

# Food Production in India

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## About Data

### Context

This dataset provides a huge amount of information on crop production in India across their states ranging from several years. Given dataset has 7 columns and approx 24000 rows. It has 624 unique values. Based on the Information the ultimate goal would be to visualize the crop production and productivity in India on statewise, seasonwise, yearwise and many other perspective using the different R tools manily ggplot2 and R shiny.

### Content

The content is taken from data.world website  
<https://data.world/thatzprem/agriculture-india>

### Analysis of Crop's Production Across India Yearwise:

```
library(tidyverse)

## — Attaching packages ————— tidyverse
## 1.3.2 —
## ✓ ggplot2 3.3.6      ✓ purrr  0.3.4
## ✓ tibble  3.1.8      ✓ dplyr  1.0.10
## ✓ tidyr   1.2.1      ✓ stringr 1.4.1
## ✓ readr   2.1.3      ✓ forcats 0.5.2
## — Conflicts —————
tidyverse_conflicts() —
## ✗ dplyr::filter() masks stats::filter()
## ✗ dplyr::lag()     masks stats::lag()

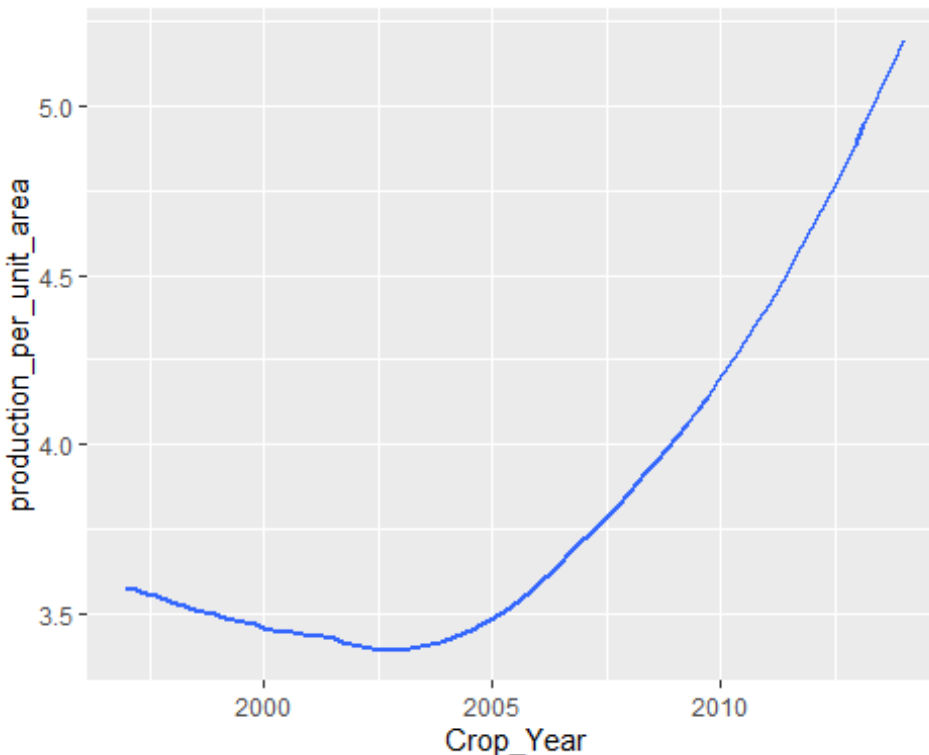
library(dplyr)
library(tidyr)
library(ggplot2)
library(tidyverse)
library(lubridate)

##
## Attaching package: 'lubridate'
##
## The following objects are masked from 'package:base':
```

```
##
##      date, intersect, setdiff, union

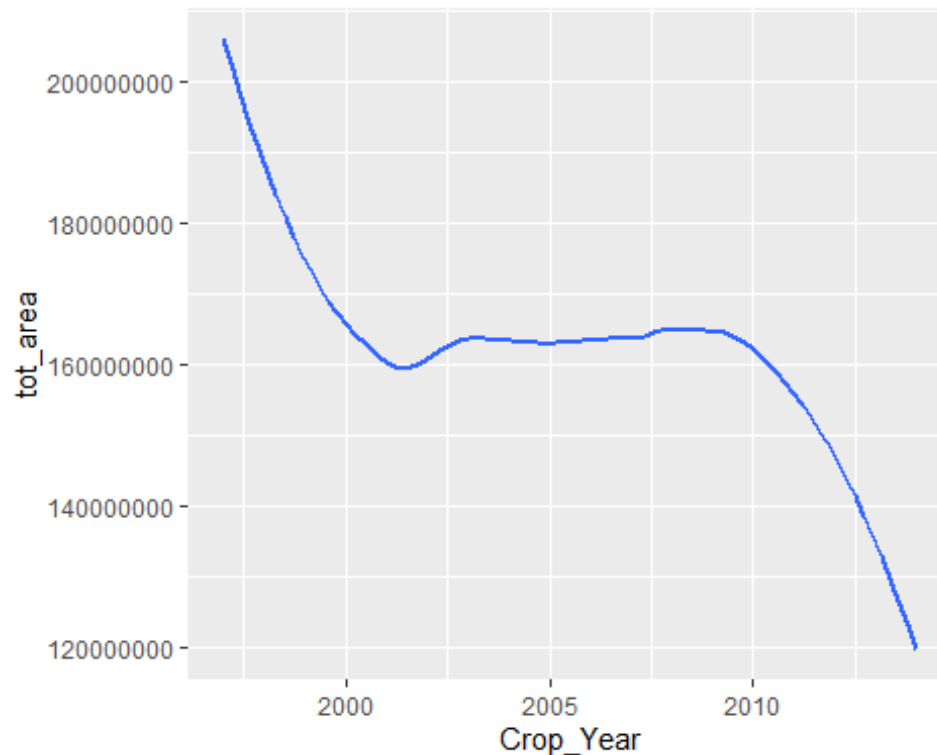
options(scipen = 1000000) # to get numerical value
crop_production=read.csv("C:\\Users\\mishr\\OneDrive\\Desktop\\crop_production.csv")
crop_production=crop_production %>% drop_na(Production) # to drop null value
crop_production= crop_production[crop_production$Crop != "Coconut ",] #
because coconut production was creating a big hindrance in our dataset
season_df1=crop_production %>% group_by(Crop_Year) %>% summarise(
  tot_area=sum(Area),
  tot_prod=sum(Production)
  ,production_per_unit_area= tot_prod/tot_area)
ggplot(season_df1, aes(Crop_Year, production_per_unit_area))+
  geom_smooth(se= FALSE)

## `geom_smooth()` using method = 'loess' and formula 'y ~ x'
```



```
ggplot(season_df1, aes(Crop_Year,tot_area))+
  geom_smooth(se= FALSE)

## `geom_smooth()` using method = 'loess' and formula 'y ~ x'
```



