

CROP PRODUCTION ANALYSIS

Crop Production Analysis in
India

-Ramkuvar Prajapati
UNID - UMIP11861

INTRODUCTION

- This project focuses on analyzing crop production data in India to uncover key trends and insights.
- By examining factors such as production volume, crop types, and regional variations over time
- we aim to identify patterns that can inform agricultural policies and practices.
- The analysis utilizes advanced data visualization techniques in Tableau to provide a comprehensive overview of the agricultural landscape in India.

DETAILS OF DATA

Column in table

- State_Name: The name of the state where the data was recorded.
- District_Name: The name of the district within the state.
- Crop_Year: The year when the crop data was recorded.
- Season: The season during which the crop was grown (e.g., Kharif, Rabi, Whole Year).
- Crop: The type of crop grown (e.g., Arecanut, Rice, Banana).
- Area: The area of land used for the crop, presumably measured in hectares.
- Production: The production volume of the crop, presumably measured in metric tons.

```
import pandas as pd
crop_data = pd.read_csv('/content/Crop Production data.csv')
crop_data.head()
```

	State_Name	District_Name	Crop_Year	Season	Crop	Area	Production
0	Andaman and Nicobar Islands	NICOBARS	2000	Kharif	Arecanut	1254.0	2000.0
1	Andaman and Nicobar Islands	NICOBARS	2000	Kharif	Other Kharif pulses	2.0	1.0
2	Andaman and Nicobar Islands	NICOBARS	2000	Kharif	Rice	102.0	321.0
3	Andaman and Nicobar Islands	NICOBARS	2000	Whole Year	Banana	176.0	641.0
4	Andaman and Nicobar Islands	NICOBARS	2000	Whole Year	Cashewnut	720.0	165.0

```
crop_data.shape
crop_data.info()
crop_data.describe()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 246091 entries, 0 to 246090
Data columns (total 7 columns):
#   Column      Non-Null Count  Dtype
---  -
0   State_Name  246091 non-null object
1   District_Name 246091 non-null object
2   Crop_Year    246091 non-null int64
3   Season       246091 non-null object
4   Crop         246091 non-null object
5   Area         246091 non-null float64
6   Production   242361 non-null float64
dtypes: float64(2), int64(1), object(4)
memory usage: 13.1+ MB
```

	Crop_Year	Area	Production
count	246091.000000	2.460910e+05	2.423610e+05
mean	2005.643018	1.200282e+04	5.825034e+05
std	4.952164	5.052340e+04	1.706581e+07
min	1997.000000	4.000000e-02	0.000000e+00
25%	2002.000000	8.000000e+01	8.800000e+01
50%	2006.000000	5.820000e+02	7.290000e+02
75%	2010.000000	4.392000e+03	7.023000e+03
max	2015.000000	8.580100e+06	1.250800e+09

The DataFrame has 246,091 rows and 7 columns. Descriptive statistics for the numeric columns (Crop_Year, Area, Production) include count, mean, standard deviation, min, 25th percentile, median (50th percentile), 75th percentile, and max values.

The Production column has 3730 null values. The data types are State_Name: object / District_Name: object / Crop_Year: int64 / Season: object / Crop: object / Area: float64 / Production: float64

DETAILS OF DATA

```
crop_data.isnull().sum()
```

```
State_Name      0
District_Name    0
Crop_Year        0
Season           0
Crop             0
Area             0
Production      3730
dtype: int64
```

```
crop_data.dtypes
```

