

Edible Oils Import by India

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India, one of the world's largest consumers and importers of edible oils, has seen significant evolution in its import basket over the last decade. An analysis of import data from the financial year (from Nov to Oct) 2010-2011 through 2023-2024 reveals a dynamic volume growth, shifting consumer preferences, and geopolitical influences on sourcing.

The data clearly indicates a robust long-term growth trend in the total quantity of edible oil imported by India, with quantities often exceeding 15,000,000 tonnes in recent years.

Annually (April to March) Edible Oils Import by India

```
library(data.table)
library(ggplot2)
library(gridExtra)
library(gt)
library(ggthemes) ## For more themes

## Custom theme for plots
my_theme <- theme_bw(base_size = 16) + ## Start with theme_bw and increase base size
  theme(text = element_text(family = "serif", color = "#333333"), ## Set font family and color
        plot.title = element_text(size = 20, face = "bold",
                                   hjust = 0.5, margin = margin(10, 0, 10, 0)), ## Center axis titles
        axis.title = element_text(size = 18),
        axis.text = element_text(size = 14),
        legend.position = "bottom",
        legend.title = element_blank(), ## Remove legend title
        panel.grid.major = element_line(color = "#EEEEEE"), ## Lighter grid lines
        panel.border = element_blank(), ## Remove panel border
        axis.line = element_line(color = "#333333"), ## Add axis lines
        axis.text.x = element_text(angle = 90, vjust = 0.5, hjust=1),
```

```

    strip.background = element_rect(fill = "#F2F2F2", color = NA) ## Style facet strip
)

readRDS("/home/pawan/edibleoils/palmoil_import.rds")->palm
readRDS("/home/pawan/edibleoils/soyabean_import.rds")->soyabean
readRDS("/home/pawan/edibleoils/sunflower_import.rds")->sunflower

paste0("Palm Oil")->palm$Edibleoil
paste0("Soyabean Oil")->soyabean$Edibleoil
paste0("Sunflower Oil")->sunflower$Edibleoil

paste0(as.numeric(substr(palm$Year,1,4)),"-",
      as.numeric(substr(palm$Year,3,4))+1)->palm$Year
paste0(as.numeric(substr(palm$LagYear,1,4)),"-",
      as.numeric(substr(palm$LagYear,8,9)))->palm$LagYear

paste0(as.numeric(substr(soyabean$Year,1,4)),"-",
      as.numeric(substr(soyabean$Year,3,4))+1)->soyabean$Year
paste0(as.numeric(substr(soyabean$LagYear,1,4)),"-",
      as.numeric(substr(soyabean$LagYear,8,9)))->soyabean$LagYear

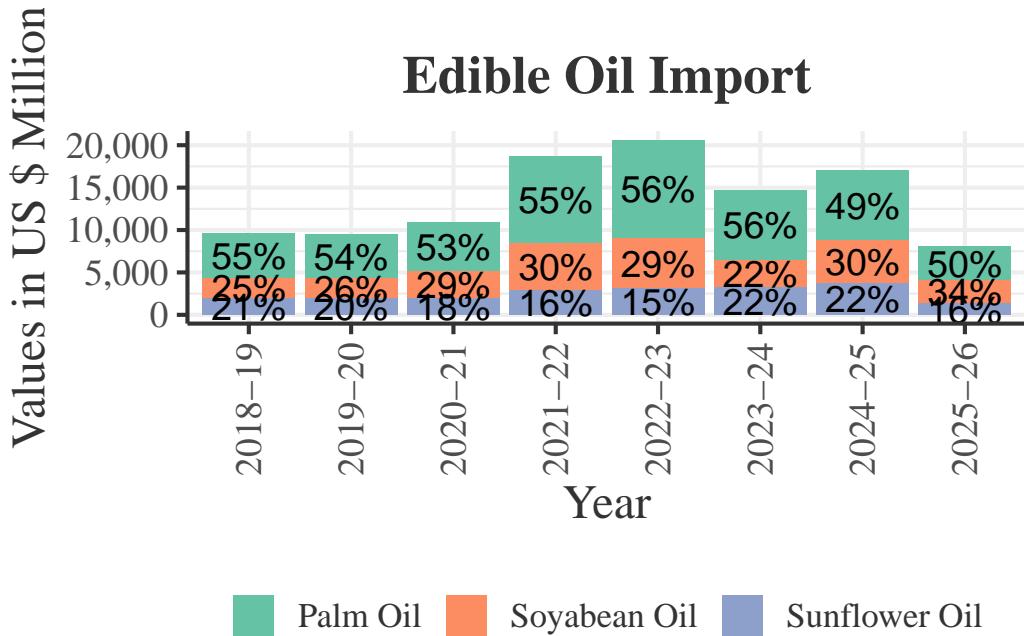
paste0(as.numeric(substr(sunflower$Year,1,4)),"-",
      as.numeric(substr(sunflower$Year,3,4))+1)->sunflower$Year
paste0(as.numeric(substr(sunflower$LagYear,1,4)),"-",
      as.numeric(substr(sunflower$LagYear,8,9)))->sunflower$LagYear

rbind(palm,soyabean,sunflower)->edibleoil

edibleoil[Country=="Total",.(Share=(round(ImportYear*100/sum(ImportYear))),
                           Edibleoil,ImportYear),.(Year)]->oil

ggplot(oil, aes(x = Year, y = ImportYear, fill = Edibleoil)) +
  geom_bar(stat = "identity", position = "stack") +
  geom_text(aes(x = Year, y = ImportYear,
                label = ifelse(Share<5, "", paste0(Share, "%"))),
            position = position_stack(vjust = 0.5), size = 5, color = "black") +
  scale_fill_brewer(palette="Set2")+
  my_theme +
  scale_y_continuous(labels = scales::comma) +
  labs(y = "Values in US $ Million") +
  ggtitle("Edible Oil Import")->p5
p5

