Soybean expansion in Brazilian Cerrado and Matopiba Region

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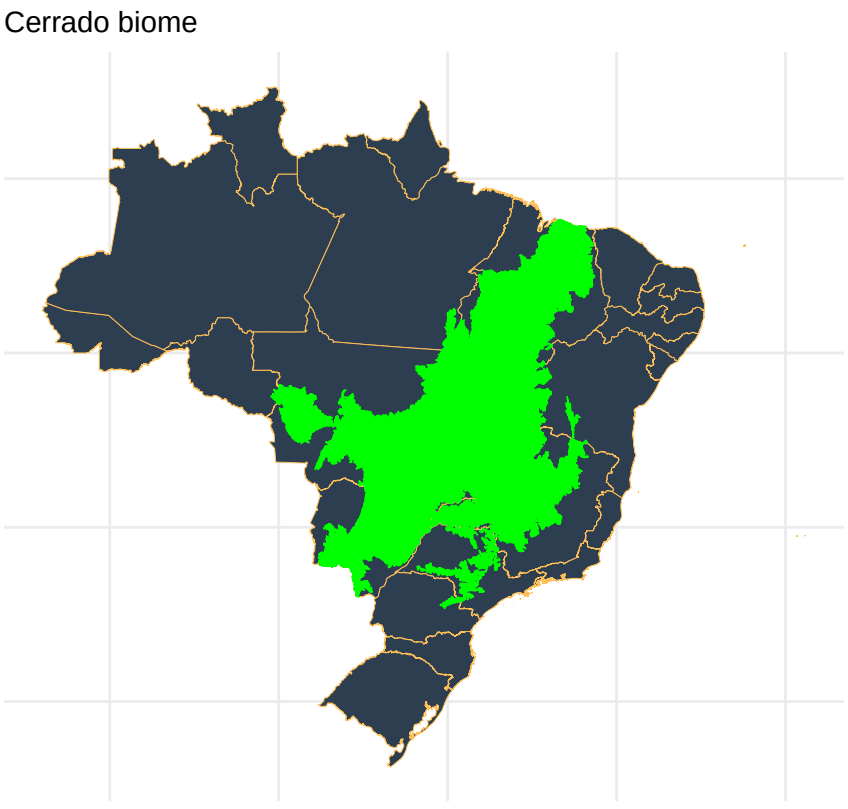
Introduction

The Brazilian Cerrado is one of the world's biodiversity hotspot(Strassburg et al. 2017). In the last 4 decades, this important biome been transformed into pasture and agricultural lands for commodity production and cattle ranching. For instance, this is the geographical area that I intend to focus my research. My primary goal here is twofold. First, to create maps to visualize the region. Second, to import, tidy, and then plot charts about the soybean expansion in the Brazil, and specifically within the Matopiba Region.

Cerrado biome

```
plot(brazil_cerrado)
```

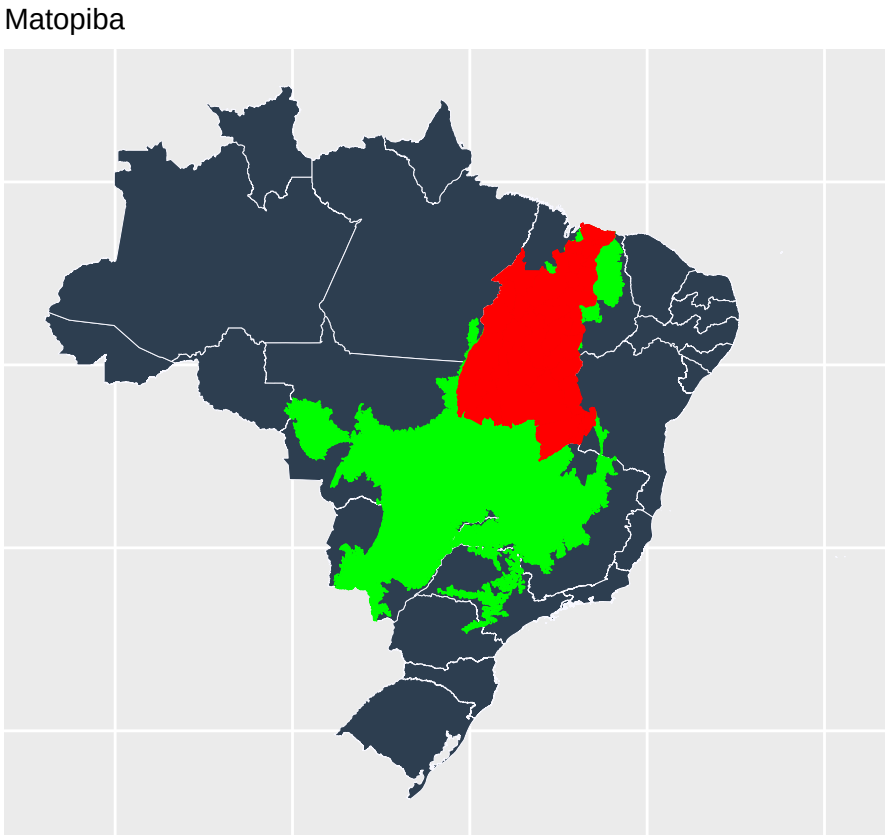


Source: Brazilian Institute of Geography and Statistics

My focus on soybean is due of its importance for Brazil's balance of payments and role in the development of Brazilian agribusiness(Oliveira 2016). Soybean became the major driver of intensive crop production in the Cerrado after the introduction of technological advances in the late 1970s(Nehring 2016) .

Matopiba region

```
plot(a)
```



Matopiba is an acronym that uses the first two letters of the four brazilian states, namely southern Maranhão (MA), Tocantins (TO), southern Piauí (PI), and western Bahia (BA). It is commonly referred as the Brazil's new agriculture frontier. For instance, Agricultural frontier expansion in the Matopiba is changing rural livelihoods and leading to socio-ecological conflicts evolving around issues such as the application of pesticides/herbicides close to settled areas, the privatization of land, and the displacement of small-scale farmers(de Araújo et al. 2019). (Bragança 2018) Found that agricultural production started to increase faster in municipalities inside the Cerrado since the 1990s.

Soybean expansion in Brazil

Based on the chart below, we can see that soybean production in Brasil has drastically increased in the last 3 decades. The area here is measured in hectares, the standard metric for land in Brazil. Each single hectare corresponds to 2.471 acres in the United States Customary measure.

```
plot(national_production)
```

References

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Nehring, Ryan. 2016. "Yield of Dreams: Marching West and the Politics of Scientific Knowledge in the Brazilian Agricultural Research Corporation (Embrapa)." *Geoforum* 77: 206–17.

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