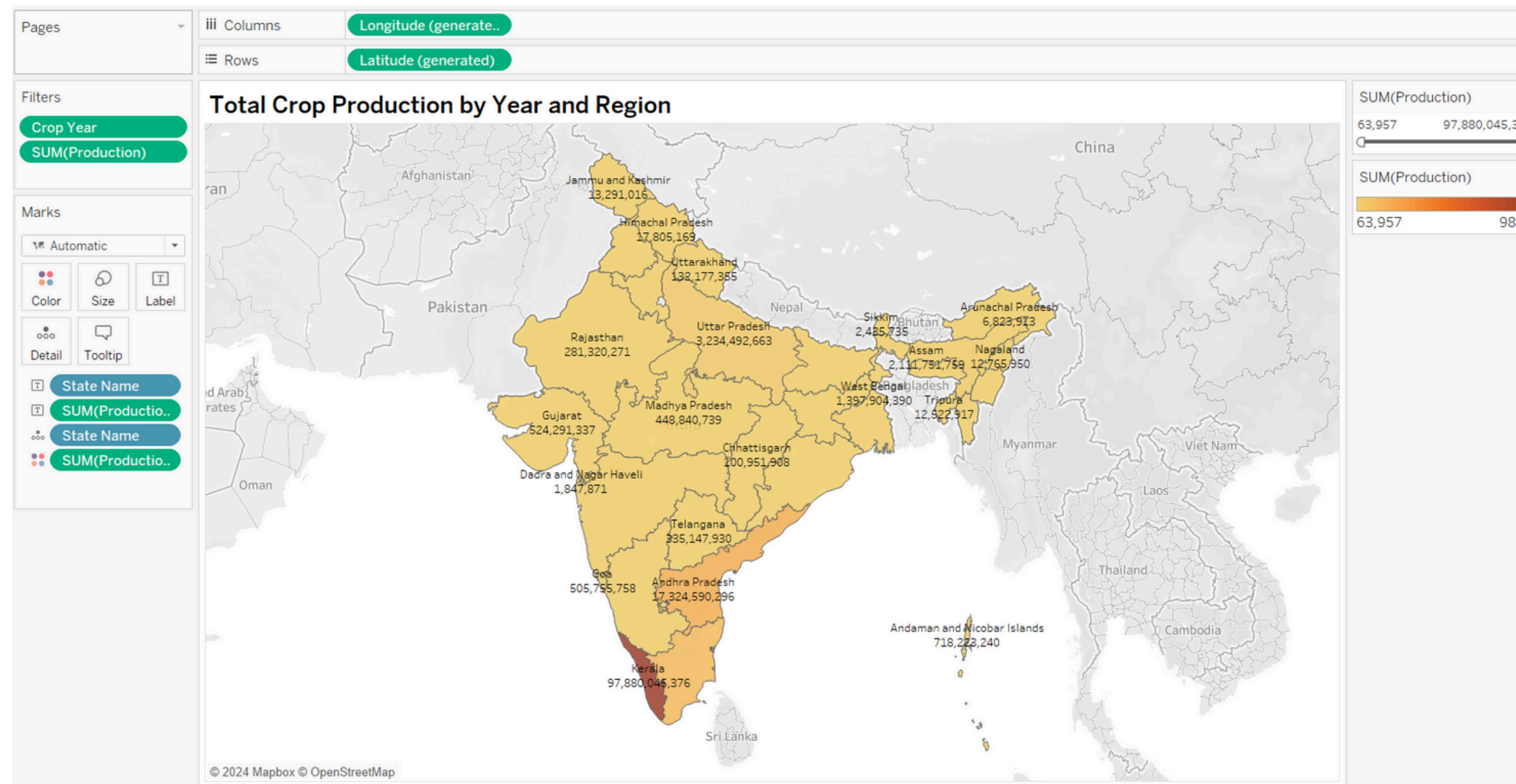
```
State_Name      object
District_Name    object
Crop_Year        int64
Season           object
Crop             object
Area             float64
Production       float64
dtype: object
```

KPIs of Crop Production Analysis

- **Total Crop Production:** The total amount of crop produced over a specified period.
- **Crop Yield per Hectare:** The average crop yield per hectare for different crops and regions.
- **Seasonal Production Trends:** Trends in crop production across different seasons (e.g., Kharif, Rabi).
- **Top Crops by Production Volume:** Ranking of crops based on their production volume.
- **Top Regions by Crop Production:** Ranking of regions (states/districts) based on their crop production volumes.

