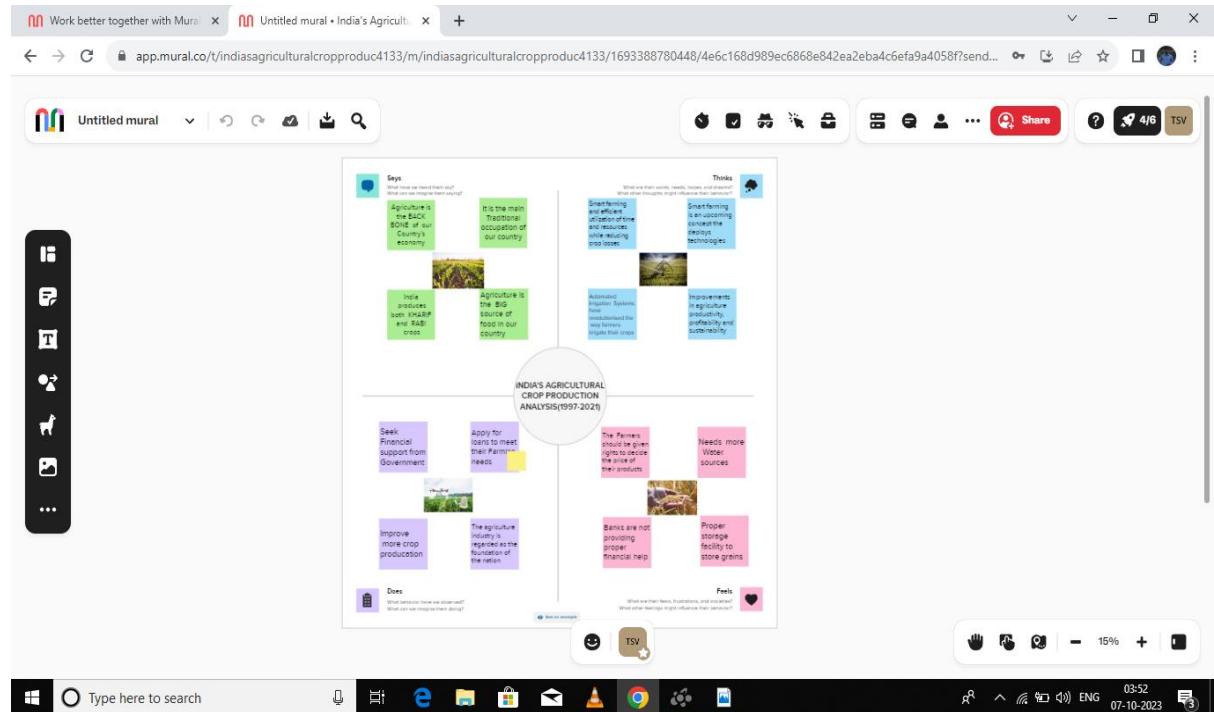
India is the second largest producer of wheat and rice, the world's major food staples. India is currently the world's second largest producer of several dry fruits, agriculture-based textile raw materials, roots and tuber crops, pulses, farmer fish, eggs, coconut, sugarcane and numerous vegetables.

The farming systems that majorly contribute to the agriculture sector in India are subsistence farming, organic farming, and commercial farming. Due to India's geographical location, certain parts experience different climates, thus affecting each region's agricultural productivity differently.

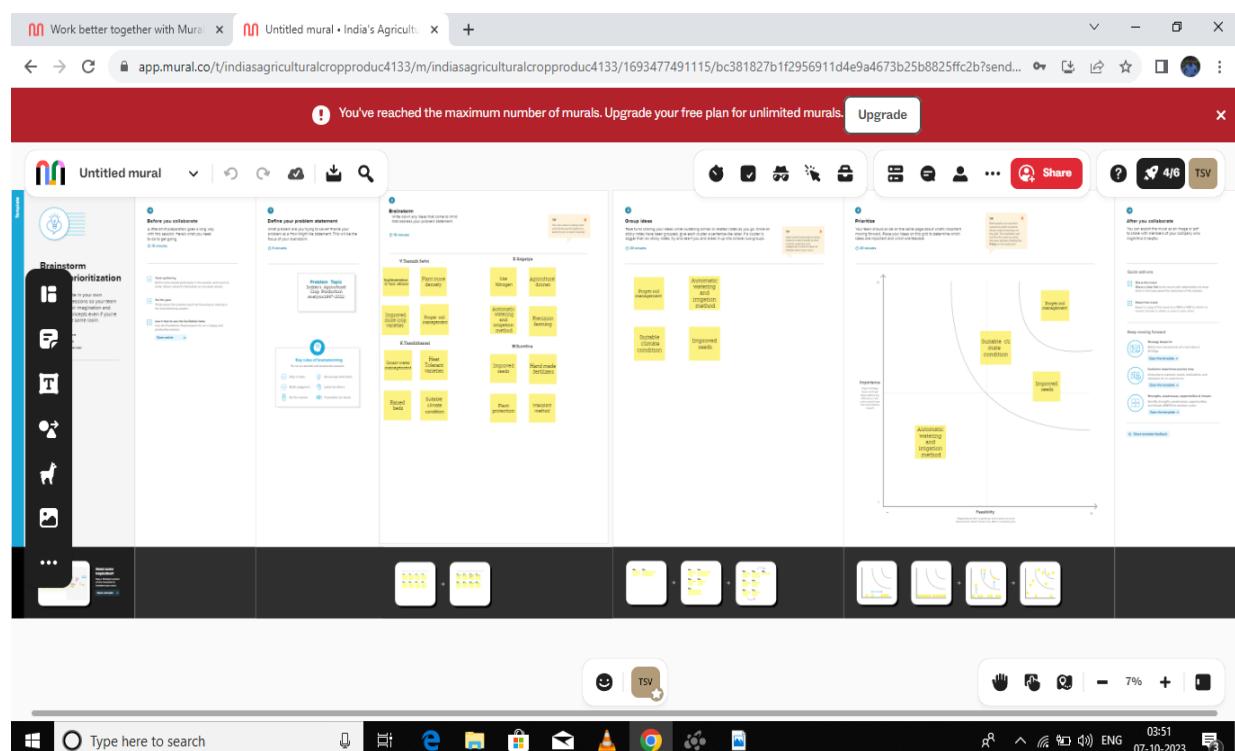
The agricultural states in the country are producing high-quality food grains and other food good as well. The Indian agriculture business is growing at a rapid rate and continues to contribute to a global trade. Agriculture plays a significant role in the Indian economy as the main source of food. Dairy, poultry, fisheries etc. come under animal husbandry, a sub-sector of agriculture.

MILESTONE 1: DEFINE PROBLEM / PROBLEM UNDERSTANDING

Empathy map



Brainstorm map



MILESTONE 2: DATA COLLECTION & EXTRACTION

Activity 1: Downloading the dataset

India Agriculture Crop Production - Excel									
State	District	Crop	Year	Season	Area	Area Units	Productio	Productio	Yield
2 Andaman NICOBAR	S Arecanut	Kharif	2001-02	1254 Hectare	2061 Tonnes	1.643541			
3 Andaman NICOBAR	S Arecanut	Whole Ye	2002-03	1258 Hectare	2083 Tonnes	1.655803			
4 Andaman NICOBAR	S Arecanut	Whole Ye	2003-04	1261 Hectare	1525 Tonnes	1.209358			
5 Andaman NORTH A	S Arecanut	Kharif	2001-02	3100 Hectare	5239 Tonnes	1.69			
6 Andaman SOUTH A	N S Arecanut	Whole Ye	2002-03	3105 Hectare	5267 Tonnes	1.696296			
7 Andaman SOUTH AN	Arecanut	Whole Ye	2003-04	3118 Hectare	5182 Tonnes	1.661963			
8 Andaman NICOBAR	Banana	Whole Ye	2002-03	213 Hectare	1278 Tonnes	6			
9 Andaman NICOBAR	Banana	Whole Ye	2003-04	266 Hectare	1783 Tonnes	6.62782			
10 Andaman SOUTH AN	Banana	Whole Ye	2002-03	1524 Hectare	10882 Tonnes	7.14042			
11 Andaman SOUTH AN	Banana	Whole Ye	2003-04	1530 Hectare	11558 Tonnes	7.554248			
12 Andaman NICOBAR	Black pep	2002-03	Whole Ye	63 Hectare	13.5 Tonnes	0.214286			
13 Andaman NICOBAR	Black pep	2003-04	Whole Ye	75.5 Hectare	15.86 Tonnes	0.210066			
14 Andaman SOUTH AN	Black pep	2002-03	Whole Ye	487 Hectare	102.5 Tonnes	0.210472			
15 Andaman SOUTH AN	Black pep	2003-04	Whole Ye	497 Hectare	104.37 Tonnes	0.21			
16 Andaman NICOBAR	Cashewnut	2001-02	Whole Ye	719 Hectare	192 Tonnes	0.267038			
17 Andaman NICOBAR	Cashewnut	2002-03	Whole Ye	719 Hectare	208 Tonnes	0.289291			
18 Andaman NICOBAR	Cashewnut	2003-04	Whole Ye	717 Hectare	208.5 Tonnes	0.290795			
19 Andaman NORTH A	Cashewnut	2001-02	Whole Ye	81 Hectare	33 Tonnes	0.407407			
20 Andaman SOUTH AN	Cashewnut	2002-03	Whole Ye	81 Hectare	24 Tonnes	0.296296			
21 Andaman SOUTH AN	Cashewnut	2003-04	Whole Ye	116.5 Hectare	26.14 Tonnes	0.224378			
22 Andaman NICOBAR	Coconut	2001-02	Whole Ye	18190 Hectare	64430000 Nuts	3542.056			
23 Andaman NICOBAR	Coconut	2002-03	Whole Ye	18240 Hectare	67490000 Nuts	3700.11			

Activity 1.1: Understand the data

Data consists of 345409 rows and 10 columns that correspond to different values.

Column Description of the Dataset:

FIELDS	DESCRIPTION
State	The name of the Indian states.
District	The name of the districts of Indian states.
Crop	Name of different crops grown in India

Year	Date
Season	India has 5 seasons for crop cultivation: kharif, rabi, autumn, winter and summer
Area	Area for crop cultivation in acres
Production	Production of crops in tonnes
Yield	Yield by the crops under cultivation

Activity 3: Connect Dataset with Tableau

The screenshot shows the Tableau Public interface with a connected dataset named "India Agriculture Crop Production".

- Connections:** Shows the connection to "India Agriculture Crop Production" (Text file).
- Files:** Shows "India Agriculture Crop Production.csv" and "New Union" (New Table Extension).
- Sheet:** The "Sheet1" tab is selected, displaying the data preview.
- Data Preview:** Shows 10 fields and 345407 rows. The first few rows of the "Name" field are listed below:

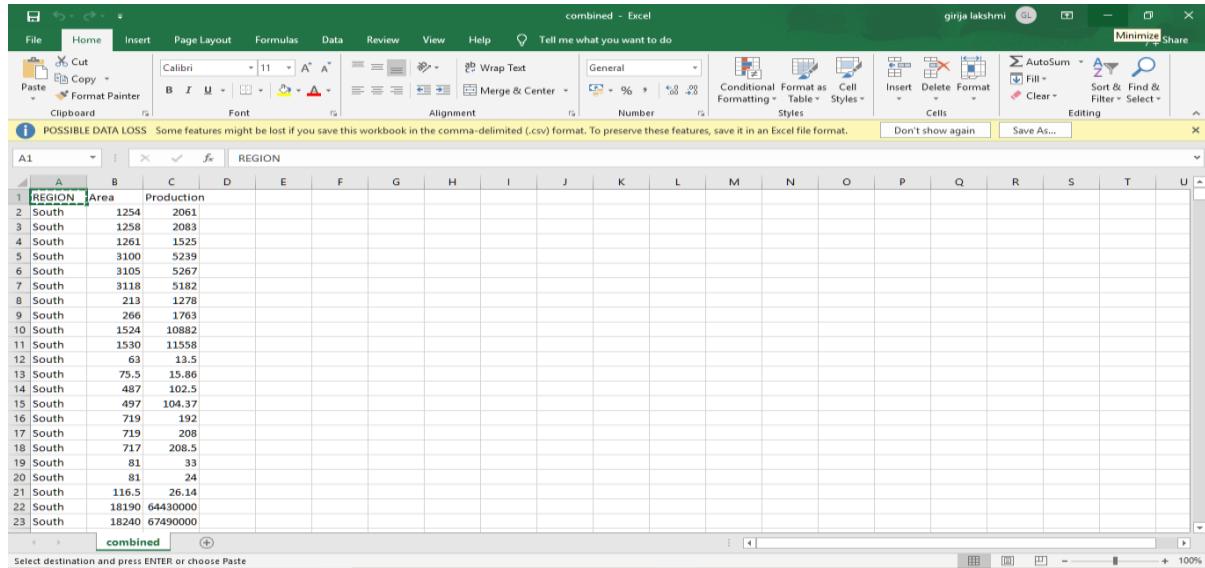
Name	Type	Field Name	Physical Table	Rem...
India Agriculture Crop Production.csv	State	State	India Agriculture Cr...	State
	Abc	District	India Agriculture Cr...	District

 The "Fields" section shows the structure of the data:

Type	Field Name	Physical Table	Rem...
State	State	India Agriculture Cr...	State
District	District	India Agriculture Cr...	District
- Bottom Navigation:** Includes tabs for "Data Source", "Sheet1", and other sheet icons, along with a page navigation bar.