```



```
ggsave("annual-edibleoil-import.png", width = 12, height = 8)
```

Compile India Imported Edible Oil

```
readRDS("/home/pawan/edibleoils/palmoil_importqty.rds")->palmoil
readRDS("/home/pawan/edibleoils/soybeanoil_importqty.rds")->soybeanoil
readRDS("/home/pawan/edibleoils/sunfloweroil_importqty.rds")->sunfloweroil

## Data Cleaning
gsub(",","",palmoil$ImportMonth)->palmoil$ImportMonth
gsub(",","",soybeanoil$ImportMonth)->soybeanoil$ImportMonth
gsub(",","",sunfloweroil$ImportMonth)->sunfloweroil$ImportMonth

## Change Calender Year to Oil Year (Nov to Oct)
match(palmoil$Month,month.abb)->palmoil$Month
ifelse(as.numeric(palmoil$Month)>10, paste0((palmoil$Year),"-", (as.numeric(palmoil$Year)+1)))
  paste0((as.numeric(palmoil$Year)-1),"-", (as.numeric(palmoil$Year))))->palmoil$Fin_Year

match(soybeanoil$Month,month.abb)->soybeanoil$Month
ifelse(as.numeric(soybeanoil$Month)>10, paste0((soybeanoil$Year),"-", (as.numeric(soybeanoil$Year)+1)))
  paste0((as.numeric(soybeanoil$Year)-1),"-", (as.numeric(soybeanoil$Year))))->soybeanoil$Fin_Year

match(sunfloweroil$Month,month.abb)->sunfloweroil$Month
ifelse(as.numeric(sunfloweroil$Month)>10, paste0((sunfloweroil$Year),"-", (as.numeric(sunfloweroil$Year)+1)))
  paste0((as.numeric(sunfloweroil$Year)-1),"-", (as.numeric(sunfloweroil$Year))))->sunfloweroil$Fin_Year
```

```

paste0((as.numeric(soybeanoil$Year)-1),"-",(as.numeric(soybeanoil$Year))))->soybeanoil

match(sunfloweroil$Month,month.abb)->sunfloweroil$Month
ifelse(as.numeric(sunfloweroil$Month)>10, paste0((sunfloweroil$Year),"-",(as.numeric(sunfloweroil$Year)-1)),"-",(as.numeric(sunfloweroil$Year))))->sunfloweroil

palmoil[Country!="Total",.(Import = sum(as.numeric(ImportMonth), na.rm=TRUE))
,.(Country,Fin_Year)]->table1

soybeanoil[Country!="Total",.(Import = sum(as.numeric(ImportMonth), na.rm=TRUE))
,.(Country,Fin_Year)]->table2

sunfloweroil[Country!="Total",.(Import = sum(as.numeric(ImportMonth), na.rm=TRUE))
,.(Country,Fin_Year)]->table3

ifelse(table1$Country %in% c("INDONESIA", "MALAYSIA"),
      table1$Country, "Other Countries")->table1$Country

ifelse(table2$Country %in% c("ARGENTINA", "BRAZIL"),
      table2$Country, "Other Countries")->table2$Country

ifelse(table3$Country %in% c("UKRAINE", "RUSSIA"),
      table3$Country, "Other Countries")->table3$Country

table1[,.(Import=sum(Import)),.(Country,Fin_Year)]->table1
table2[,.(Import=sum(Import)),.(Country,Fin_Year)]->table2
table3[,.(Import=sum(Import)),.(Country,Fin_Year)]->table3

table1[Fin_Year>="2010-2011",.(Share=(round(Import*100/sum(Import))),
      Country,Import),.(Fin_Year)][Fin_Year!="2024-2025"]->table1

table2[Fin_Year>="2010-2011",.(Share=(round(Import*100/sum(Import))),
      Country,Import),.(Fin_Year)][Fin_Year!="2024-2025"]->table2

table3[Fin_Year>="2010-2011",.(Share=(round(Import*100/sum(Import))),
      Country,Import),.(Fin_Year)][Fin_Year!="2024-2025"]->table3

