DATA ANALYST PROJECT

KROPGAINS

Sandip Shaw

To analyse the Indian Agricultural Data

Problem Statement

More than 50% of Indian population is indirectly or directly dependent on agriculture for their employment and it contributes roughly 20% to India's GDP. There are many multinational companies which are making use of the raw materials produced by the farmers and making finished products for the end consumers. The procurement of these raw materials involves a long, unorganized and heavily exploited supply chain which is one of the primary reasons why majority of Indian farmers are poor. The farmers end up having the least amount of profit share despite doing the maximum hard work. And Kropgains wants to eliminate the unnecessary middle men and thereby increasing the profit share of the farmers.

For this project we were supposed to make a detailed analysis of the current situation of the agriculture sector in India and draw insights from it.

Overview

We have broadly classified the entire analysis process into 4 major categories and the corresponding tool used to perform the action.

Data Fetching	Data Cleaning and Transformation	Data Visualization	Analysis
Fetching data from different sources in Excel format Tools Used: **Google**	Transforming and cleaning the data according to the requirement. Tools Used: **Excel and Python**	Visualizing the excel data according to the given format Tools Used: **Tableau**	Drawing insights from the visualized data. Tools Used: **Tableau**

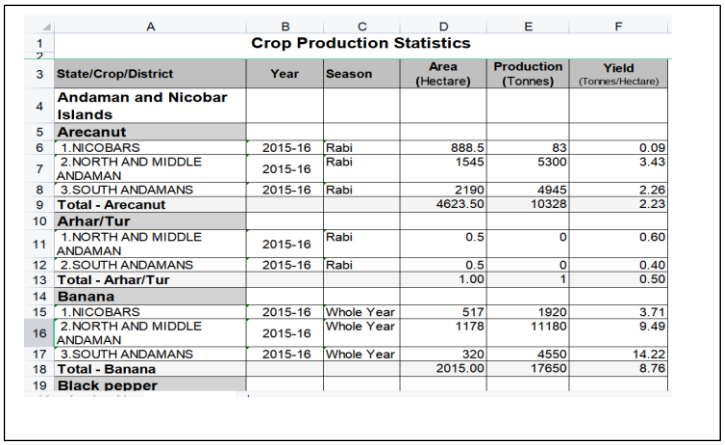
FETCHING THE DATA

Acquiring data is the first step of any analysis process.

We were supposed to get agricultural data for the last 20 years in Excel format. In order to simplify the problem statement, we categorised the data to be fetched in 3 major parts which are as follows:

PRODUCTION DATA

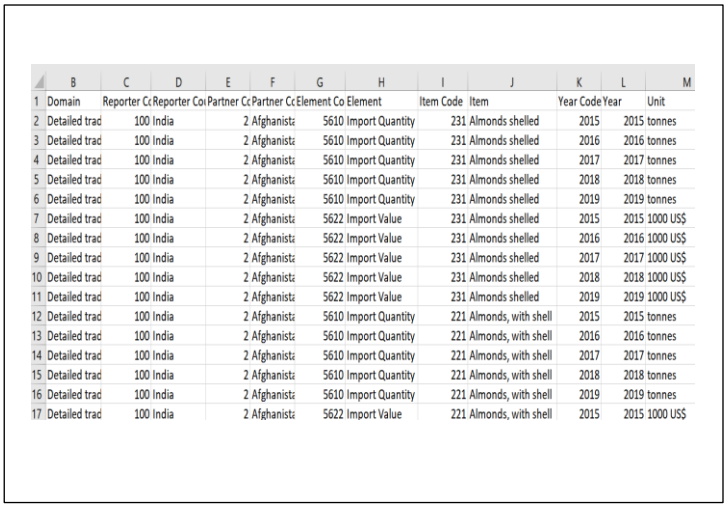
Crops which are produced in India



Crop Production Statistics					
State/Crop/District	Year	Season	Area (Hectare)	Production (Tonnes)	Yield (Tonnes/Hectare)
Andaman and Nicobar Islands					
Arecanut					
1.NICOBARS	2015-16	Rabi	888.5	83	0.09
2.NORTH AND MIDDLE ANDAMAN	2015-16	Rabi	1545	5300	3.43
3.SOUTH ANDAMANS	2015-16	Rabi	2190	4945	2.26
Total - Arecanut			4623.50	10328	2.23
Arhar/Tur					
1.NORTH AND MIDDLE ANDAMAN	2015-16	Rabi	0.5	0	0.60
2.SOUTH ANDAMANS	2015-16	Rabi	0.5	0	0.40
Total - Arhar/Tur			1.00	1	0.50
Banana					
1.NICOBARS	2015-16	Whole Year	517	1920	3.71
2.NORTH AND MIDDLE ANDAMAN	2015-16	Whole Year	1178	11180	9.49
3.SOUTH ANDAMANS	2015-16	Whole Year	320	4550	14.22
Total - Banana			2015.00	17650	8.76
Black pepper					

IMPORT DATA

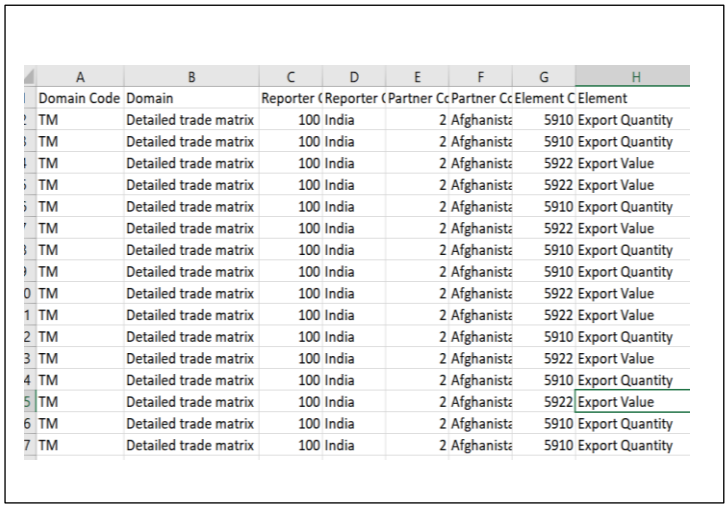
Crops which are imported from other countries



Domain	Reporter Cc	Reporter Co	Partner Cc	Partner Cc	Element Co	Element	Item Code	Item	Year Code	Year	Unit
Detailed trad	100	India	2	Afghanista	5610	Import Quantity	231	Almonds shelled	2015	2015	tonnes
Detailed trad	100	India	2	Afghanista	5610	Import Quantity	231	Almonds shelled	2016	2016	tonnes
Detailed trad	100	India	2	Afghanista	5610	Import Quantity	231	Almonds shelled	2017	2017	tonnes
Detailed trad	100	India	2	Afghanista	5610	Import Quantity	231	Almonds shelled	2018	2018	tonnes
Detailed trad	100	India	2	Afghanista	5610	Import Quantity	231	Almonds shelled	2019	2019	tonnes
Detailed trad	100	India	2	Afghanista	5622	Import Value	231	Almonds shelled	2015	2015	1000 US$
Detailed trad	100	India	2	Afghanista	5622	Import Value	231	Almonds shelled	2016	2016	1000 US$
Detailed trad	100	India	2	Afghanista	5622	Import Value	231	Almonds shelled	2017	2017	1000 US$
Detailed trad	100	India	2	Afghanista	5622	Import Value	231	Almonds shelled	2018	2018	1000 US$
Detailed trad	100	India	2	Afghanista	5622	Import Value	231	Almonds shelled	2019	2019	1000 US$
Detailed trad	100	India	2	Afghanista	5610	Import Quantity	221	Almonds, with shell	2015	2015	tonnes
Detailed trad	100	India	2	Afghanista	5610	Import Quantity	221	Almonds, with shell	2016	2016	tonnes
Detailed trad	100	India	2	Afghanista	5610	Import Quantity	221	Almonds, with shell	2017	2017	tonnes
Detailed trad	100	India	2	Afghanista	5610	Import Quantity	221	Almonds, with shell	2018	2018	tonnes
Detailed trad	100	India	2	Afghanista	5610	Import Quantity	221	Almonds, with shell	2019	2019	tonnes
Detailed trad	100	India	2	Afghanista	5622	Import Value	221	Almonds, with shell	2015	2015	1000 US$