MILESTONE 3: DATA PREPARATION

Activity 1: Prepare the Data for Visualization



A screenshot of a Microsoft Excel spreadsheet titled "combined - Excel". The data is organized into two columns: "REGION" and "Area". The "REGION" column contains values like "South", "North", "East", and "West". The "Area" column contains numerical values such as 1254, 2061, 1258, 2083, etc. The table has 23 rows. The top menu bar shows various Excel functions like File, Home, Insert, Page Layout, Formulas, Data, Review, View, and Help. A status bar at the bottom indicates "girija lakshmi" and "Minimize Share". A message bar at the top says "POSSIBLE DATA LOSS: Some features might be lost if you save this workbook in the comma-delimited (.csv) format. To preserve these features, save it in an Excel file format." with options "Don't show again" and "Save As...".

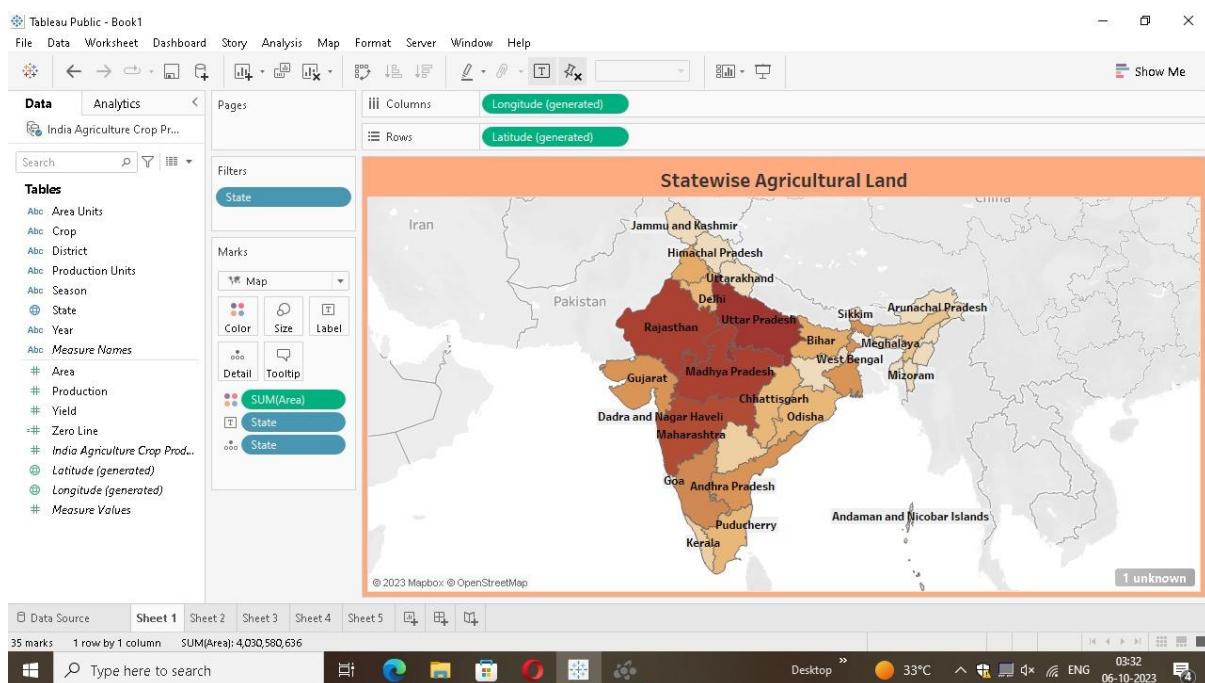
REGION	Area	Production
2	South	1254
3	South	1258
4	South	1261
5	South	3100
6	South	3105
7	South	3118
8	South	213
9	South	266
10	South	1524
11	South	1530
12	South	63
13	South	75.5
14	South	487
15	South	497
16	South	719
17	South	719
18	South	208
19	South	717
20	South	81
21	South	81
22	South	116.5
23	South	18190
		64430000
		18240
		67490000

Milestone 4: Data Visualization

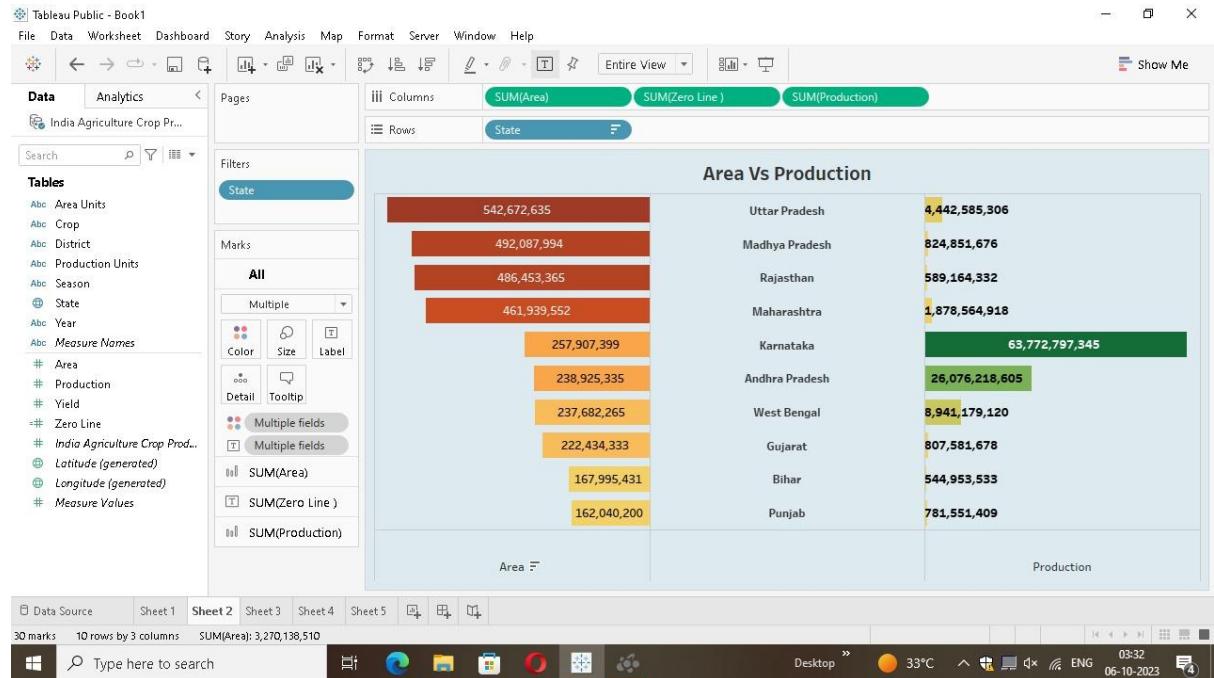
Activity 1: No of Unique Visualizations

The number of unique visualizations that can be created with a given dataset.

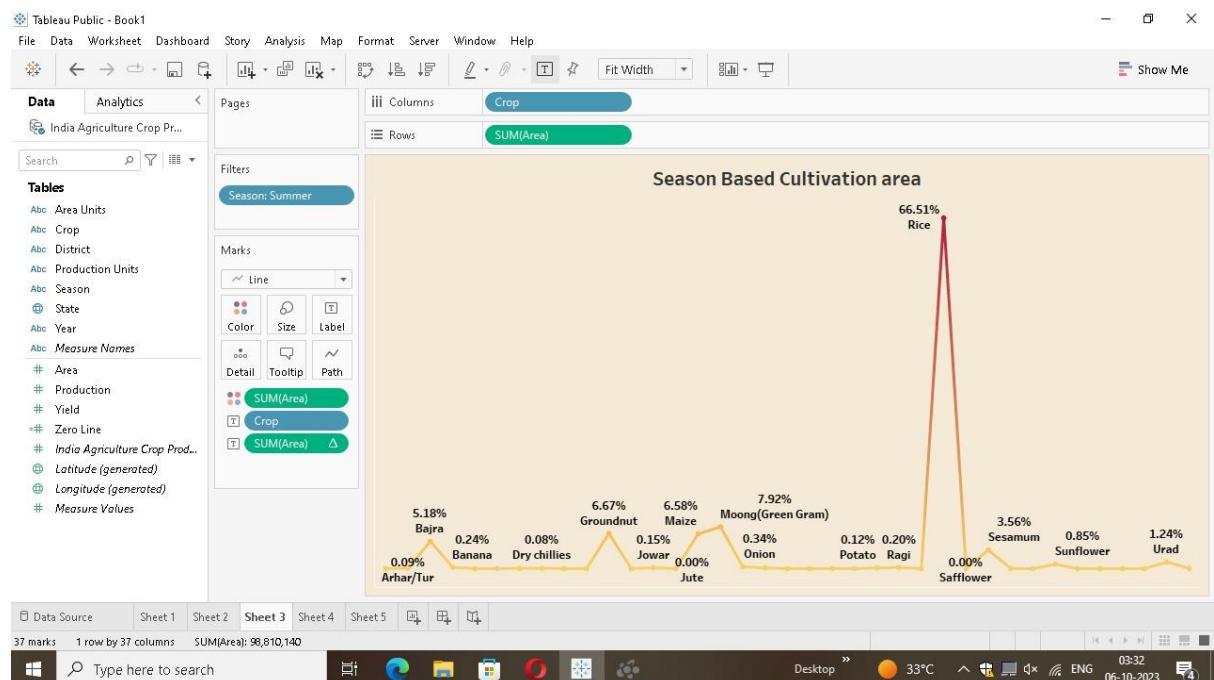
Activity 1.1: State wise Agricultural Land