```

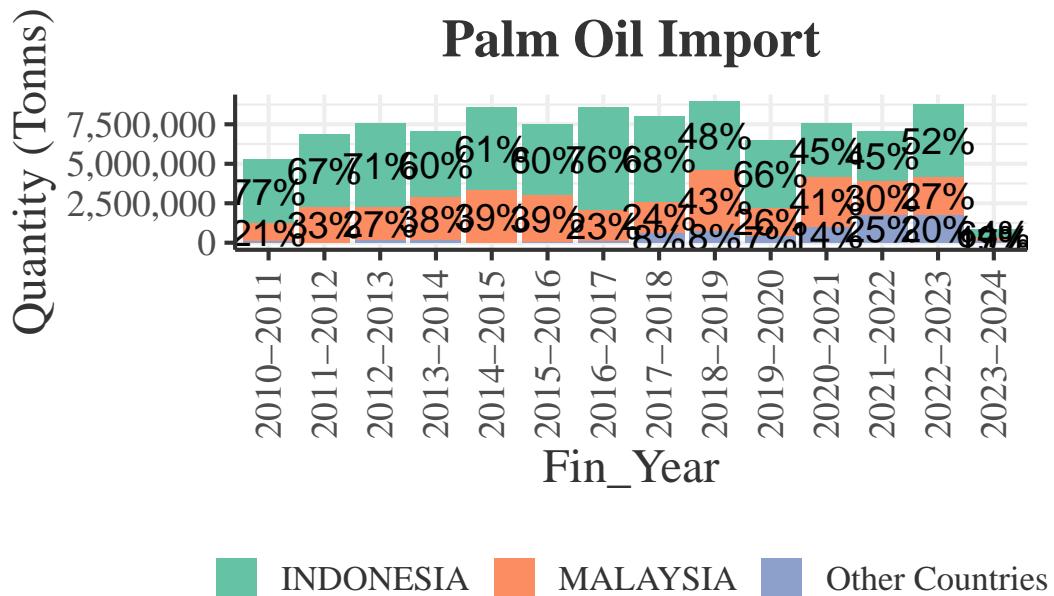
Palm Oil

Palm oil remains the single largest imported oil, but its proportional share has decreased. It accounted for a high of 79% of total imports in 2010-2011, but this share has trended

downwards, settling at 56% in 2023-2024.

