

Regionalização da produção de soja no Paraná e no Mato grosso a partir do algoritmo Skater

Cleverton Santana

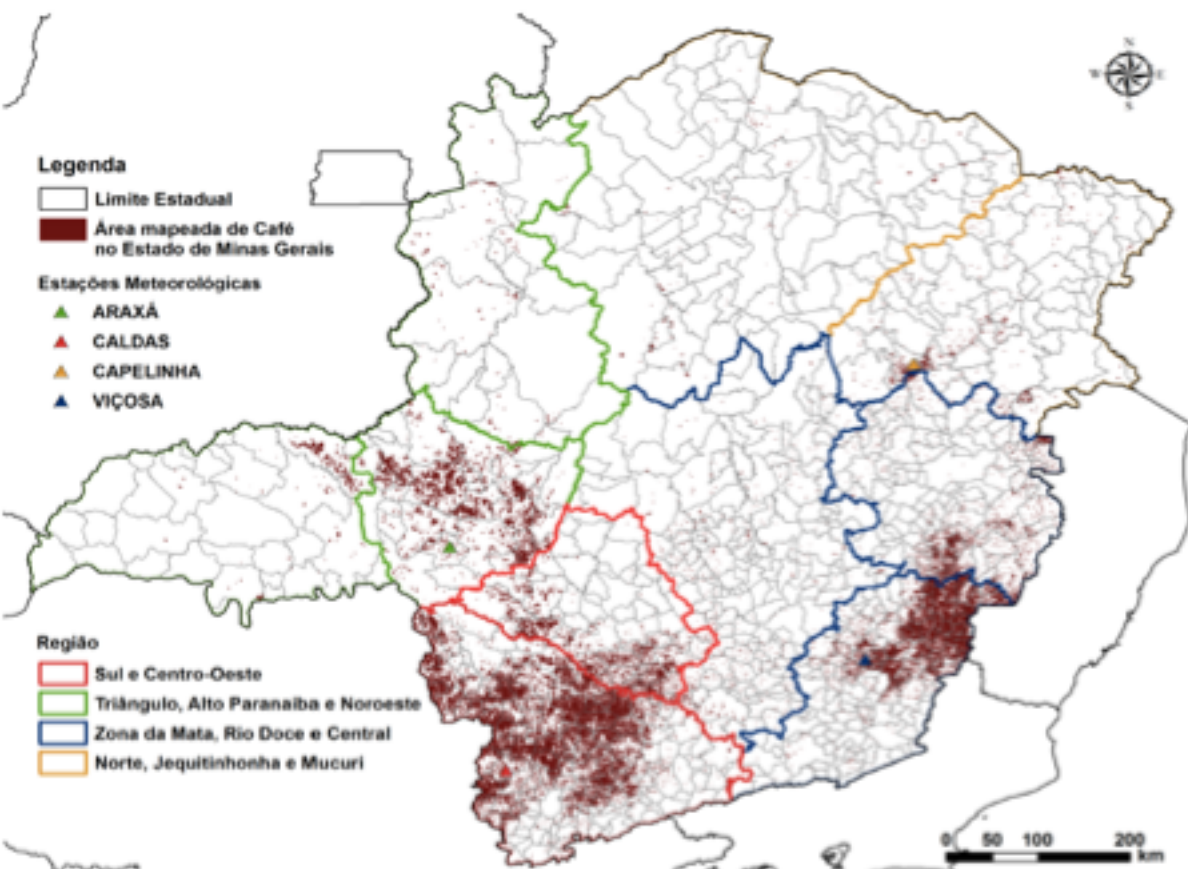
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Mestre em Agricultura pela (UNESP)
Doutorando em Sensoriamento Remoto (INPE- SJC)