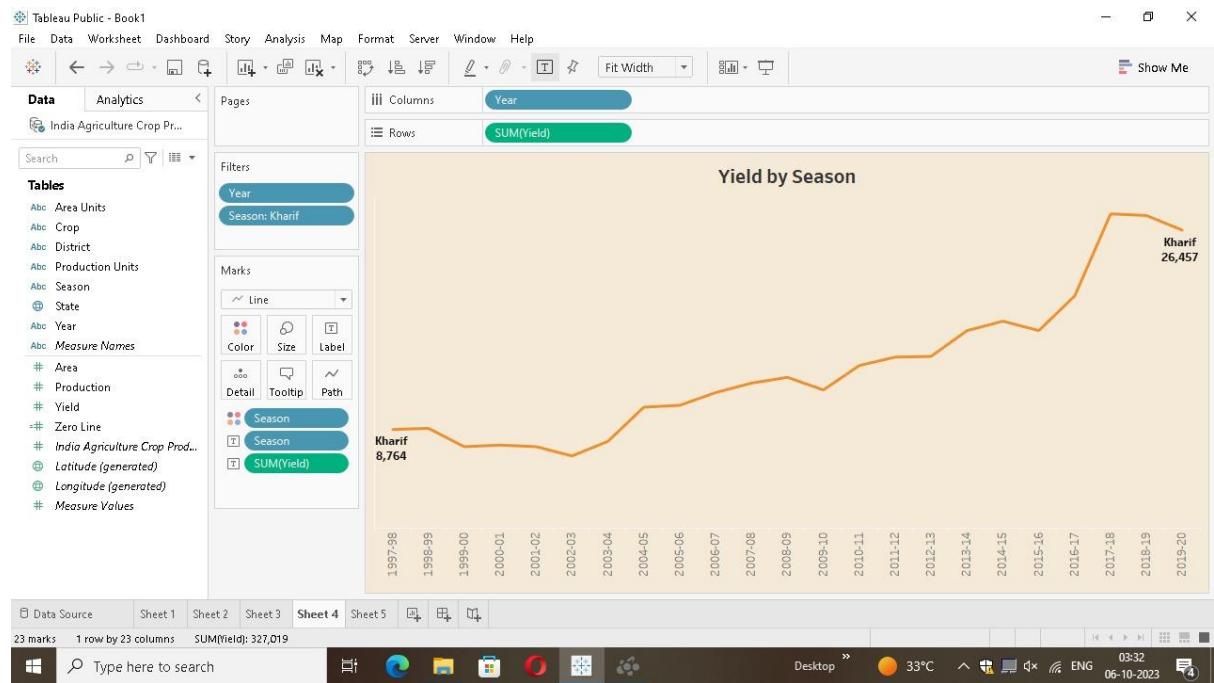
Activity 1.2: Area vs Production



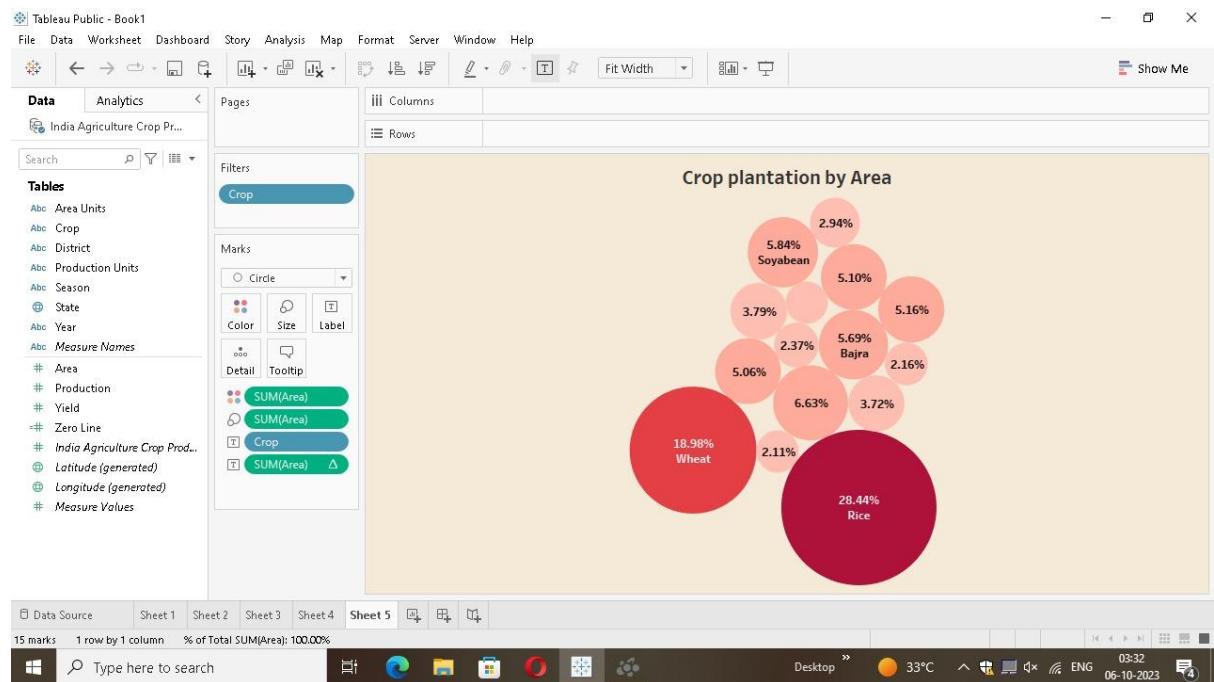
Activity 1.3: Season based cultivation



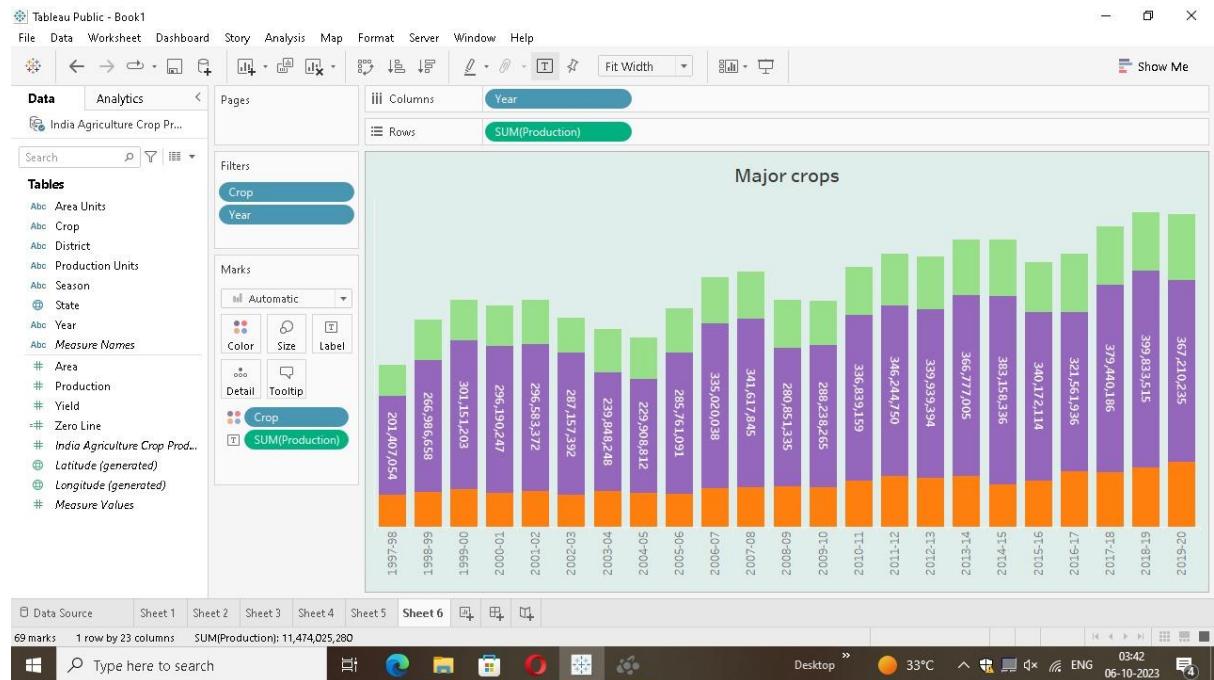
Activity 1.4: Yield by season



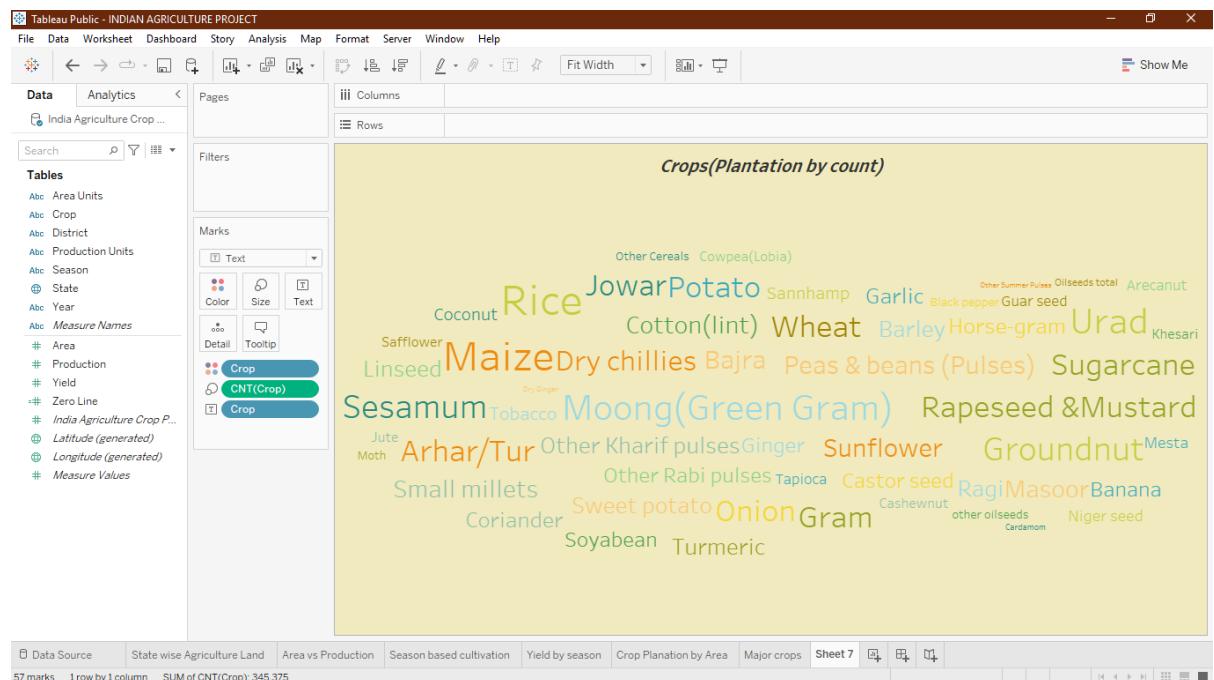
Activity 1.5: Crop plantation by area



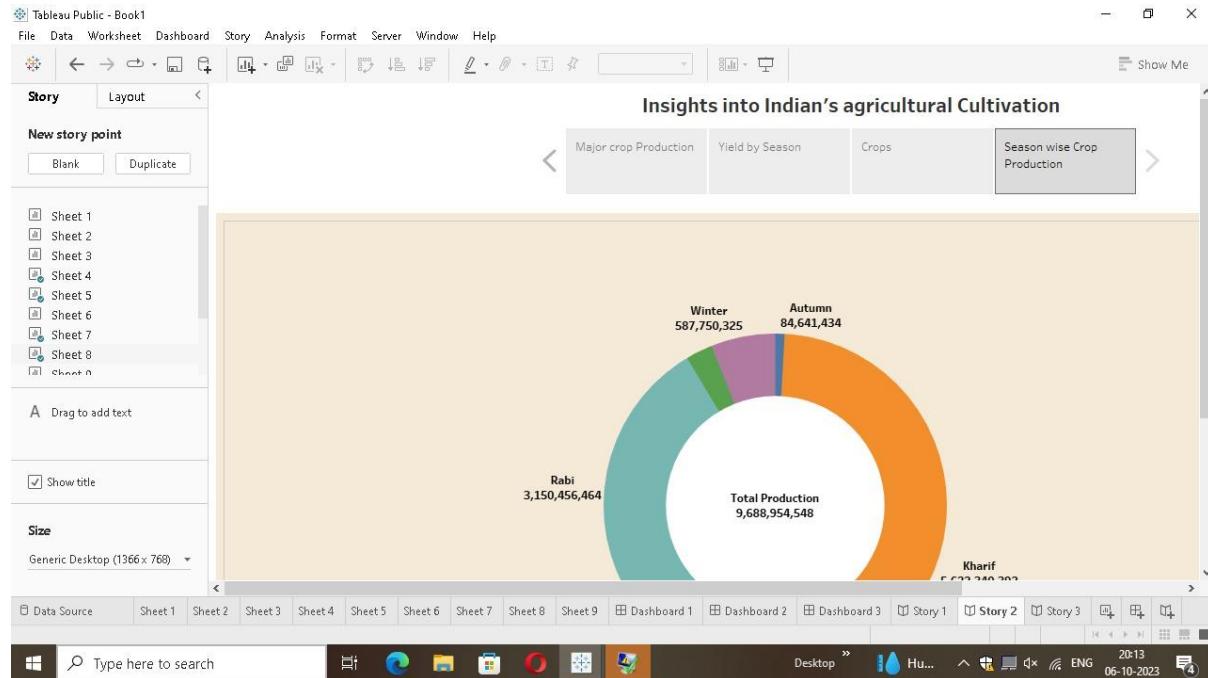
Activity 1.6: Major crops growth year on year.