India maintains a near-exclusive on its Southeast Asian neighbours for palm oil, with Indonesia and Malaysia consistently dominating the supply chain. While the proportional distribution between the two varies year-to-year—with Malaysia often holding the slight edge in the mid-period (e.g., 71% in 2013-2014)—the combined share of these two nations routinely exceeds 90%, highlighting a concentrated supply risk.

```
ggplot(table1, aes(x = Fin_Year, y = Import, fill = Country)) +  
  geom_bar(stat = "identity", position = "stack") +  
  geom_text(aes(x = Fin_Year, y = Import,  
                label = ifelse(Share<5, "", paste0(Share, "%"))),  
            position = position_stack(vjust = 0.5), size = 5, color = "black") +  
  scale_fill_brewer(palette="Set2")## Set bar color  
my_theme +  
  scale_y_continuous(labels = scales::comma) +  
  labs(y = "Quantity (Tonns)") +  
  ggtitle("Palm Oil Import")->p1  
p1
```

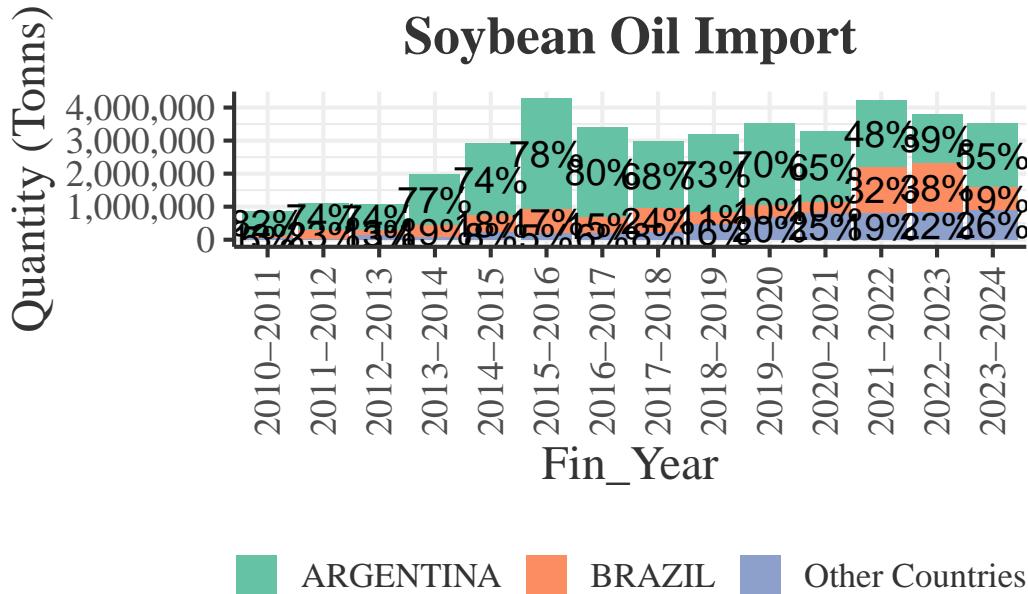


Soybean Oil

Soybean oil has maintained a volatile but stable proportion, fluctuating between 15% and 30% over the period.

The import of soybean oil is heavily dictated by South American supply, with Argentina acting as the primary source. Argentina consistently provided over 70% of India's soybean oil needs for much of the period. Brazil plays a significant, though secondary, role, with its share showing an upward trend in certain recent financial years.