TOP CROP PROD. BY YEAR & REGION

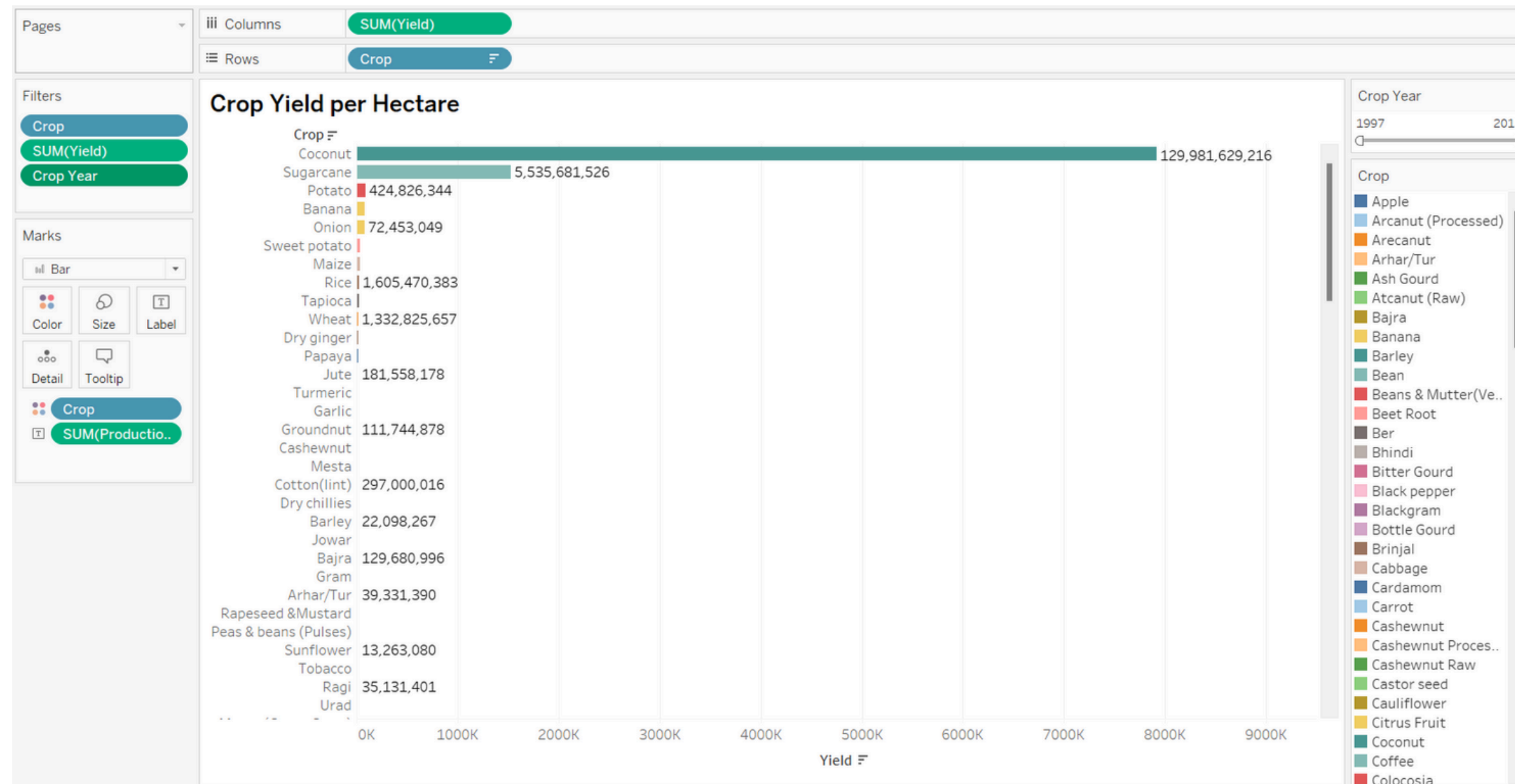
Map illustrating total crop production by year and region across India.



Kerala (97,880,045,376) leads in production followed by **Andhra Pradesh & Uttar Pradesh**, with a noticeable variation in crop production across different states.