Activity 1.7: Crops



Activity 1.8: Season wise production

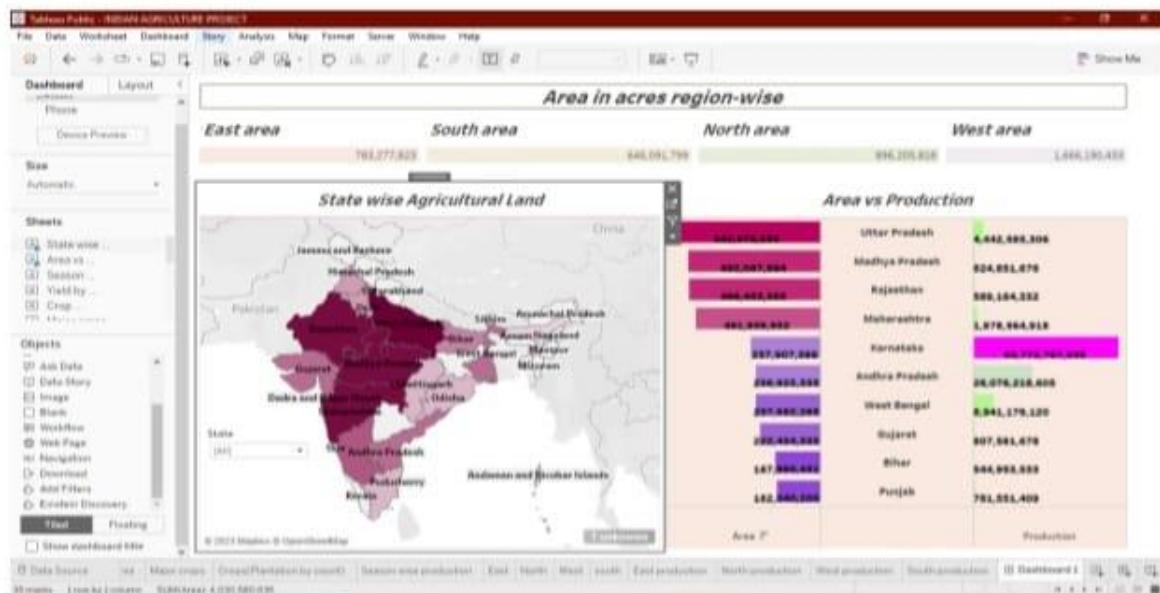


MILESTONE 5: DASHBOARD

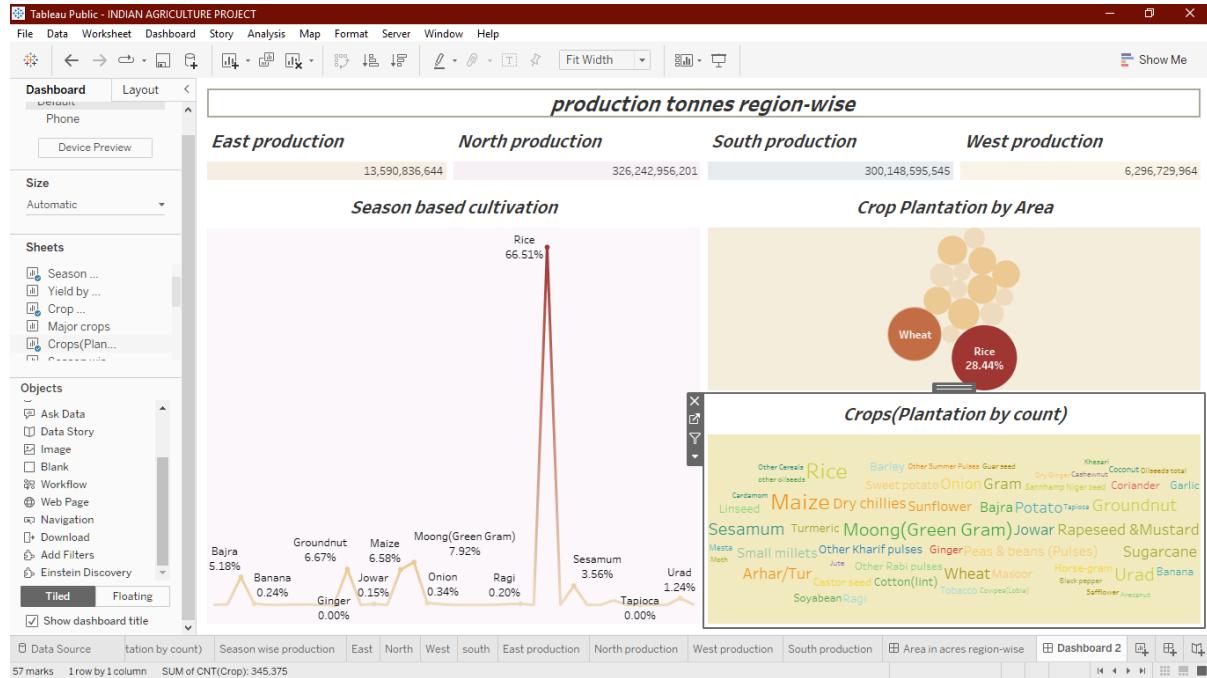
Activity 1: Responsive and Design of dashboard

Once you have created views on different sheets in Tableau, you can pull them into a dashboard.

Activity 1.1: Dashboard 1



Activity 1.2: Dashboard 2



Activity 1.3: Dashboard 3

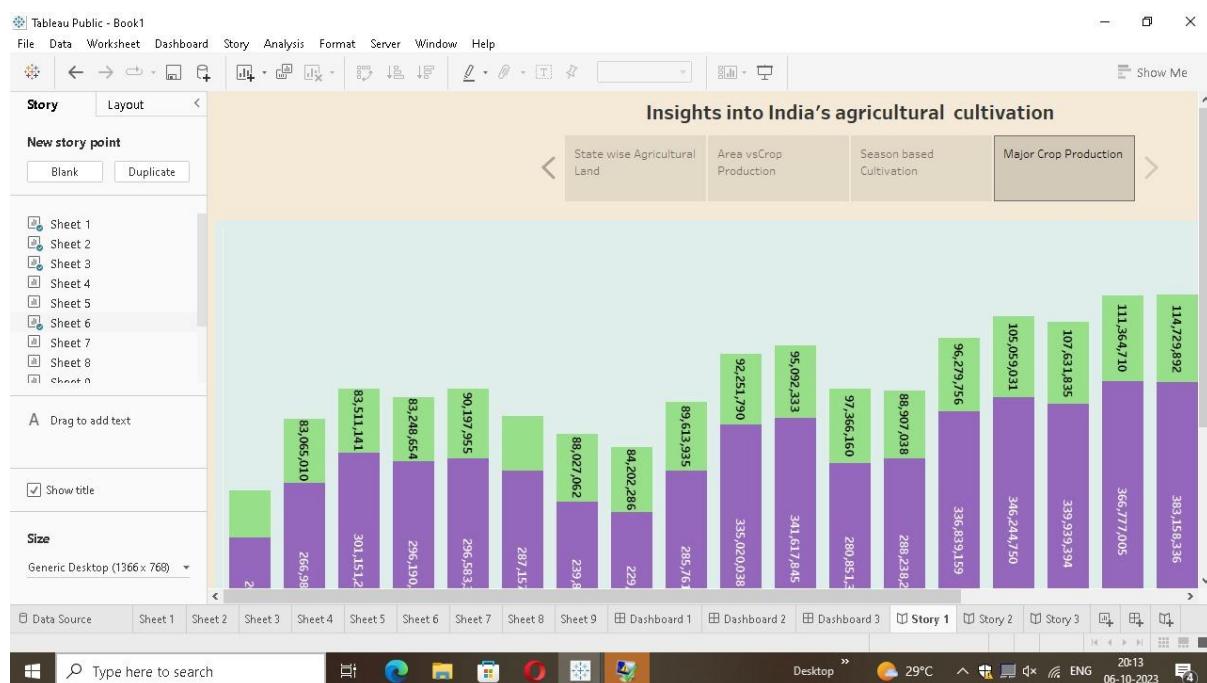
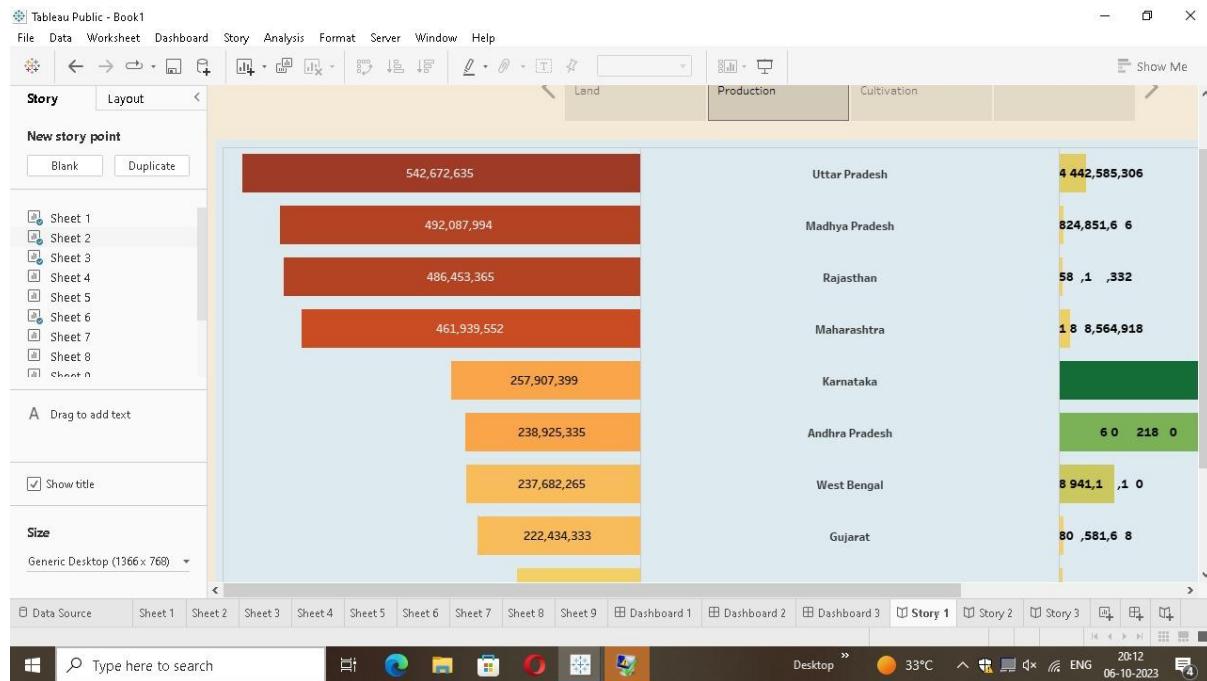