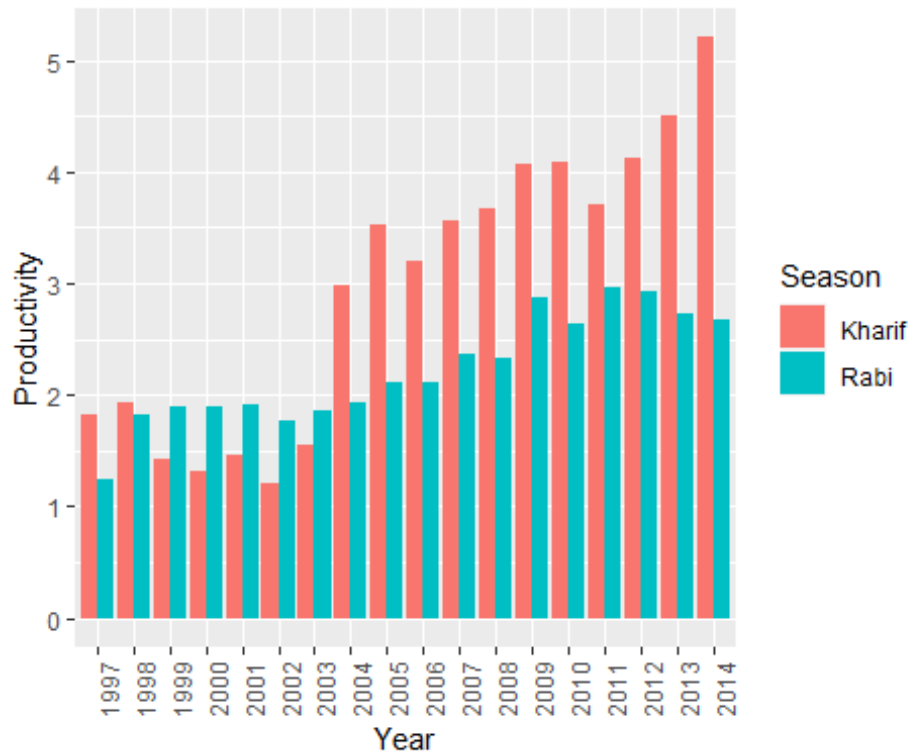
In this graph we saw that productivity of indian land is exponentially increasing since 1996 except one or two year even though uses of agricultural land is decreasing

### Seasonwise Production in India

```
season_df2= crop_production[crop_production$Season== "Kharif" |
crop_production$Season=="Rabi",] %>% group_by(Crop_Year, Season) %>%
summarise(total_production= sum(Production),
  total_area = sum(Area),production_per_unit_area=
total_production/total_area)
```

## `summarise()` has grouped output by 'Crop\_Year'. You can override using the  
## `.groups` argument.

```
season_df2$Crop_Year=as.character(season_df2$Crop_Year)
gk_g=ggplot(season_df2, aes(Crop_Year,production_per_unit_area, fill= Season
))+
  geom_bar(stat= "identity", position= "dodge")+
  theme(axis.text.x = element_text(angle = 90, vjust = 1, hjust=1))
gk_g + labs(x="Year", y= "Productivity")
```