CROP YIELD PER HECTARE

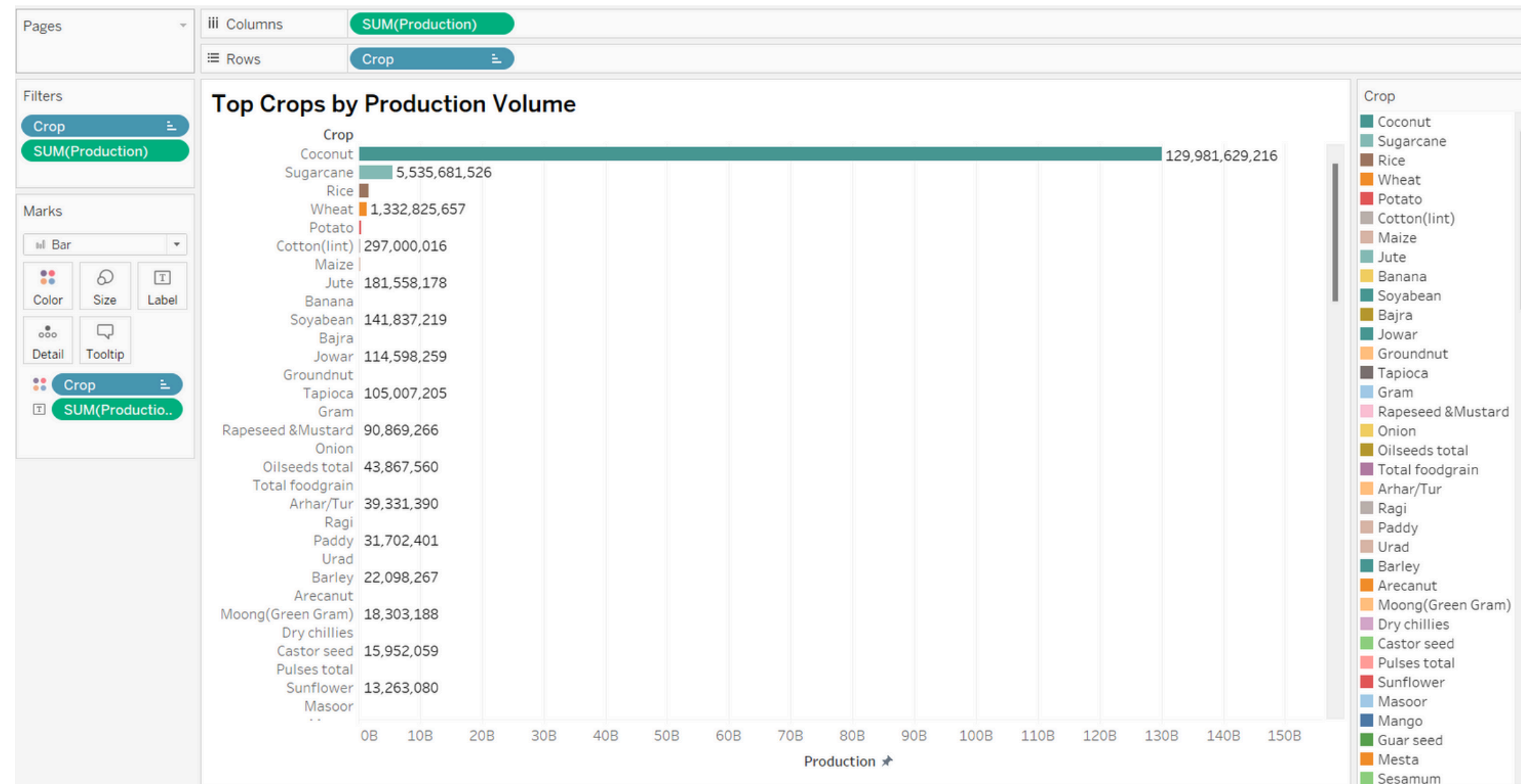
Bar chart showing crop yield per hectare for various crops in India.



Sugarcane (5,535,681,526) and **Coconut (129,981,629,216)** have the highest yields, with significant differences among other crops.