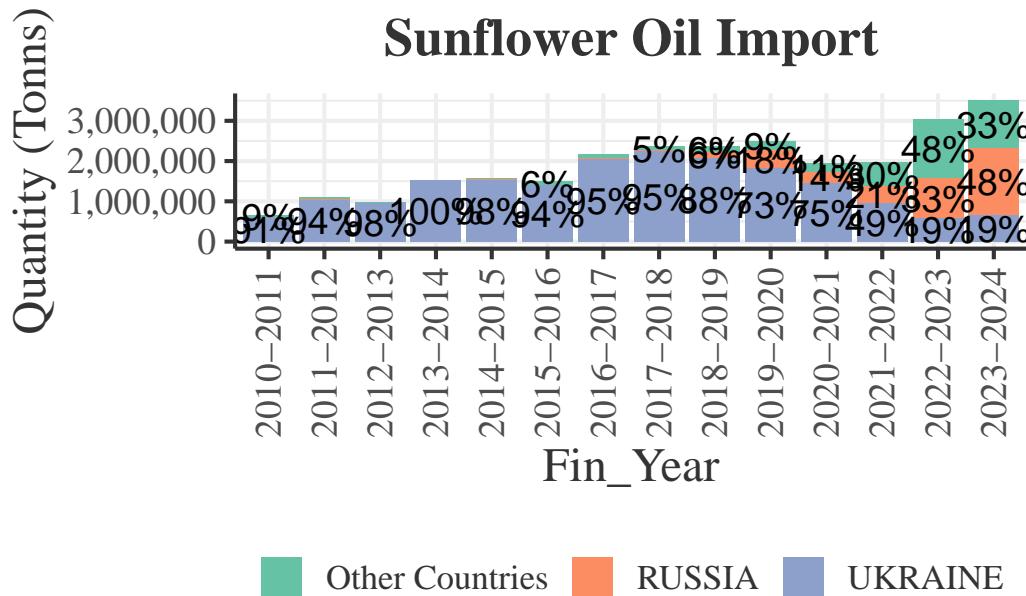
```
ggplot(table2, aes(x = Fin_Year, y = Import, fill = Country)) +  
  geom_bar(stat = "identity", position = "stack") +  
  geom_text(aes(x = Fin_Year, y = Import,  
                label = ifelse(Share<5, "", paste0(Share, "%"))),  
            position = position_stack(vjust = 0.5), size = 5, color = "black") +  
  scale_fill_brewer(palette="Set2") +  
  my_theme +  
  scale_y_continuous(labels = scales::comma) +  
  labs(y = "Quantity (Tonns)") +  
  ggtitle("Soybean Oil Import")->p2  
p2
```



Sunflower Oil

The most striking trend is the increasing reliance on sunflower oil. For the better part of the decade (2010-2011 to 2020-2021), sunflower oil constituted a minor share, typically between 6% and 14%. However, in the latest period (2023-2024), its share has surged to a high of 22%, indicating a significant structural shift in consumer demand and import policy favouring softer oils.

```
ggplot(table3, aes(x = Fin_Year, y = Import, fill = Country)) +  
  geom_bar(stat = "identity", position = "stack") +  
  geom_text(aes(x = Fin_Year, y = Import,  
                label = ifelse(Share<5, "", paste0(Share, "%"))),  
            position = position_stack(vjust = 0.5), size = 5, color = "black") +  
  scale_fill_brewer(palette="Set2") +  
  my_theme +  
  scale_y_continuous(labels = scales::comma) +  
  labs(y = "Quantity (Tonns)") +  
  ggtitle("Sunflower Oil Import")->p3  
p3
```



Fin_Year	EdibeOil
2010-2011	6786377
2011-2012	9107348
2012-2013	9625774
2013-2014	10571314
2014-2015	13039668
2015-2016	13276920
2016-2017	14143552
2017-2018	13359830
2018-2019	14468990
2019-2020	12529725
2020-2021	12792087
2021-2022	13288180
2022-2023	15609676
2023-2024	7882940