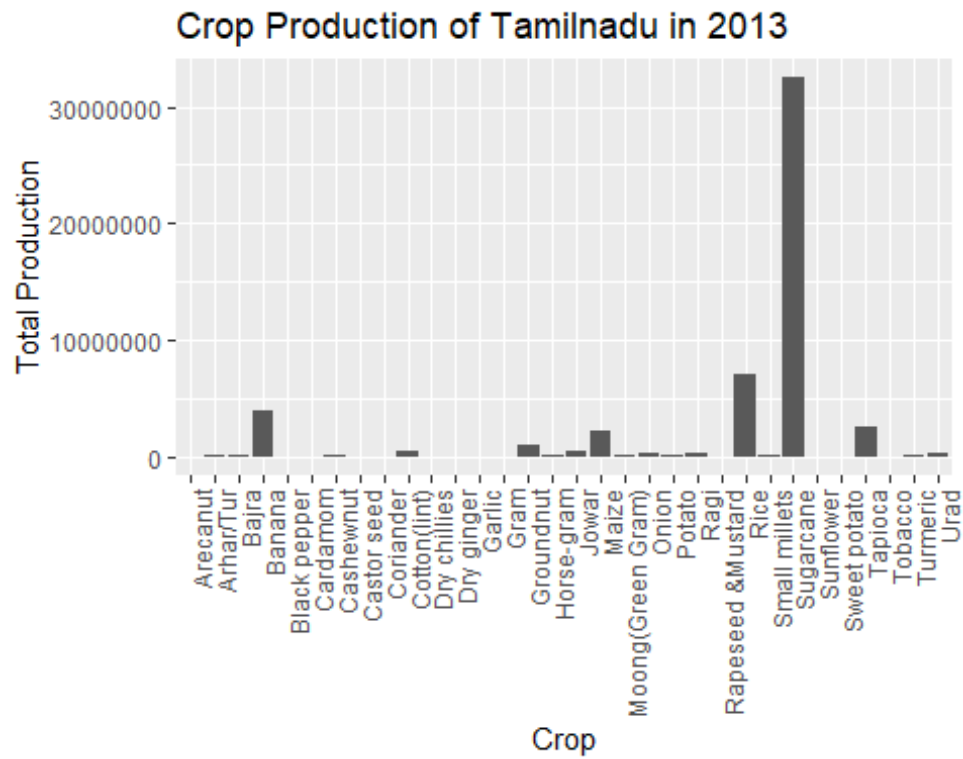
```
ggtitle("Productivity Analysis")
```

```
## $title
## [1] "Productivity Analysis"
##
## attr(,"class")
## [1] "labels"
```

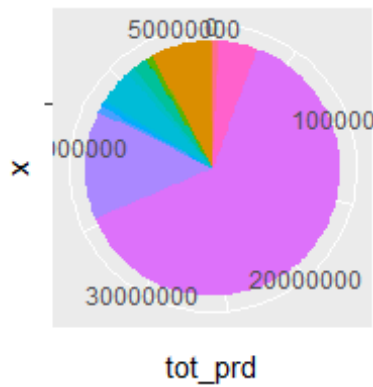
In this bar plot we have seen that productivity in both of the season increased since 1996 but rate of increasing productivity in Kharif season is more than Rabi season. In 2014 productivity of Kharif season was more than 2 times of Productivity of Rabi season

#### Crop Production Analysis in Tamilnadu:

```
season_df3= crop_production[crop_production$State_Name=="Tamil Nadu" &
crop_production$Crop_Year== 2013, ] %>% group_by(Crop) %>% summarise(tot_prd=
sum(Production), tot_area= sum(Area), pro= tot_prd/tot_area)
ggplot(season_df3, aes(x=Crop,y=tot_prd))+
  geom_col()+
  theme(axis.text.x = element_text(angle = 90, vjust = 1, hjust=1))+labs(y=
"Total Production")+ggtitle("Crop Production of Tamilnadu in 2013")
```



```
ggplot(season_df3, aes(x="", y=tot_prd, fill=Crop))+
  geom_col()+ coord_polar(theta='y')
```



Arecanut	Jowar
Arhar/Tur	Maize
Bajra	Moong(Green Gram)
Banana	Onion
Black pepper	Potato
Cardamom	Ragi
Cashewnut	Rapeseed & Mustard
Castor seed	Rice
Coriander	Small millets
Cotton(lint)	Sugarcane
Dry chillies	Sunflower
Dry ginger	Sweet potato
Garlic	Tapioca
Gram	Tobacco
Groundnut	Turmeric
Horse-gram	Urad

In these 2 graphs we have seen that in 2013 in Tamilnadu have major production in Sugarcane, Banana, Tapioca and Rice as well