EXPORT DATA

Crops which are exported to other countries



Domain Code	Domain	Reporter C	Reporter C	Partner Cc	Partner Cc	Element C	Element
TM	Detailed trade matrix	100	India	2	Afghanista	5910	Export Quantity
TM	Detailed trade matrix	100	India	2	Afghanista	5910	Export Quantity
TM	Detailed trade matrix	100	India	2	Afghanista	5922	Export Value
TM	Detailed trade matrix	100	India	2	Afghanista	5922	Export Value
TM	Detailed trade matrix	100	India	2	Afghanista	5910	Export Quantity
TM	Detailed trade matrix	100	India	2	Afghanista	5922	Export Value
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TM	Detailed trade matrix	100	India	2	Afghanista	5922	Export Value
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TM	Detailed trade matrix	100	India	2	Afghanista	5922	Export Value
TM	Detailed trade matrix	100	India	2	Afghanista	5910	Export Quantity
TM	Detailed trade matrix	100	India	2	Afghanista	5910	Export Quantity

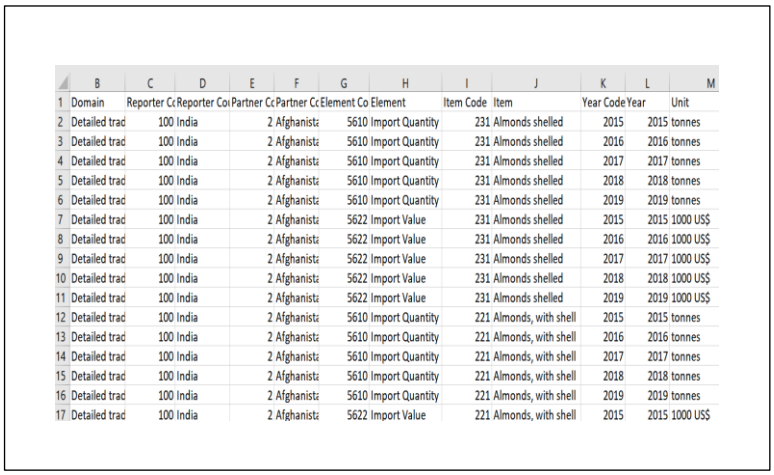
DATA CLEANING AND TRANSFORMATION

We were provided with a template and a sample of how the transformed data must look like.

We used python and Advanced Excel techniques to clean and transform the data into required form.