Total of Edible Oils (Oil year from Nov to Oct)

```

palmoil[Country == "Total" ,.(Palmoil = sum(as.numeric(ImportMonth), na.rm=TRUE))
       ,.(Country, Fin_Year)]->table4

soybeanoil[Country == "Total" ,.(Soybeanoil = sum(as.numeric(ImportMonth), na.rm=TRUE))
           ,.(Country, Fin_Year)]->table5

sunfloweroil[Country == "Total" ,.(Sunfloweroil = sum(as.numeric(ImportMonth), na.rm=TRUE))
             ,.(Country, Fin_Year)]->table6

merge(table4, table5, by = c("Country", "Fin_Year"))->t1
merge(t1, table6, by = c("Country", "Fin_Year"))->t1
melt(t1, id = c("Country", "Fin_Year"))->t1

t1[Fin_Year>="2010-2011",.(Share=(round(value*100/sum(value))),
                           variable,value),.(Fin_Year)][Fin_Year!="2024-2025"]->t1

gt(t1[,(EdibeOil=(sum(value))),.(Fin_Year)])

```

```

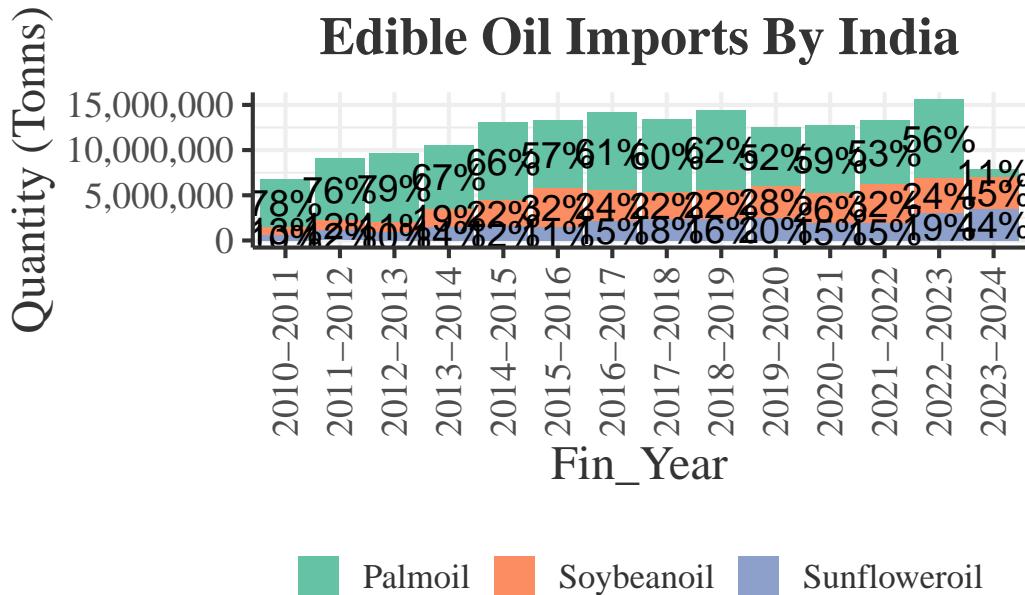
ggplot(t1, aes(x = Fin_Year, y = value, fill = variable)) +
  geom_bar(stat = "identity", position = "stack") +
  geom_text(aes(x = Fin_Year, y = value,

```

```

        label = ifelse(Share<5, "", paste0(Share, "%"))),
        position = position_stack(vjust = 0.5), size = 5, color = "black") +
  scale_fill_brewer(palette="Set2") +
  my_theme +
  scale_y_continuous(labels = scales::comma) +
  labs(y = "Quantity (Tonns)") +
  ggtitle("Edible Oil Imports By India")->p4
p4

```



India Edible Oil Culativation and Production

```

fread("/home/pawan/edibleoils/oil_aval.csv")->t

t[,Domestic_Share:=(round(Domestic_Availability*100/Total_Availability_LMT))]
t[,Import_Share:=(round(Imports*100/Total_Availability_LMT))]

ggplot(t, aes(x = Year, y = Domestic_Share)) +
  geom_bar(stat = "identity", fill = "#5F9EA0") +
  geom_text(aes(label = paste0(Domestic_Share, "%")),
            position = position_stack(vjust = 0.5), size = 5, color = "black") +

```

```
my_theme +  
  ylim(0, 60) +  
  labs(y = "% Self Sufficiency") +  
  ggtitle("% Self Sufficiency")->p5  
p5
```