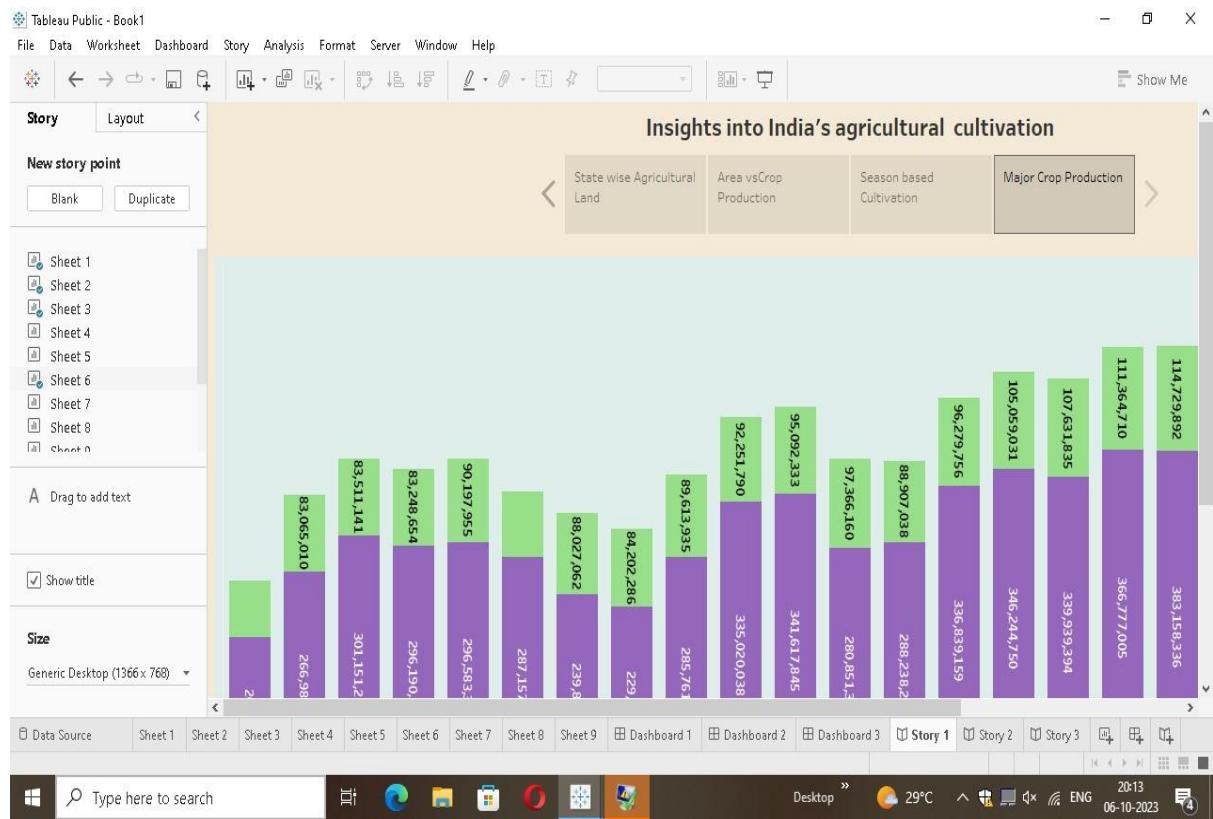
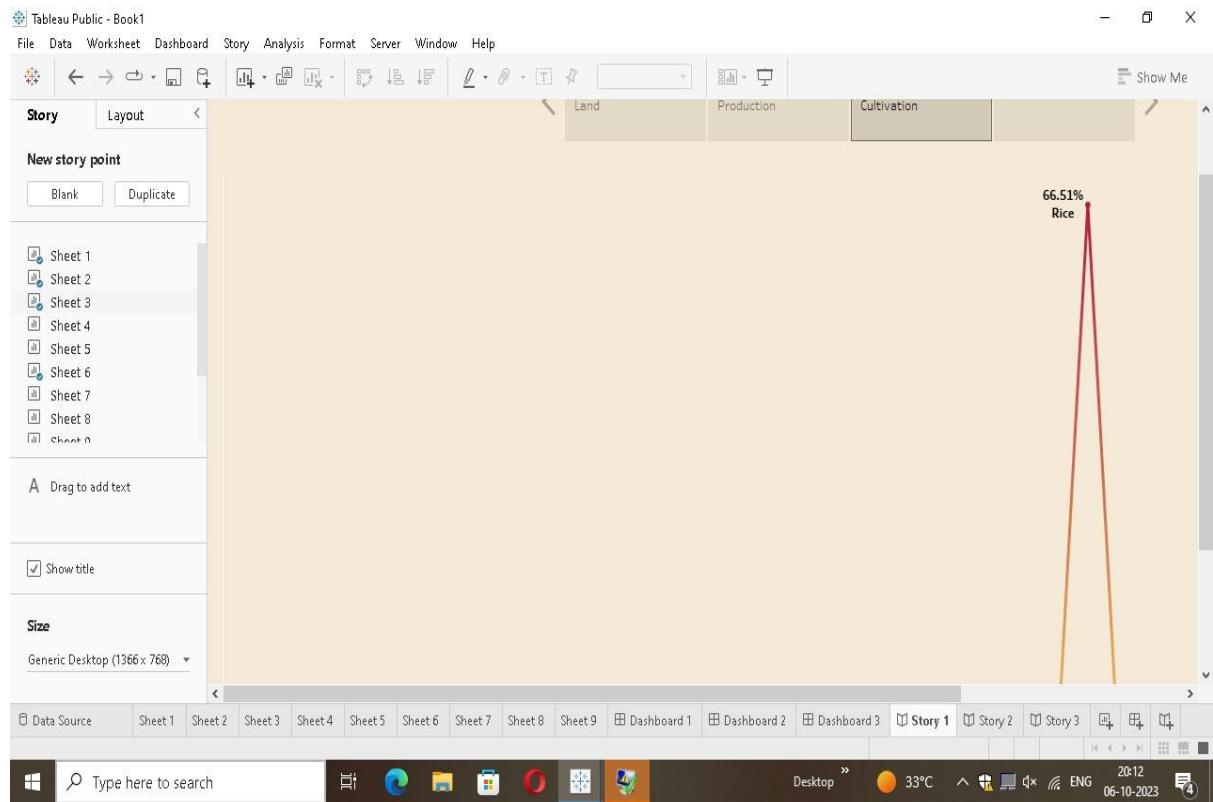
MILESTONE 6: STORY

Activity 1: Number of scenes in a story

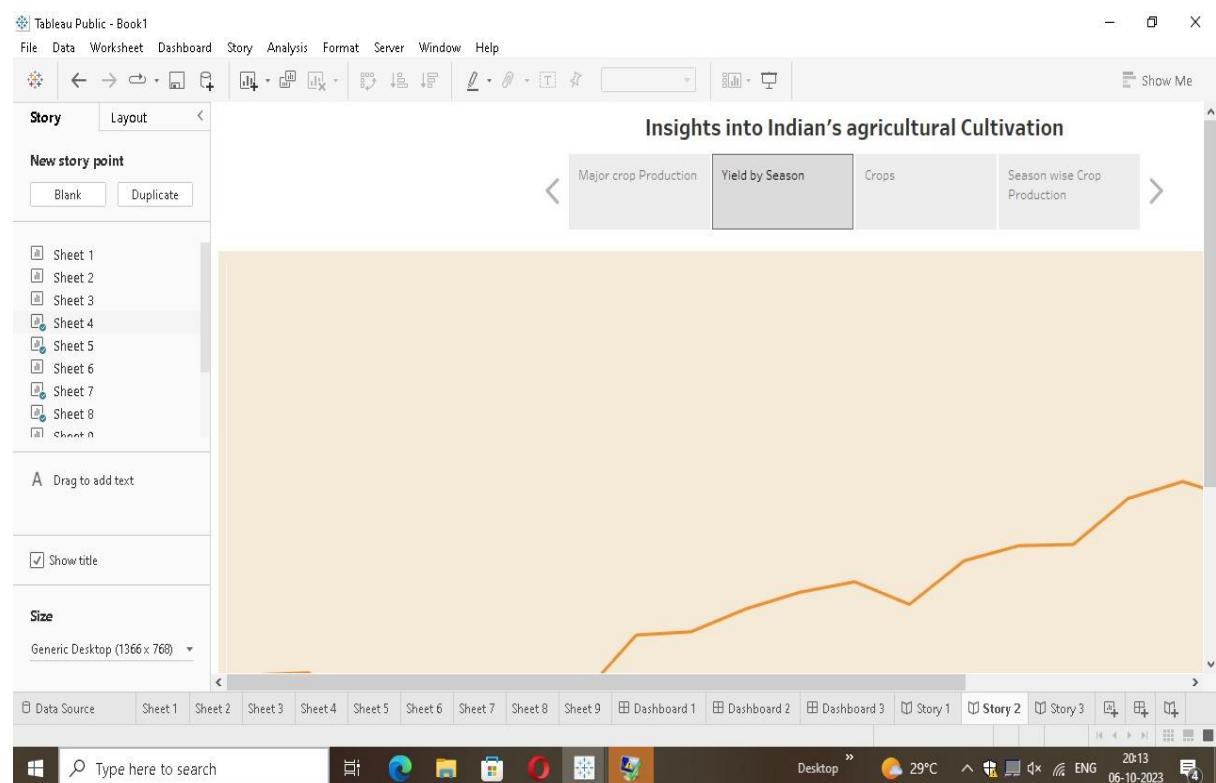
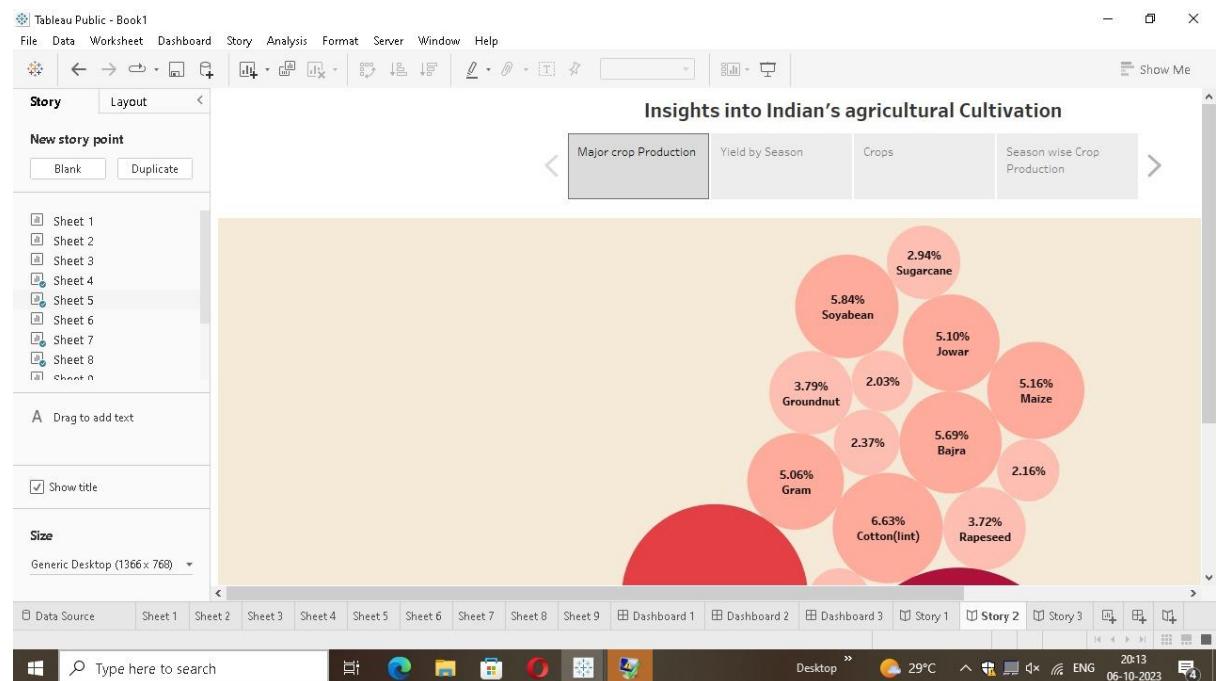
A storyboard is a visual representation of the data analysis process and it breaks down the analysis into a series of steps or scenes.