TOP CROP BY PRODUCTION VOLUME

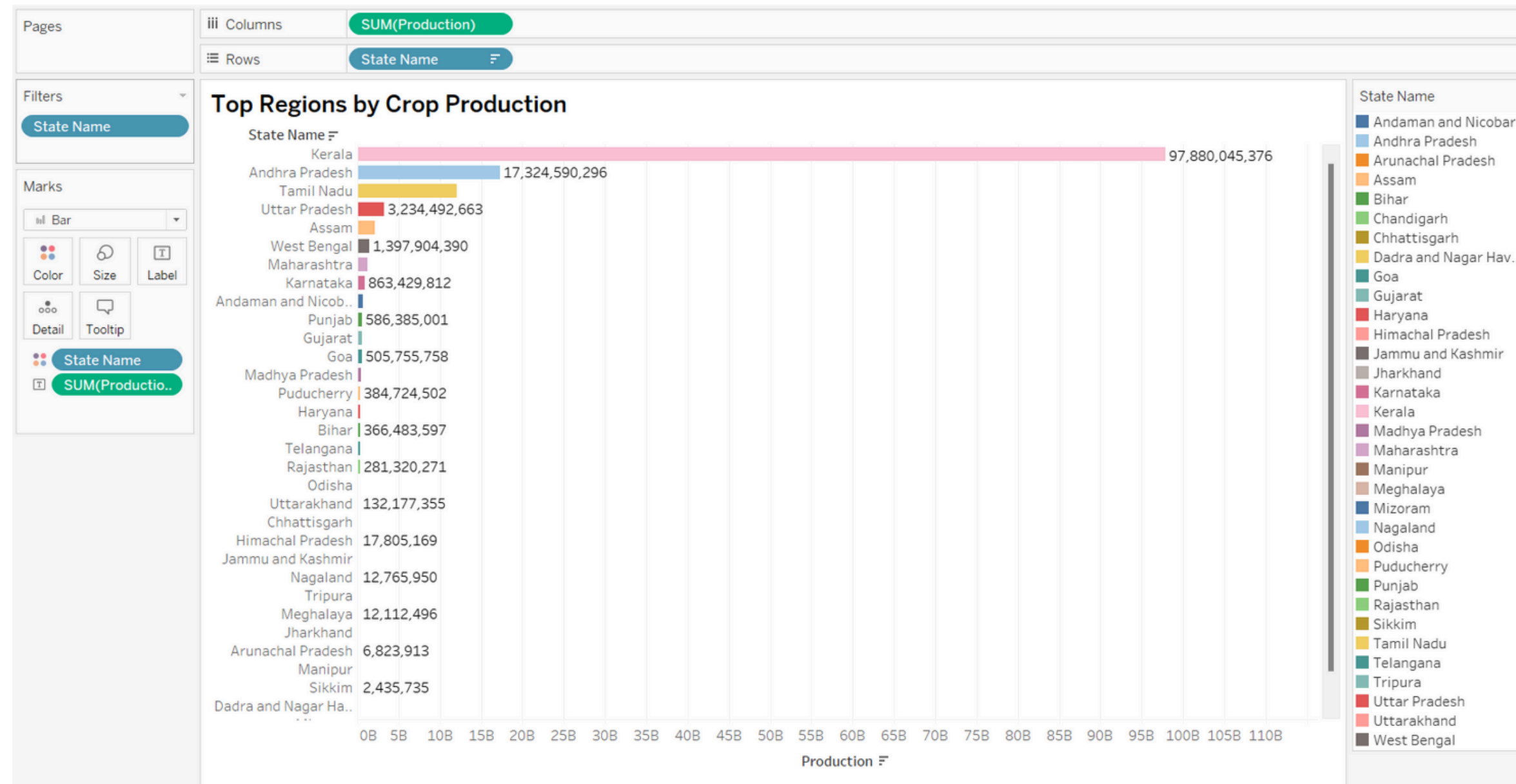
Bar chart displaying the production volume of various crops.



Coconut (129.98B tons) and **Sugarcane (5.54B tons)** are the top producers, followed by **Rice (1.61B tons)**, **Wheat (1.33B tons)**, and **Potato (424.83M tons)**.