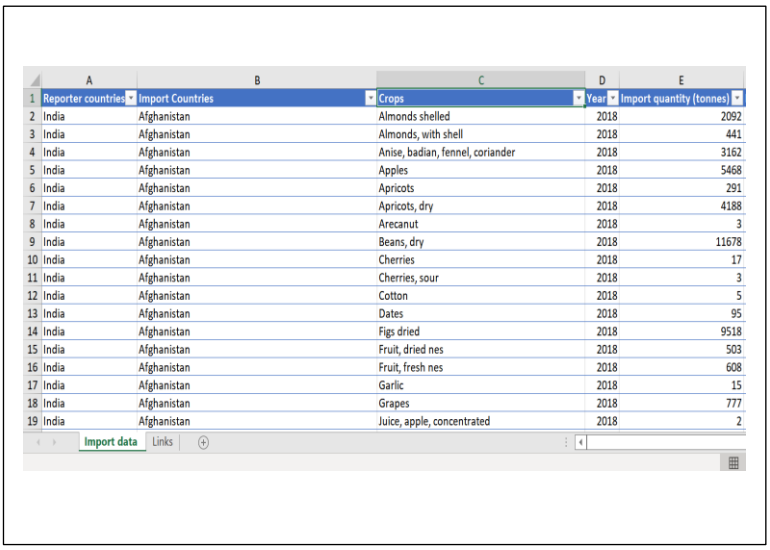
WORK SAMPLE

BEFORE



	B	C	D	E	F	G	H	I	J	K	L	M
1	Domain	Reporter Cc	Reporter Cou	Partner Cc	Partner Cc	Element Co	Element	Item Code	Item	Year Code	Year	Unit
2	Detailed trad	100	India	2	Afghanista	5610	Import Quantity	231	Almonds shelled	2015	2015	tonnes
3	Detailed trad	100	India	2	Afghanista	5610	Import Quantity	231	Almonds shelled	2016	2016	tonnes
4	Detailed trad	100	India	2	Afghanista	5610	Import Quantity	231	Almonds shelled	2017	2017	tonnes
5	Detailed trad	100	India	2	Afghanista	5610	Import Quantity	231	Almonds shelled	2018	2018	tonnes
6	Detailed trad	100	India	2	Afghanista	5610	Import Quantity	231	Almonds shelled	2019	2019	tonnes
7	Detailed trad	100	India	2	Afghanista	5622	Import Value	231	Almonds shelled	2015	2015	1000 US$
8	Detailed trad	100	India	2	Afghanista	5622	Import Value	231	Almonds shelled	2016	2016	1000 US$
9	Detailed trad	100	India	2	Afghanista	5622	Import Value	231	Almonds shelled	2017	2017	1000 US$
10	Detailed trad	100	India	2	Afghanista	5622	Import Value	231	Almonds shelled	2018	2018	1000 US$
11	Detailed trad	100	India	2	Afghanista	5622	Import Value	231	Almonds shelled	2019	2019	1000 US$
12	Detailed trad	100	India	2	Afghanista	5610	Import Quantity	221	Almonds, with shell	2015	2015	tonnes
13	Detailed trad	100	India	2	Afghanista	5610	Import Quantity	221	Almonds, with shell	2016	2016	tonnes
14	Detailed trad	100	India	2	Afghanista	5610	Import Quantity	221	Almonds, with shell	2017	2017	tonnes
15	Detailed trad	100	India	2	Afghanista	5610	Import Quantity	221	Almonds, with shell	2018	2018	tonnes
16	Detailed trad	100	India	2	Afghanista	5610	Import Quantity	221	Almonds, with shell	2019	2019	tonnes
17	Detailed trad	100	India	2	Afghanista	5622	Import Value	221	Almonds, with shell	2015	2015	1000 US$

AFTER



	A	B	C	D	E
1	Reporter countries	Import Countries	Crops	Year	Import quantity (tonnes)
2	India	Afghanistan	Almonds shelled	2018	2092
3	India	Afghanistan	Almonds, with shell	2018	441
4	India	Afghanistan	Anise, badian, fennel, coriander	2018	3162
5	India	Afghanistan	Apples	2018	5468
6	India	Afghanistan	Apricots	2018	291
7	India	Afghanistan	Apricots, dry	2018	4188
8	India	Afghanistan	Arecanut	2018	3
9	India	Afghanistan	Beans, dry	2018	11678
10	India	Afghanistan	Cherries	2018	17
11	India	Afghanistan	Cherries, sour	2018	3
12	India	Afghanistan	Cotton	2018	5
13	India	Afghanistan	Dates	2018	95
14	India	Afghanistan	Figs dried	2018	9518
15	India	Afghanistan	Fruit, dried nes	2018	503
16	India	Afghanistan	Fruit, fresh nes	2018	608
17	India	Afghanistan	Garlic	2018	15
18	India	Afghanistan	Grapes	2018	777
19	India	Afghanistan	Juice, apple, concentrated	2018	2