INTRODUÇÃO



SAFRA DE CAFÉ

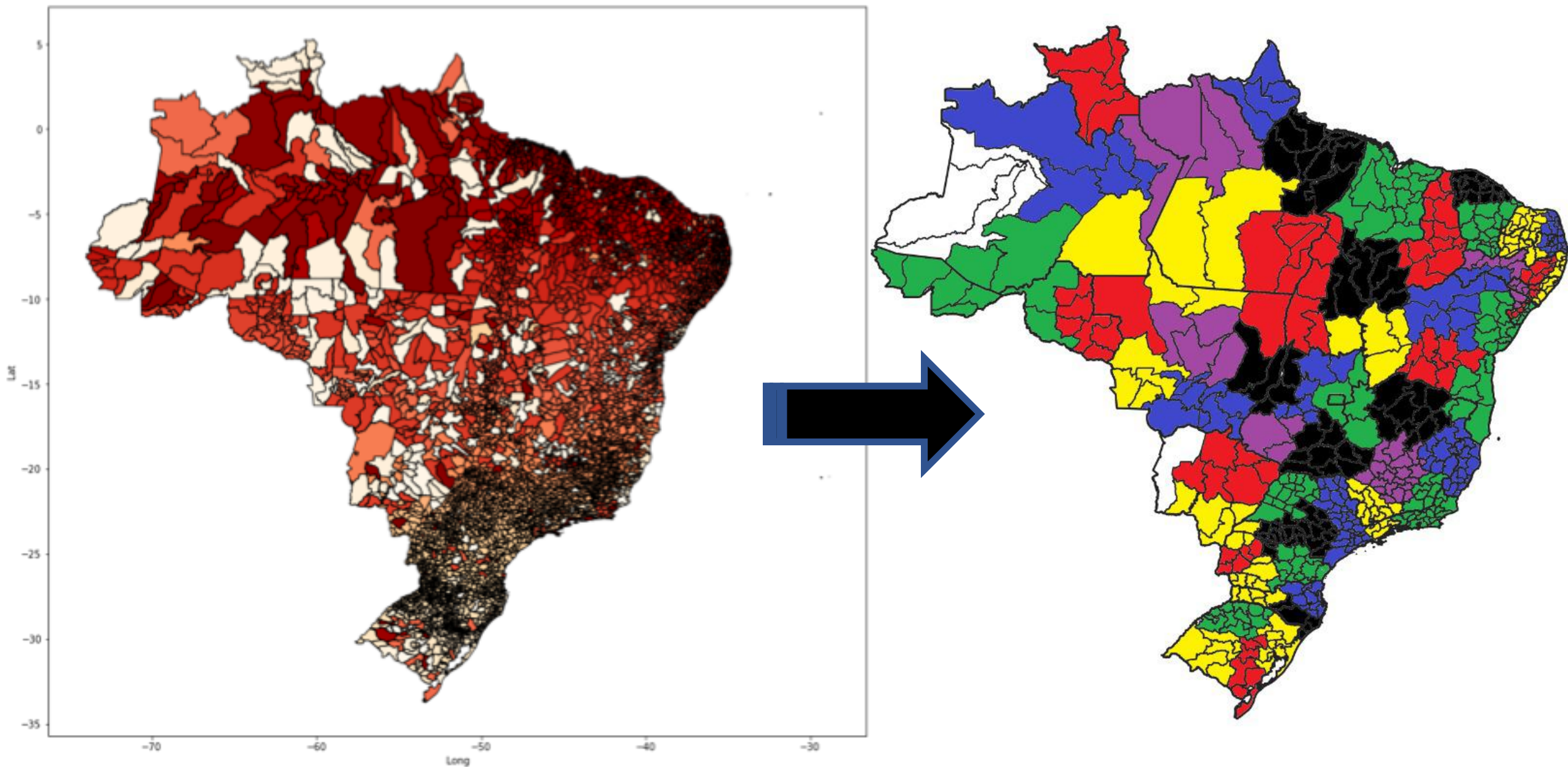


SAFRA DE SOJA



DESAFIO

Fonte: IBGE, 2020.



1 amostra a cada 15 km.