TOP REGIONS BY CROP PRODUCTION

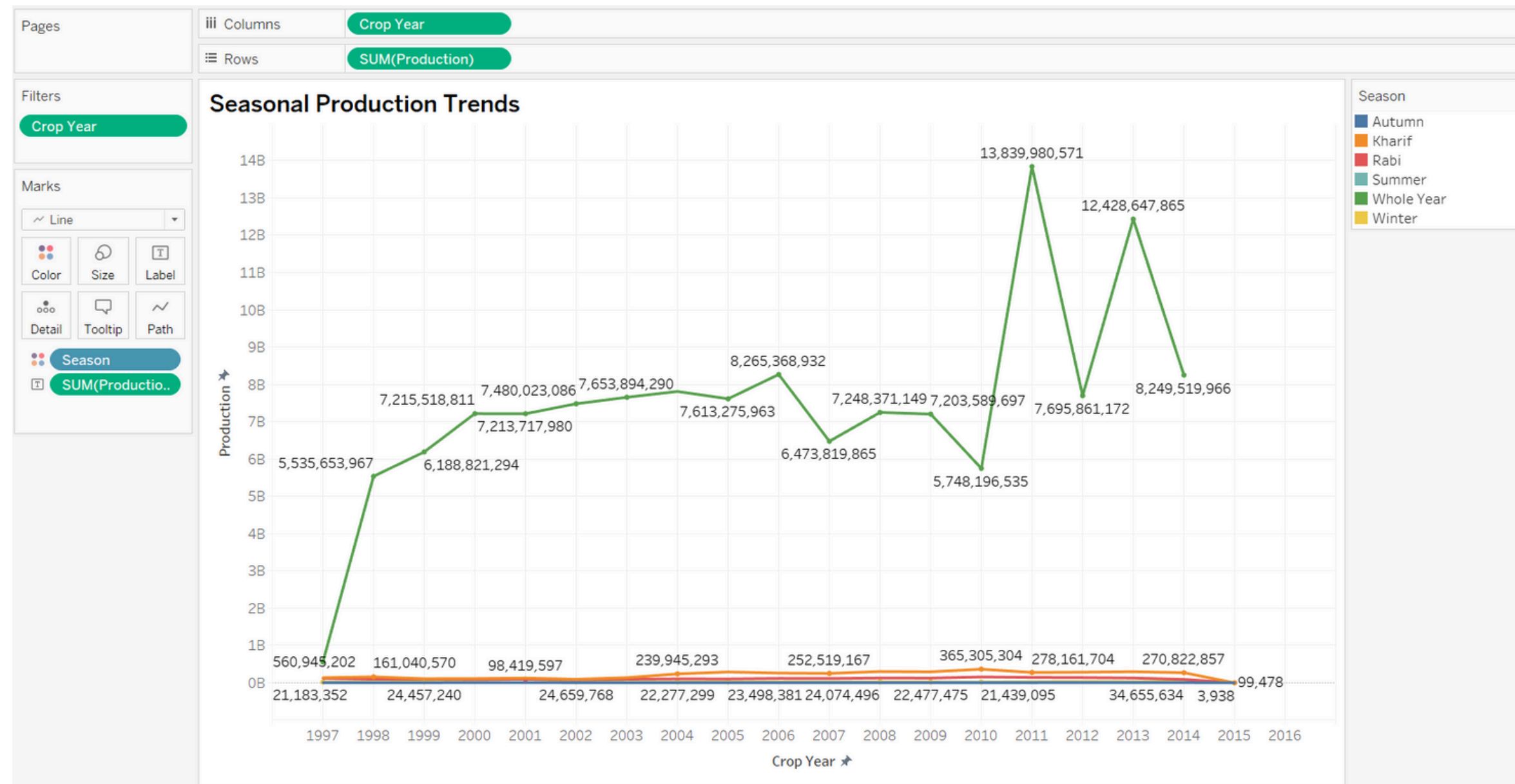
Bar chart showing the total crop production in various Indian states.



Kerala (97.88B tons) leads in production followed by **Andhra Pradesh(17.32B tons)**, **Tamil Nadu(12.76B tons)**, & **Uttar Pradesh(3.23B tons)** respectively

SEASONAL PRODUCTION TREND

Line chart depicting seasonal crop production trends from 1997 to 2016.



Significant production spikes in **2011 (13.84B tons)** and **2013 (12.43B tons)**, with overall increasing trend.