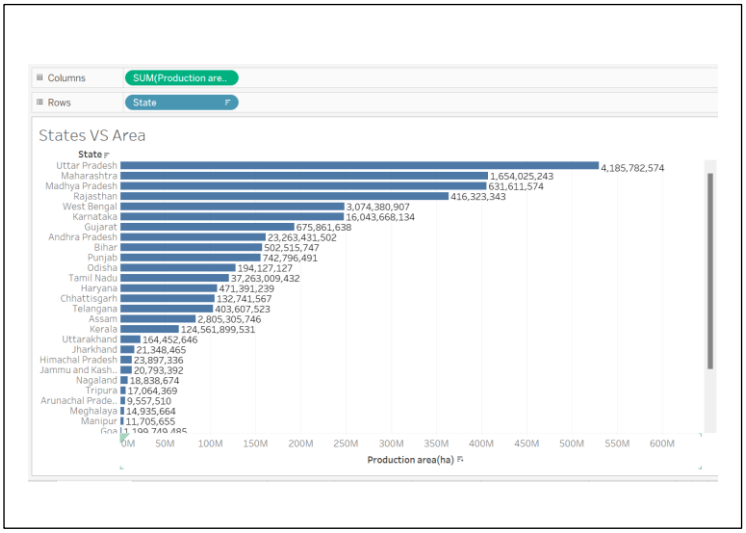
Import data | Links

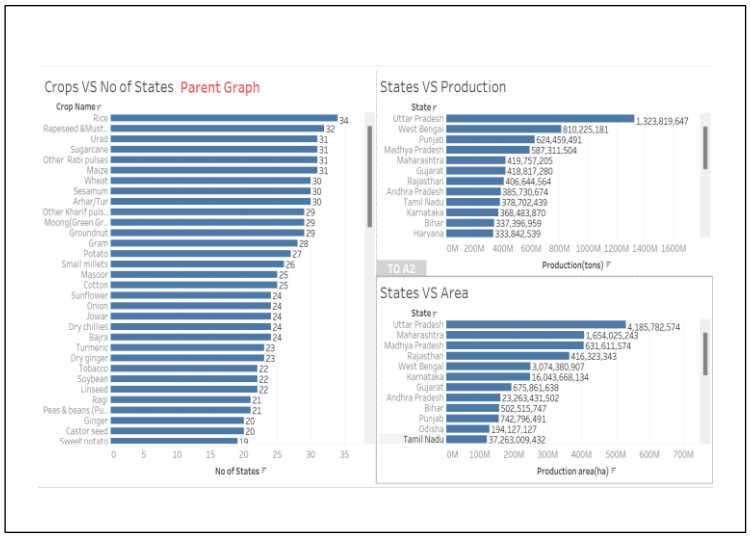
DATA VISUALIZATION

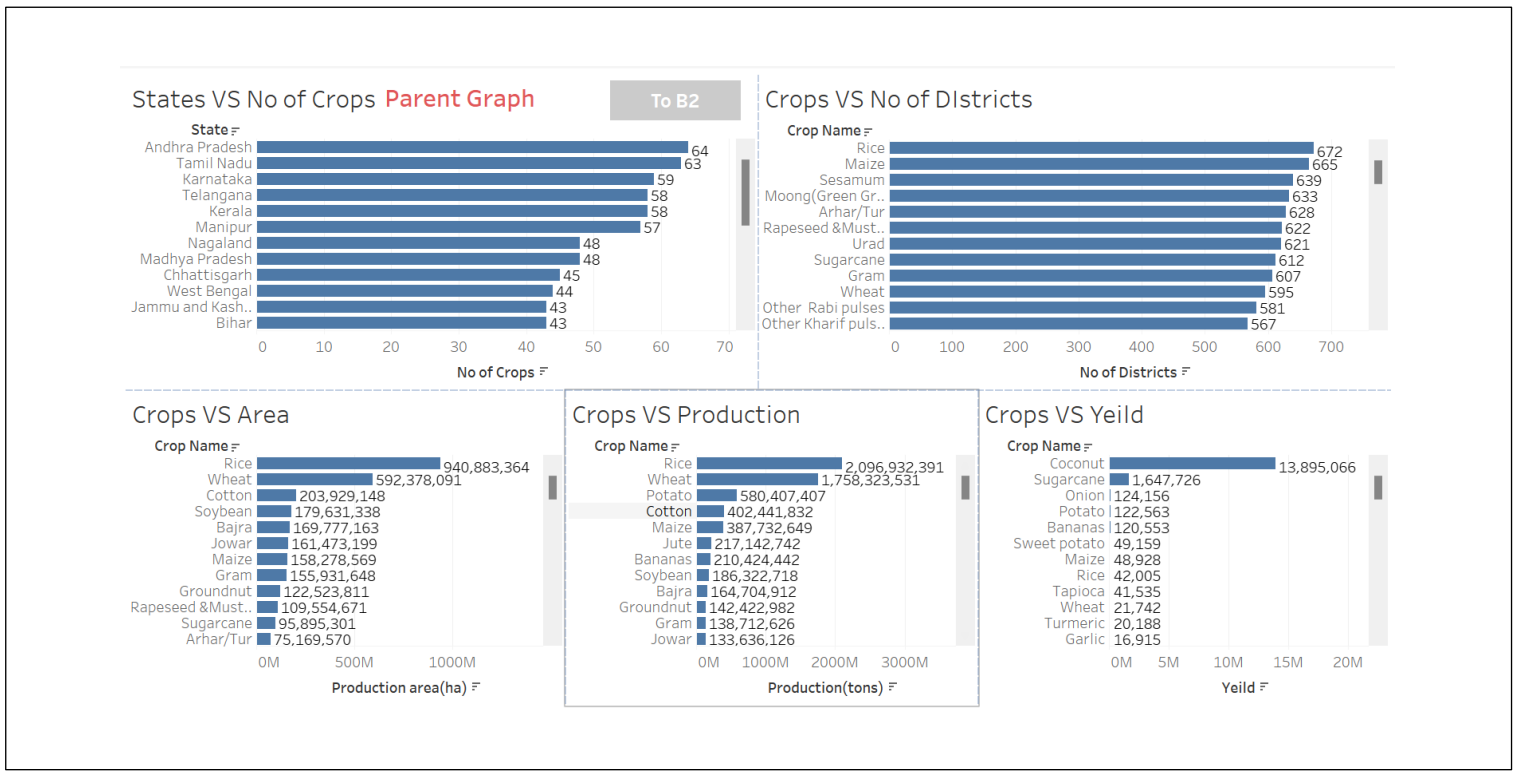
In this process we were supposed to visualize the data using the tool Tableau.

We were given a layout of comparisons which we had to portray in our visualization and draw insights from them.