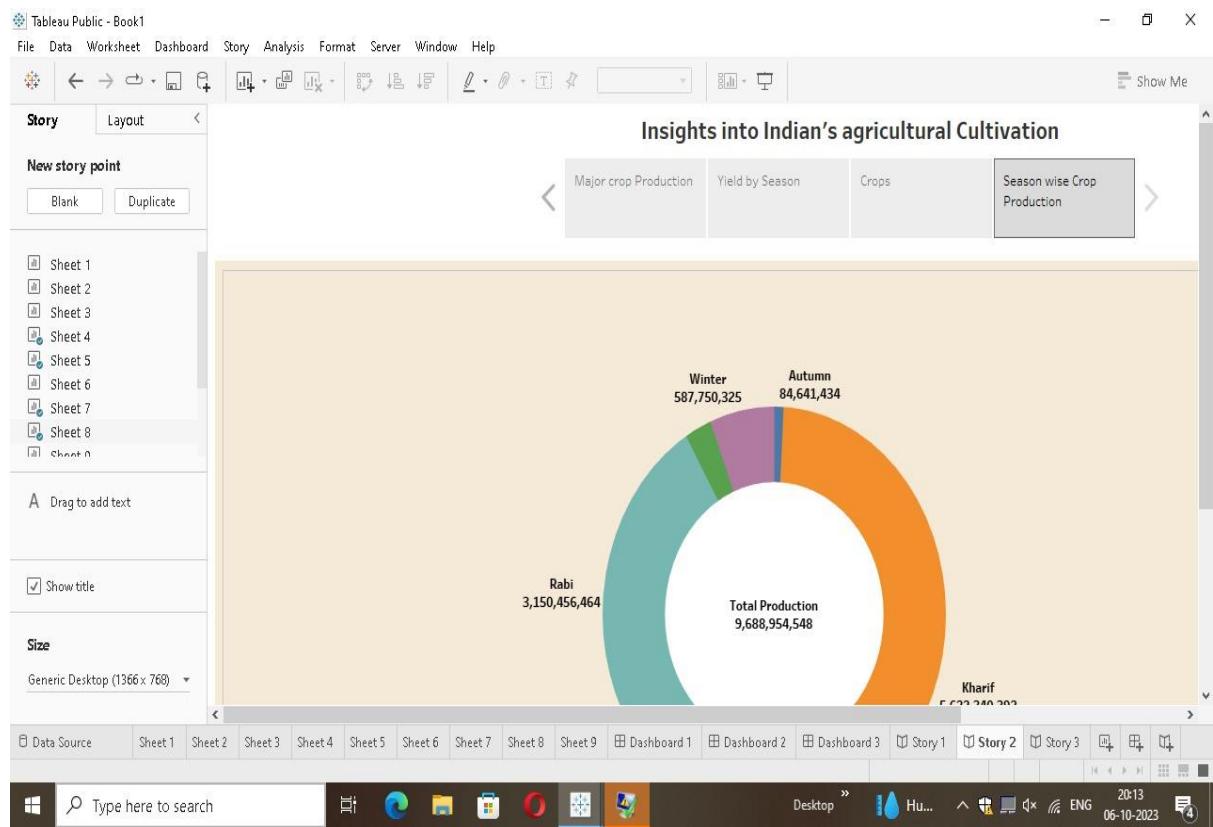
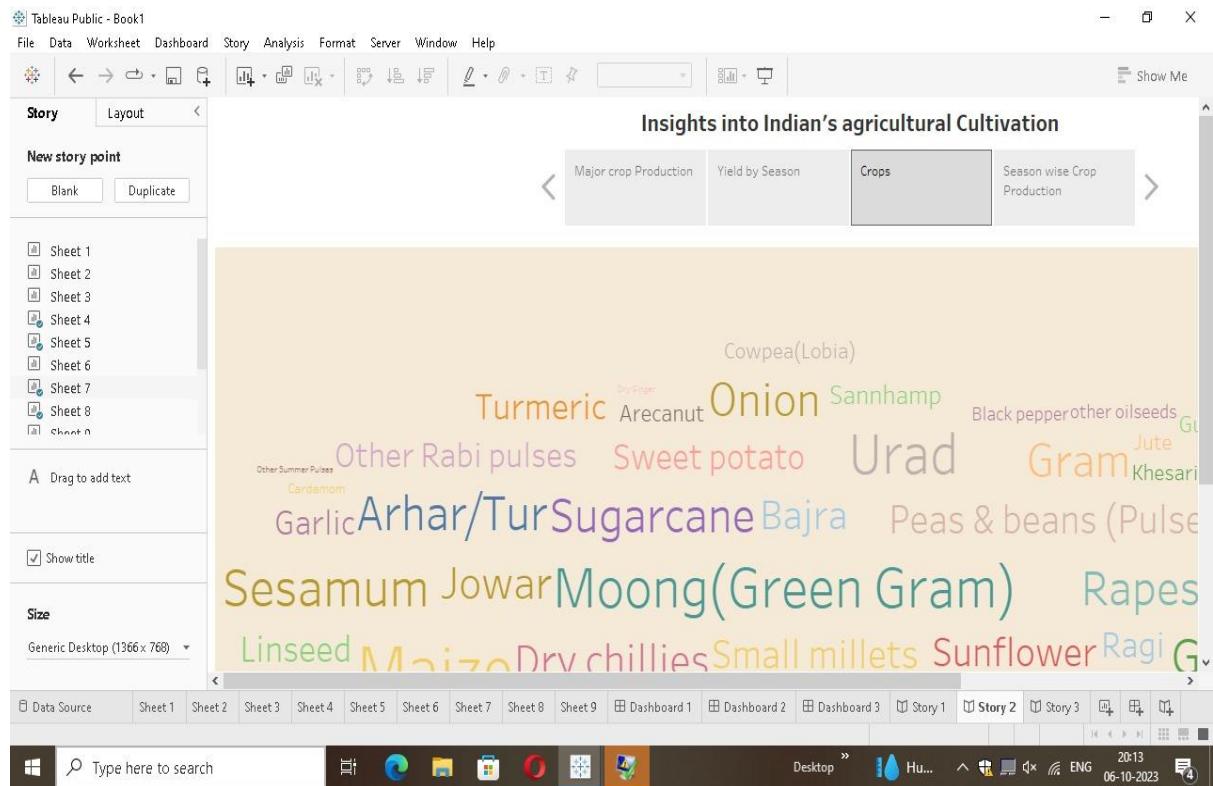
Activity 1.1: Story 1





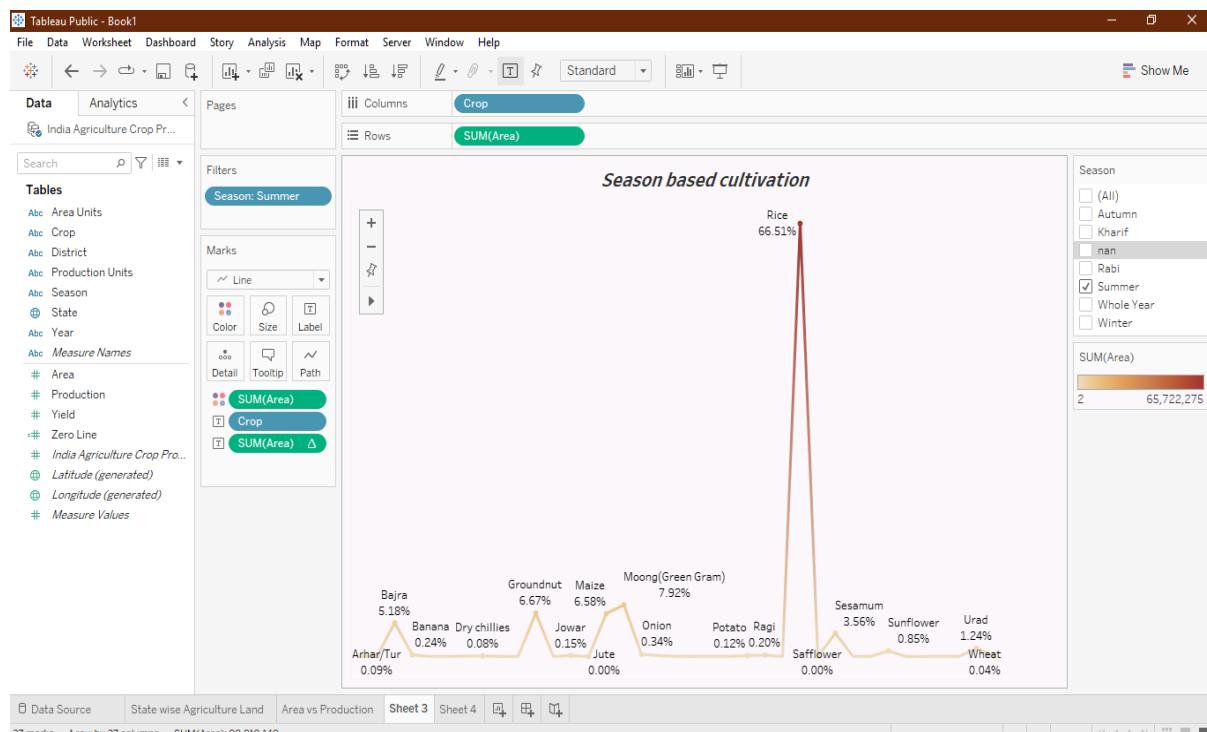
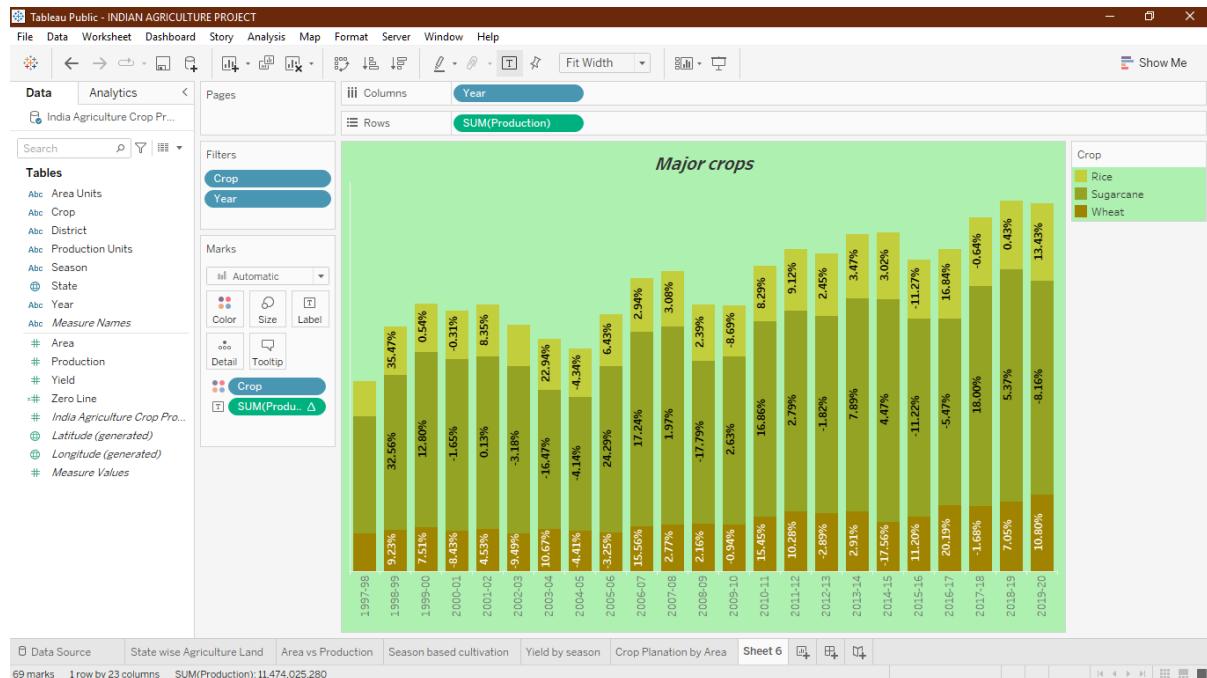
Activity 1.2: Story 2

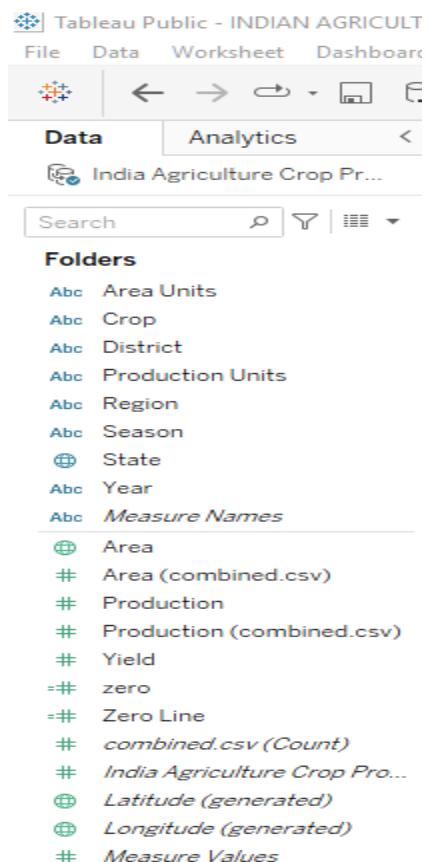
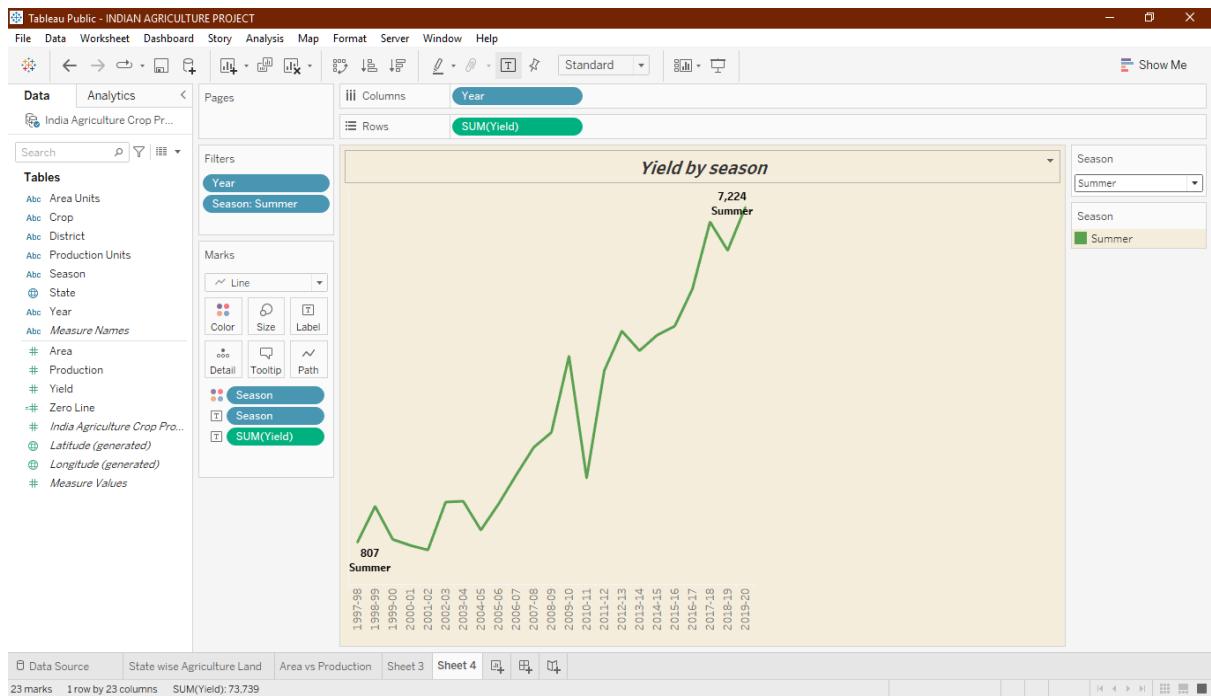