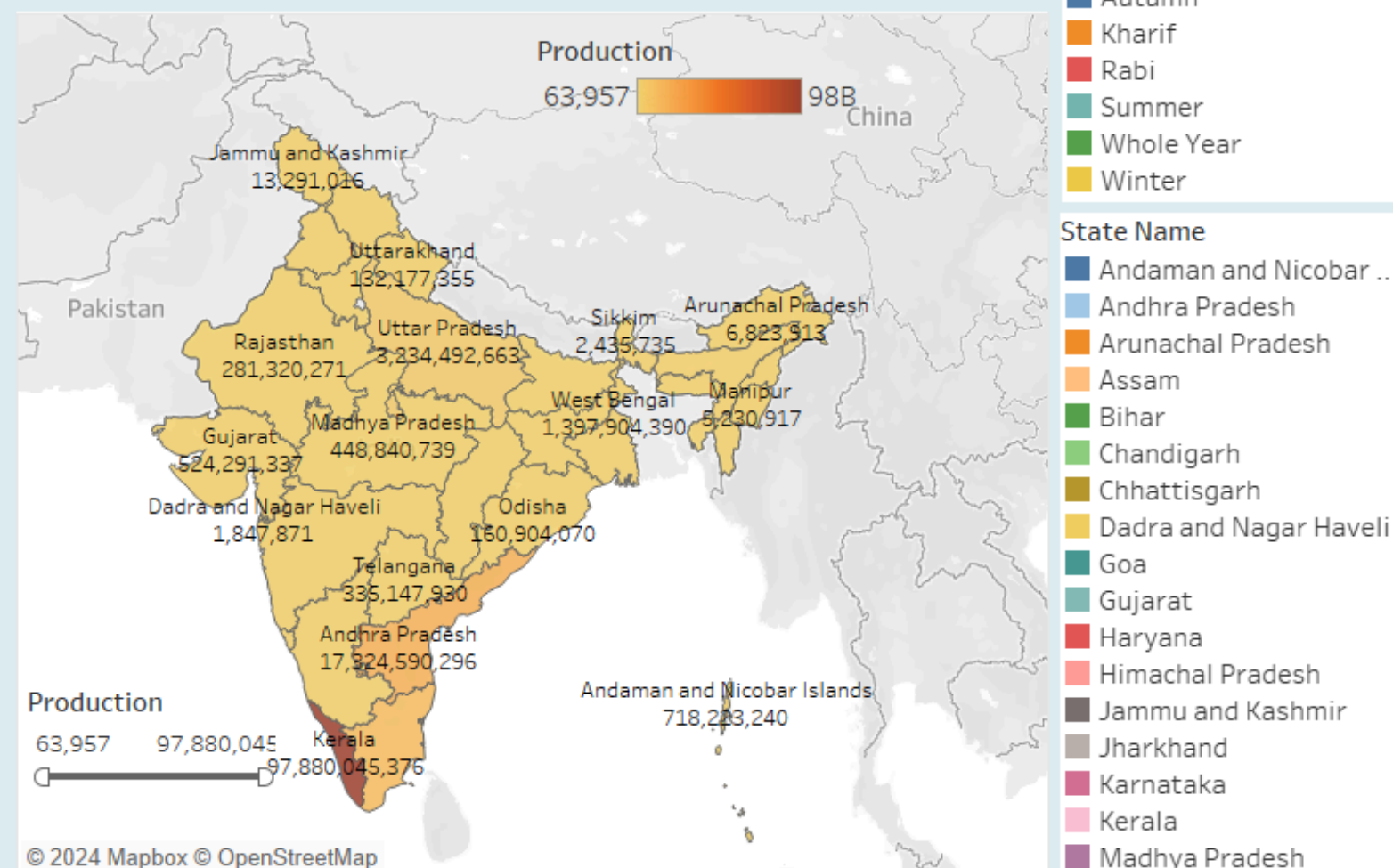
DASHBOARD

Crop Production Analysis in India

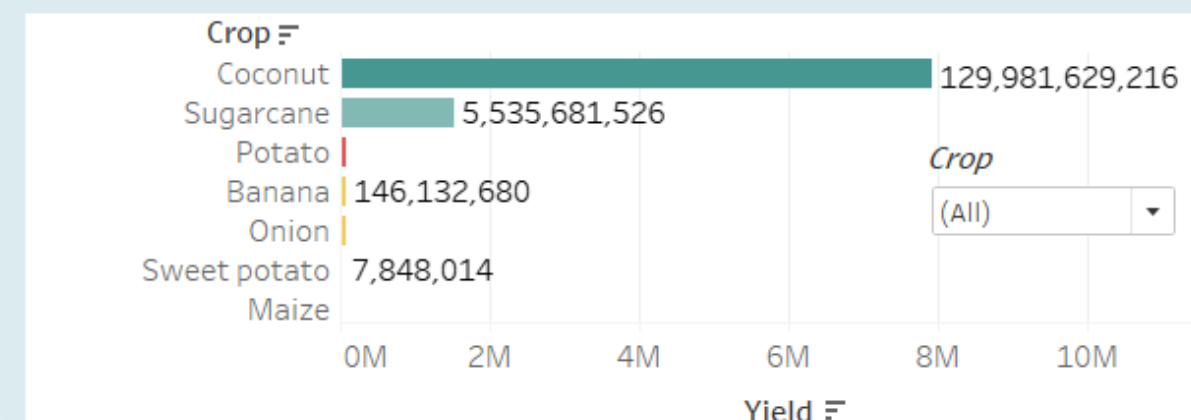
Seasonal Production Trends



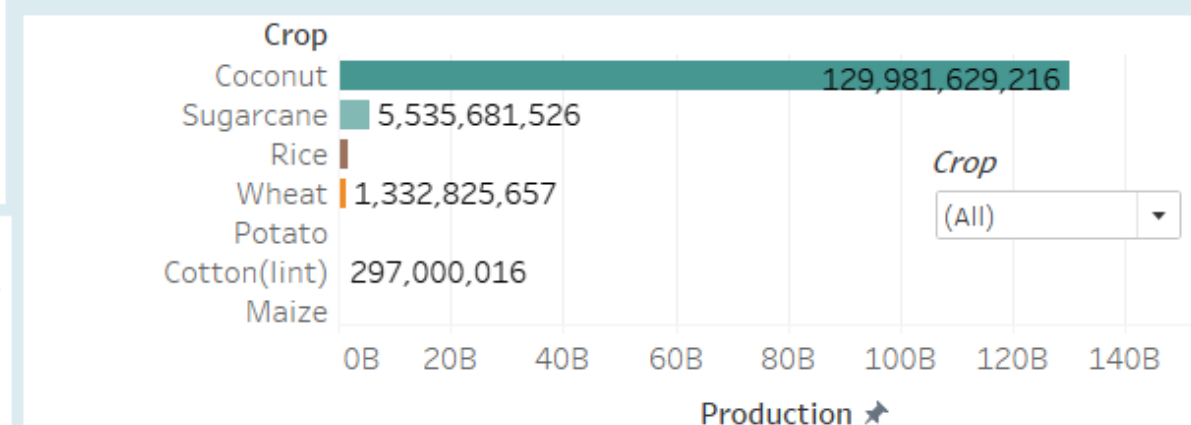
Total Crop Production by Year and Region



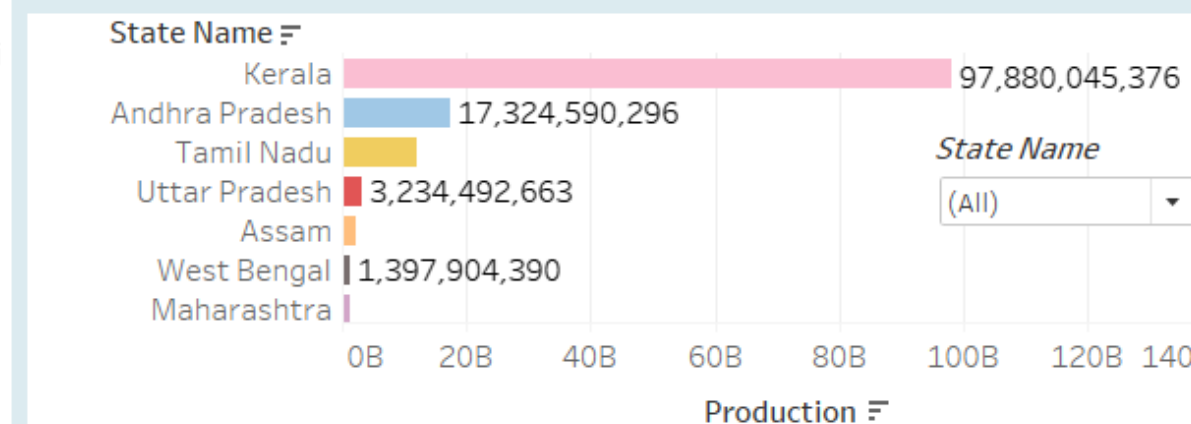
Crop Yield per Hectare



Top Crops by Production Volume



Top Regions by Crop Production



- Crop
- Apple
 - Arcanut (Pro
 - Arecanut
 - Arhar/Tur
 - Ash Gourd
 - Atcanut (Rav
 - Bajra
 - Banana
 - Barley
 - Bean
 - Beans & Muti
 - Beet Root
 - Ber
 - Bhindi
 - Bitter Gourd
 - Black pepper
 - Blackgram
 - Bottle Gourd
 - Brinjal
 - Cabbage
 - Cardamom
 - Carrot
 - Cashewnut
 - Cashewnut P
 - Cashewnut R
 - Castor seed
 - Cauliflower
 - Citrus Fruit
 - Coconut
 - Coffee
 - Colocasia
 - Cond-spcs ot
 - Coriander
 - Cotton(lint)
 - Cowpea(Lobi
 - Cucumber

THANKYOU

-Ramkuvar Prajapati
UNID - UMIP11861