WORK SAMPLE





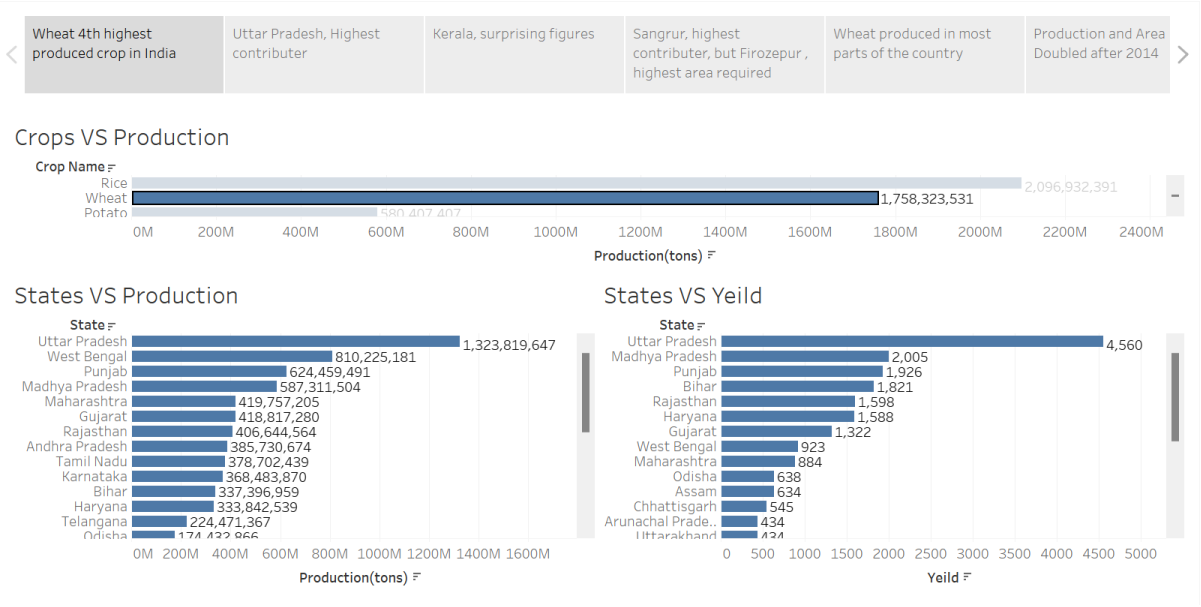


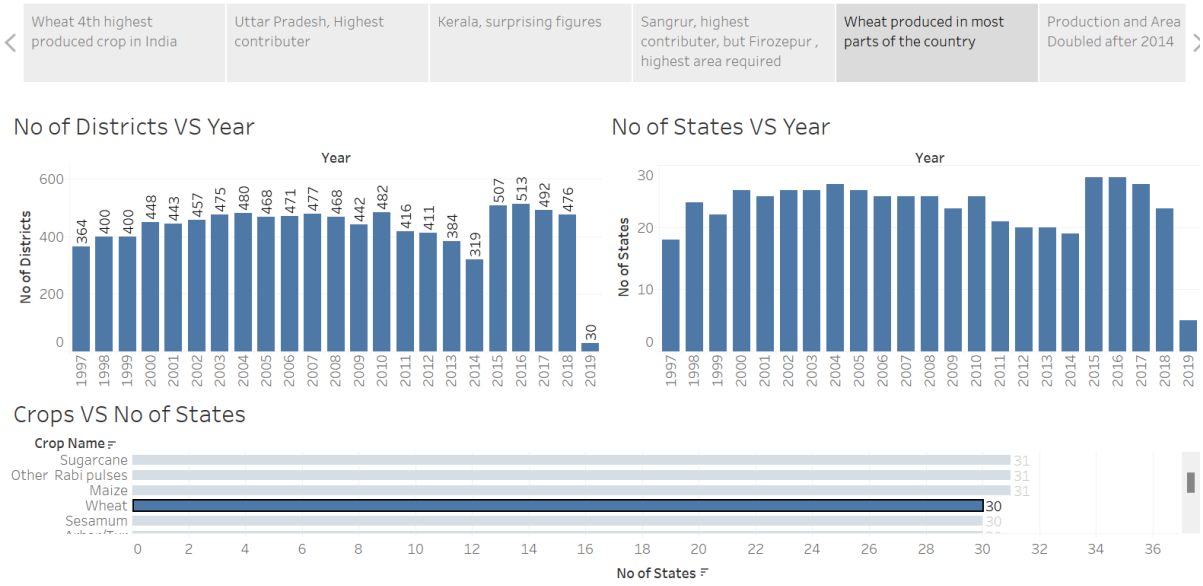
ANALYSIS

In this step we used the STORY feature which Tableau offers in order to showcase the insights which we have got from the visualization.

We built numerous dashboards (collection of charts) and made story out of it.

WORK SAMPLE





KEY INSIGHTS

The major target of this project was to get a rough idea of the current agricultural situation in India. It also gives us a broad idea about the diverse nature of India and the wide opportunity it possesses for other high in demand crops which otherwise gets imported from other country.

The visualization done covers every aspect of the data and can be modified according to the user's requirement using the clickable feature of tableau and therefore new insights can be drawn from it.

CONCLUSION

In conclusion, I would like to put emphasis on the situation of the farmers in India.

Despite being the building block of the entire agricultural system, maximum Indian farmers remain in poverty with very low income. This analysis done will provide a basic idea of where they need technological or infrastructural help and eventually government or private organization will play their part.