MILESTONE 7: PERFORMANCE TESTING

Activity 1: Utilization of Filters





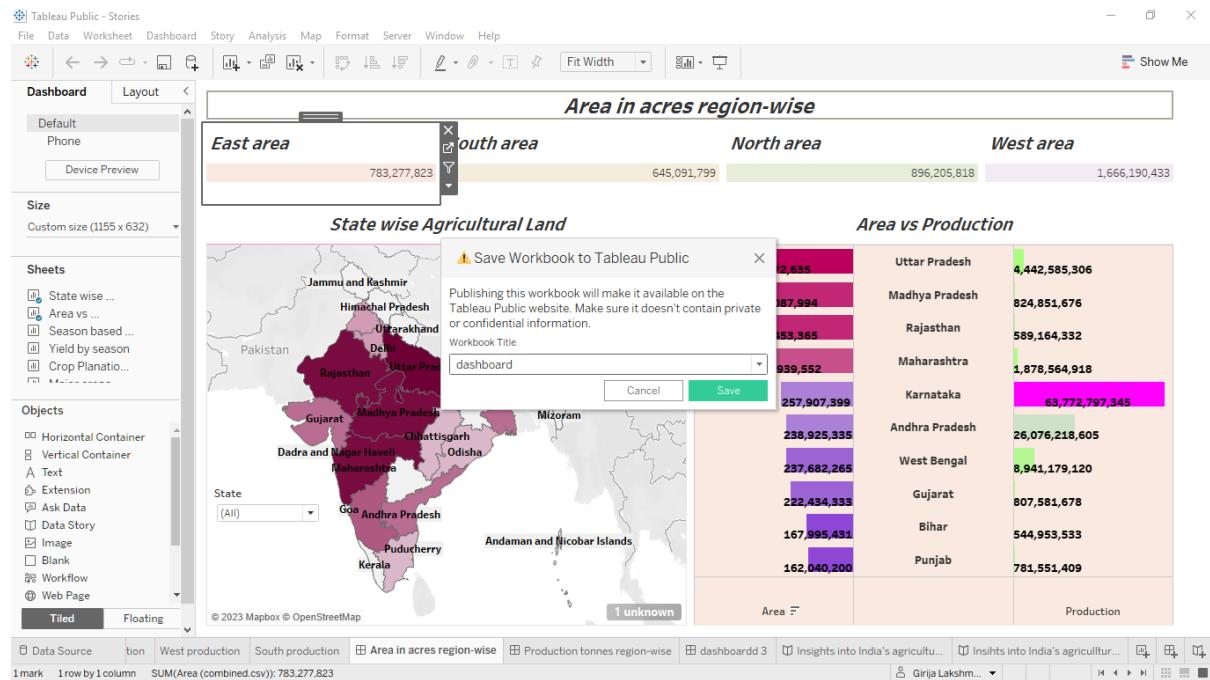
MILESTONE 8: PUBLISHING

Publishing dashboard and reports to tableau public

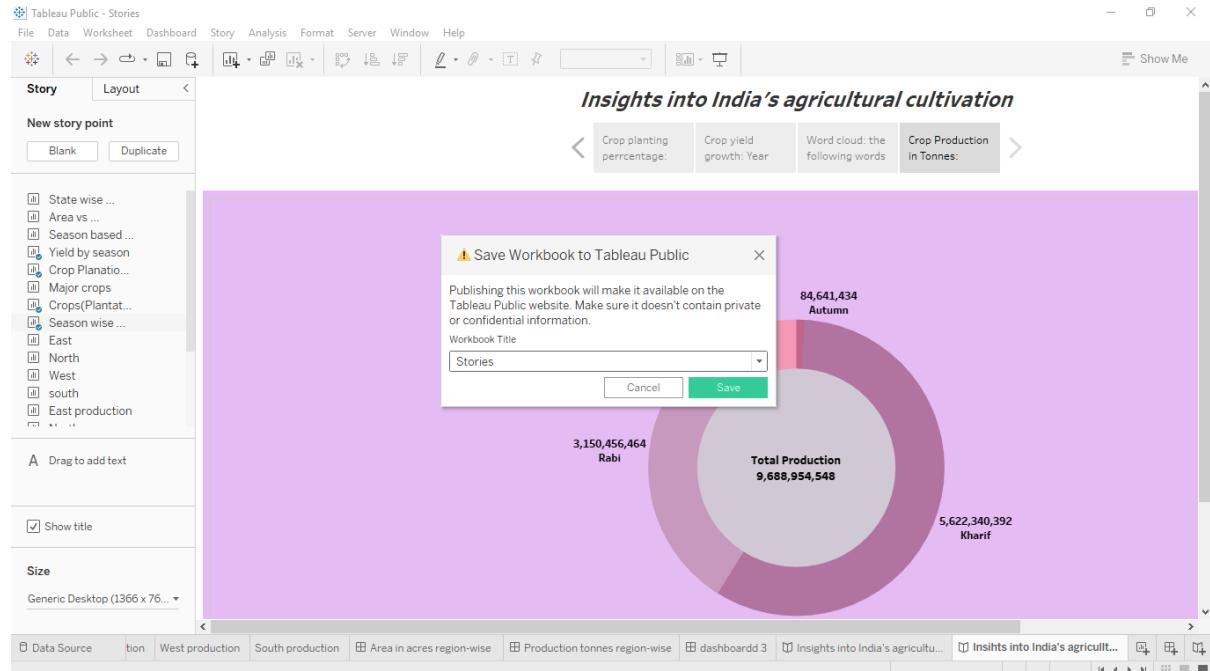
Step 1 Go to data Source and Select Extract so that hyper extension files are created and save it at your desktop.

The screenshot shows the Tableau Public interface with the title bar "Tableau Public - Book1". In the top left, there's a "Connections" section with "India Agriculture Crop Production" selected. Below it, under "Files", there's a "New Union" and a "New Table Extension" option. A "Go to Worksheet" button is highlighted with a red arrow. The main workspace displays the "India Agriculture Crop Production" data source with 10 fields and 345407 rows. A preview table shows data for Maharashtra districts like AMRAVATI and AURANGABAD across different years (2004-0 to 2005-0). A tooltip "Need more data? Drag tables here to relate them. Learn more" is visible. The bottom navigation bar includes "Data Source" and "Sheet 1".

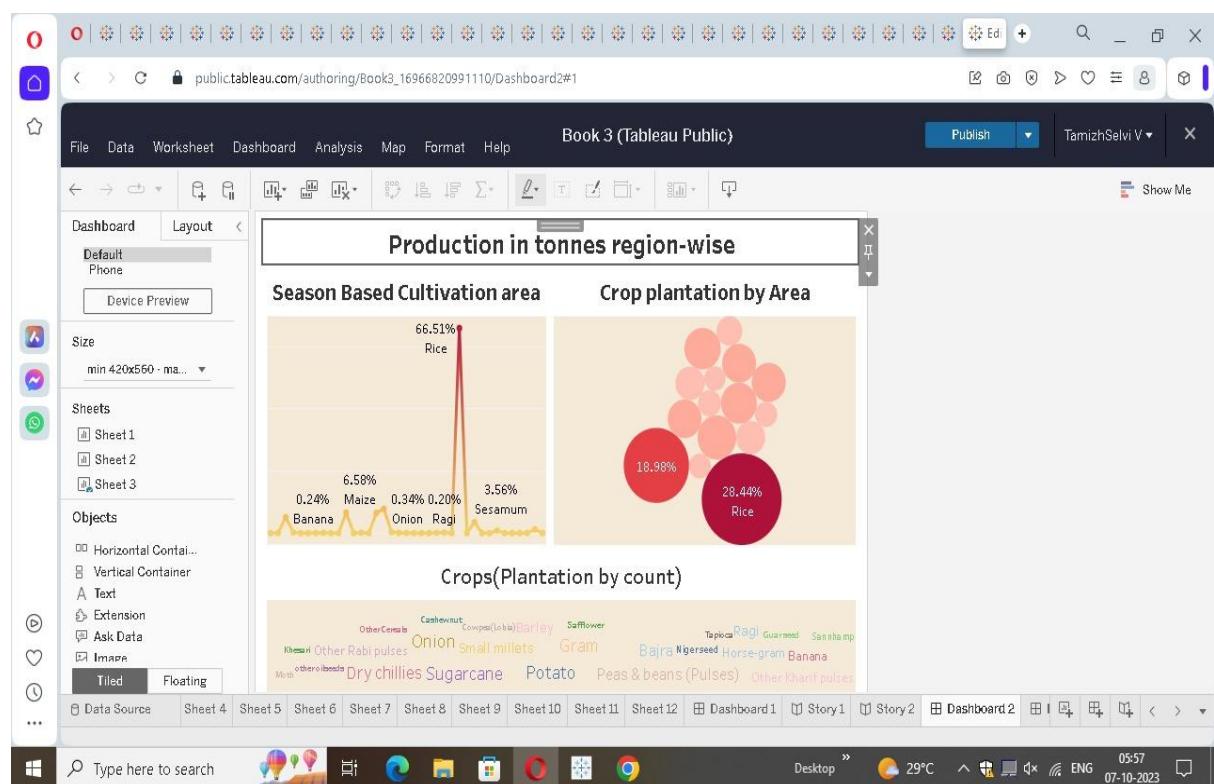
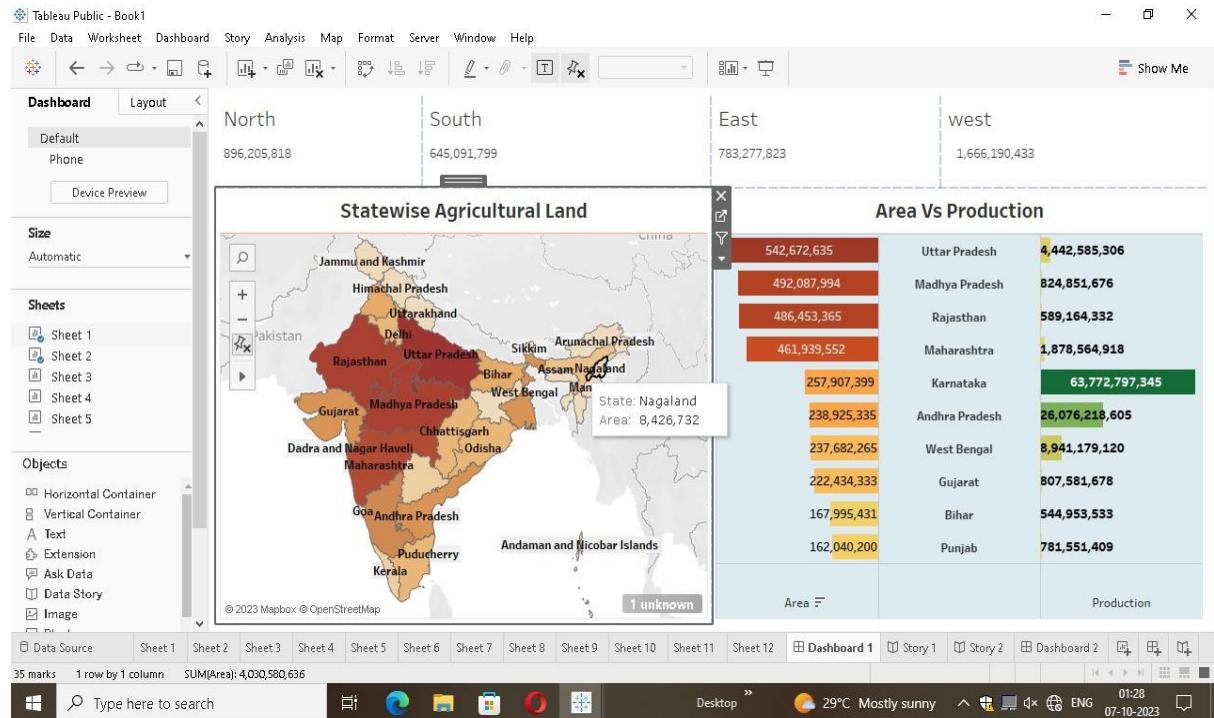
The screenshot shows the Tableau Public Stories interface with the title bar "Tableau Public - Stories". On the left, a sidebar lists story points: "State wise ...", "Area vs ...", "Season based ...", "Yield by season", "Crop Planatio...", "Major crops", "Crops(Plantat...)", "Season wise ...", "East", "North", "West", "south", "East production", and "A Drag to add text". A "Show title" checkbox is checked. The main area displays a dashboard titled "Insights into India's agricultural cultivation". It features a sign-in dialog box with "Tableau Public Sign In" and "Sign In" buttons, along with fields for "Email" and "Password" and a "Remember me" checkbox. To the right of the sign-in box is a large circular donut chart with segments labeled "5,622,340,392 Kharif" and "1,434 Mn Rabi". A tooltip "Crop Production in Tonnes:" is shown over the chart. The bottom navigation bar includes "Data Source" and several tabs: "West production", "South production", "Area in acres region-wise", "Production tonnes region-wise", "dashboardd 3", "Insights into India's agricultu...", and "Insights into India's agricultu...".

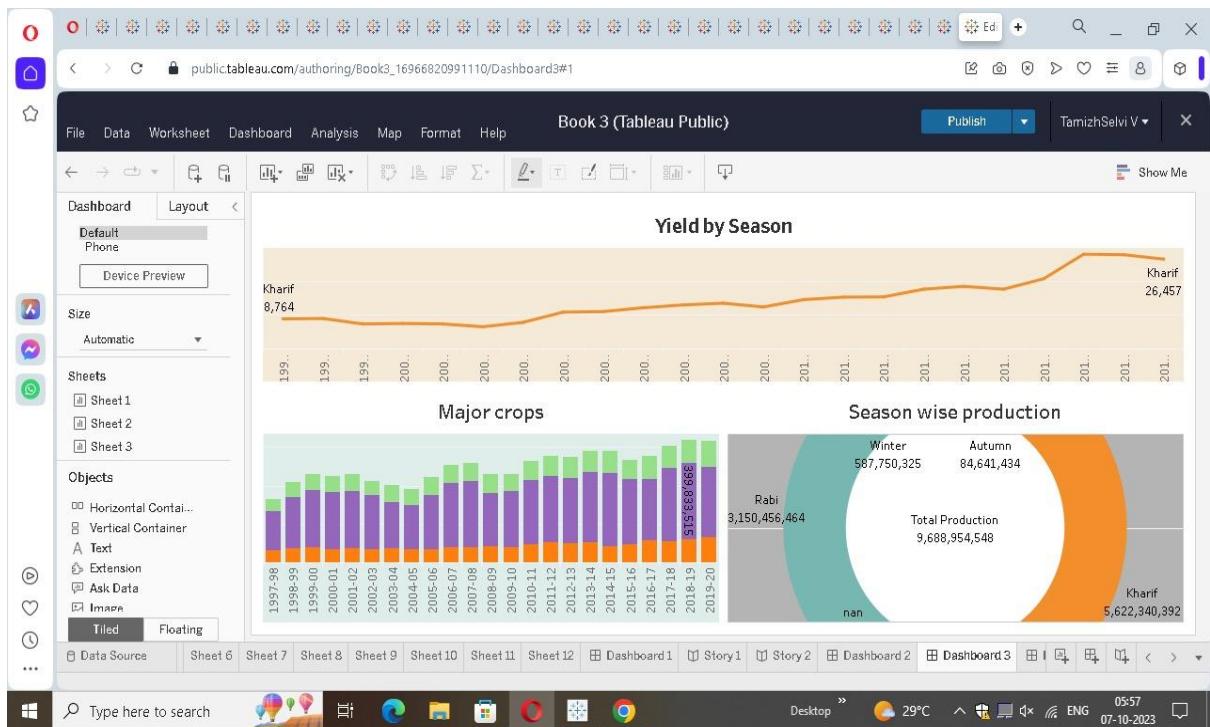


Publishing story and reports to tableau public

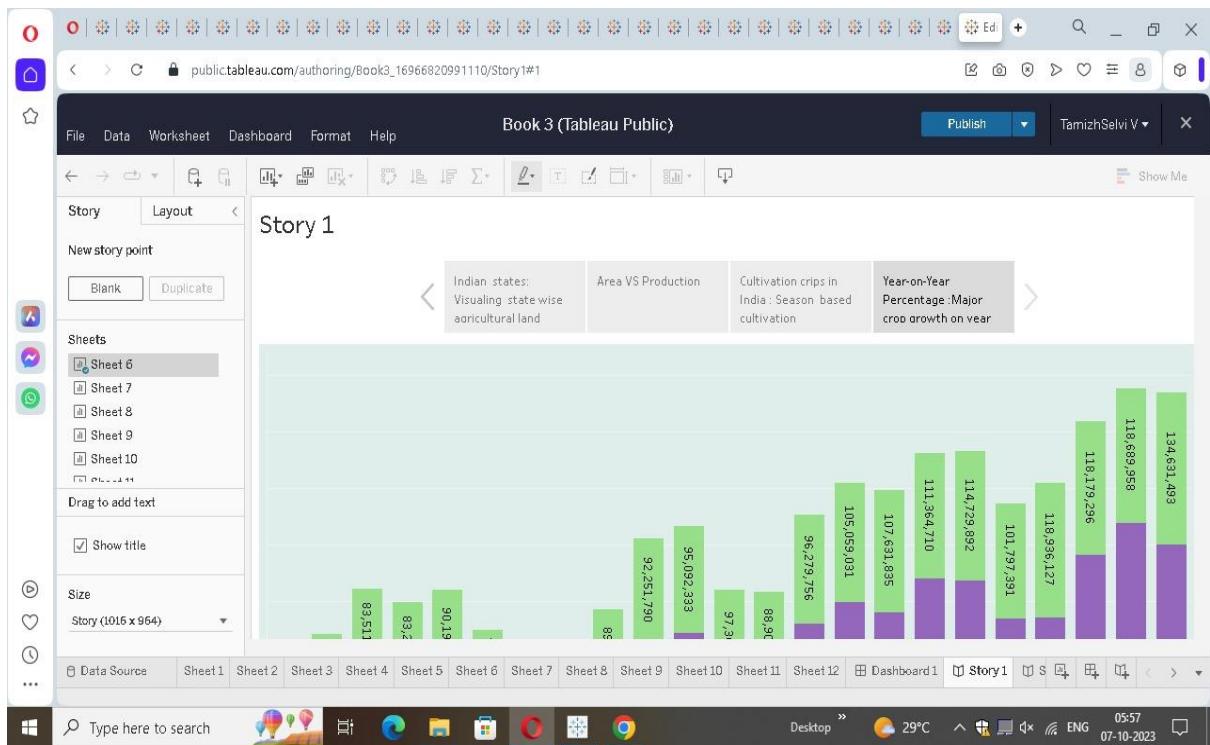


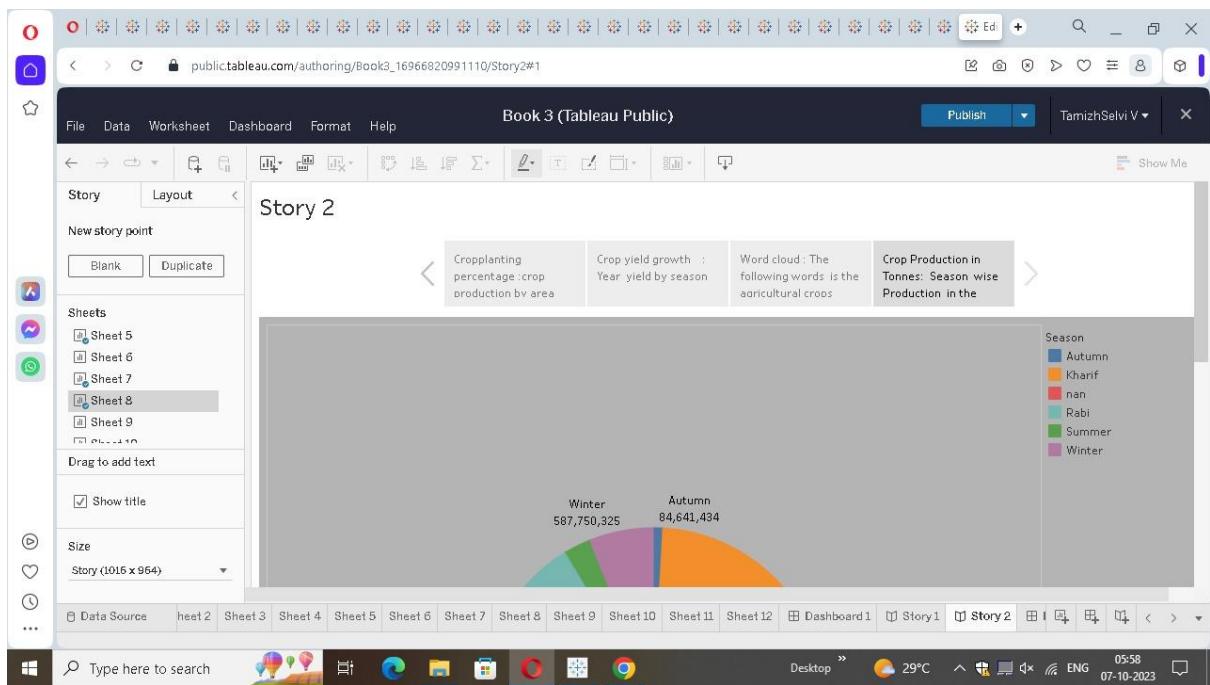
Activity 1: Publishing dashboard and reports to tableau public





Activity 2: Publishing story and reports to tableau public





ADVANTAGES & DISADVANTAGES

Advantages:

- Increased Efficiency modern farming methods are more efficient than traditional methods, with advanced machinery and equipment, allowing farmers to produce larger quantities of crops in less time and with less labour.
- Improved Crop Quality the use of advanced techniques such as precision farming and genetic engineering has led to the development of higher quality crops that are more resistant to pests and disease.
- Reduced Environmental Impact agriculture techniques are designed to be more sustainable, with a focus on reducing waste, conserving resources, and minimizing the use of harmful chemicals.

- Increased Food Production agriculture has enabled farmers to produce larger quantities of food, helping to address food shortages and hunger in many parts of the world.
- Economic Benefits modern agriculture has had a positive impact on the economy, by creating jobs and generating revenue for farmers, agribusinesses, and related industries.

DISADVANTAGES

- Soil Degradation the intensive use of modern farming practices, such as heavy use of chemical fertilizers and pesticides, can lead to soil degradation over time, reducing soil fertility and leading to erosion.
- Biodiversity Loss modern agriculture can have a negative impact on biodiversity, with the use of monoculture and genetically modified crops leading to a loss of natural diversity in plant and animal species.
- Water Pollution the excessive use of chemical fertilizers and pesticides in modern agriculture can lead to runoff and contamination of nearby water sources, potentially harming aquatic ecosystems and human health.
- Health Risks the use of chemicals in modern agriculture can pose health risks to farmers and farm workers who are exposed to these chemicals on a regular basis.
- Food Safety Concerns the use of genetically modified crops and hormones in modern agriculture has raised concerns about the safety of the food supply, with some studies suggesting potential long-term health effect.

CONCLUSION

In this project, we analysis crop production India states year on year. We improve our crop production, we use organic fertilizers and improve soil managements, irrigation system. We use the hybrid seeds to crop. We investing in agricultural technology. Government provides to farmer to new policy schemes.

FUTURE SCOPE

- Future agriculture will use sophisticated technologies such as robots, temperature and moisture sensors, aerial images, and GPS technology.
- These advanced devices and precision agriculture and robotic systems will allow farms to be more profitable, efficient, safe, and environmentally friendly.