Considera a UF como região homogênea

Omissão de semelhanças entre os municípios fronteiriços (entre UF's) e não leva em conta a dependência espacial dos processos agrícolas



INTRODUÇÃO



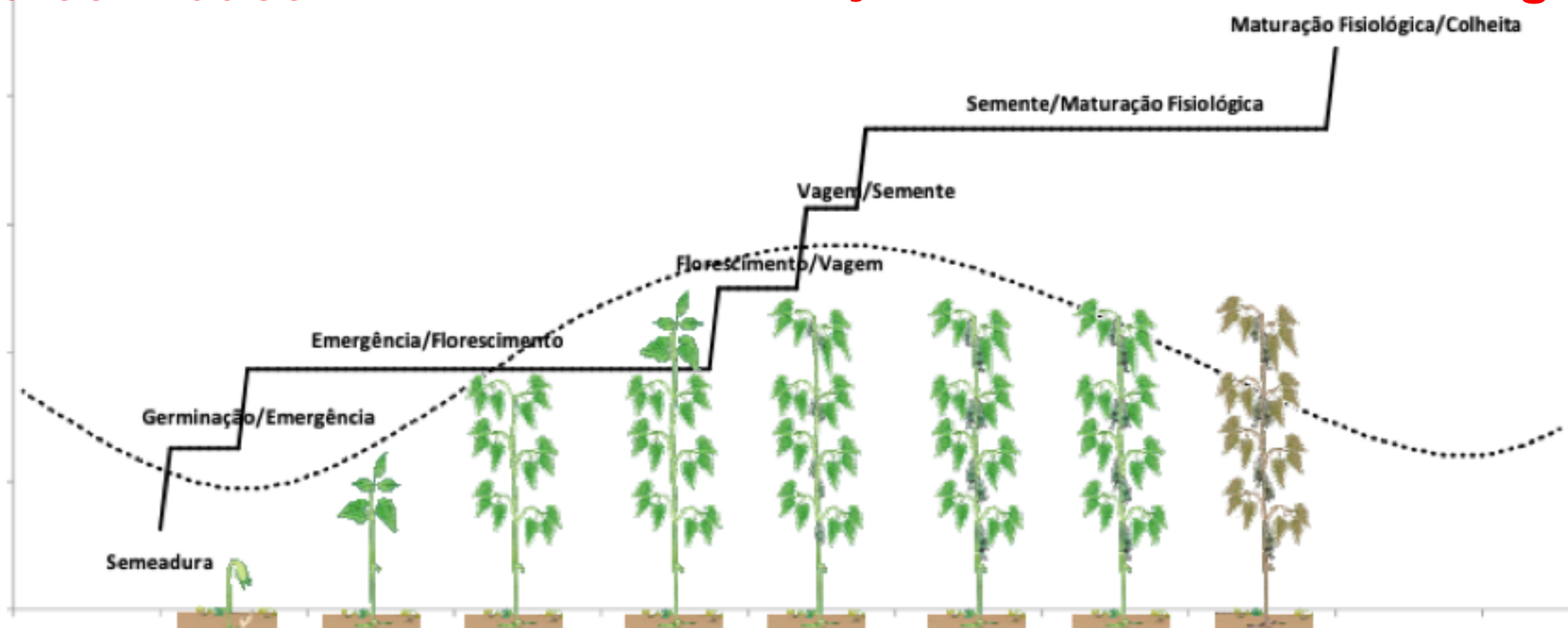
Edafoclimático



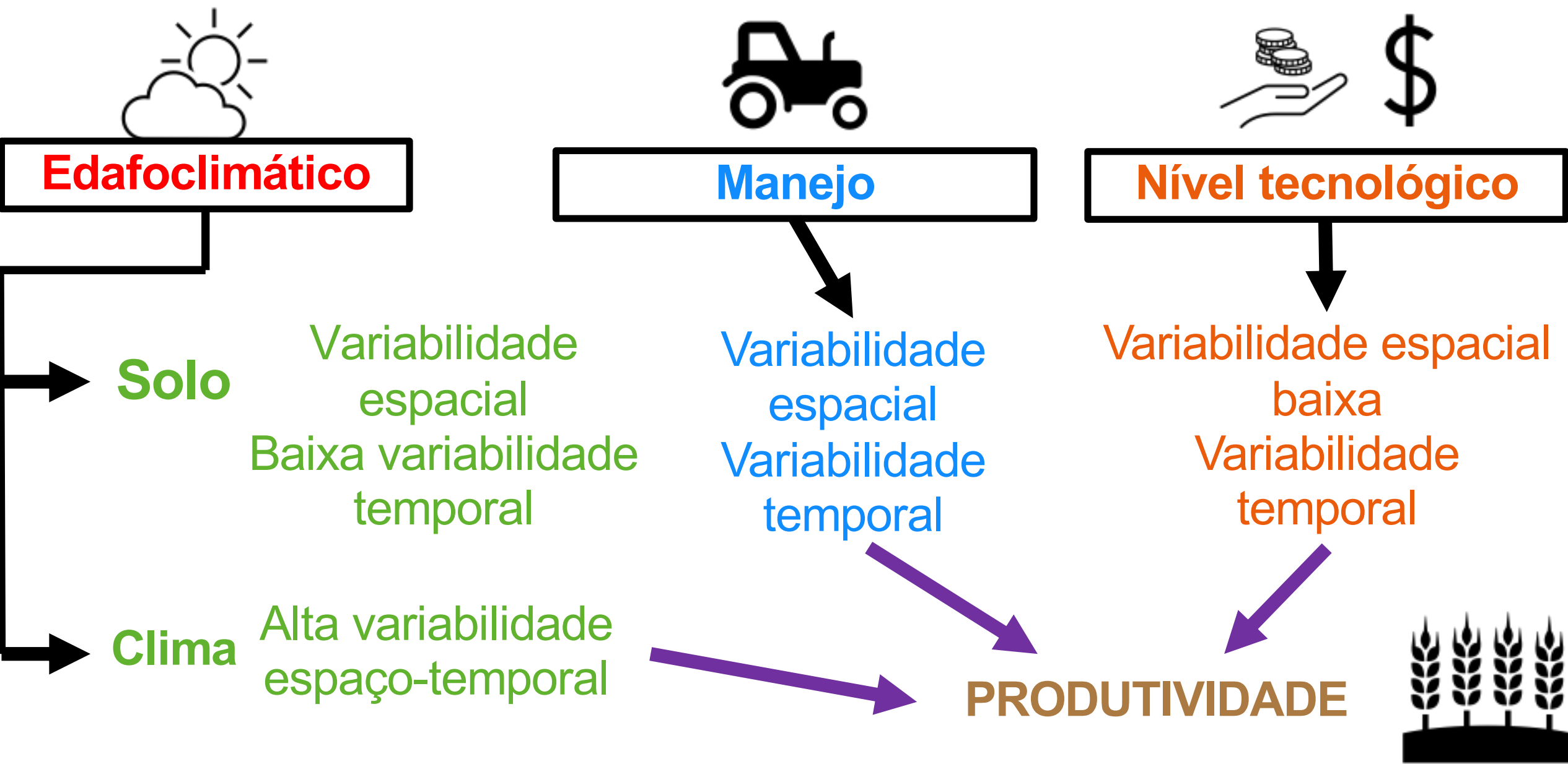
Manejo



Nível tecnológico

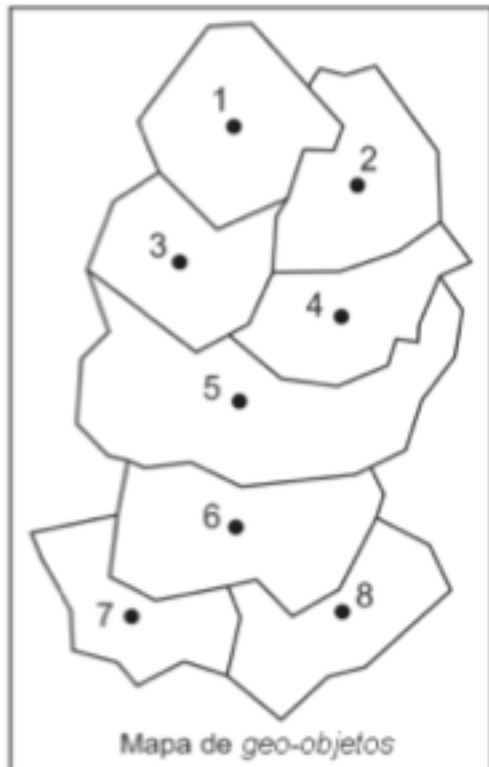


INTRODUÇÃO

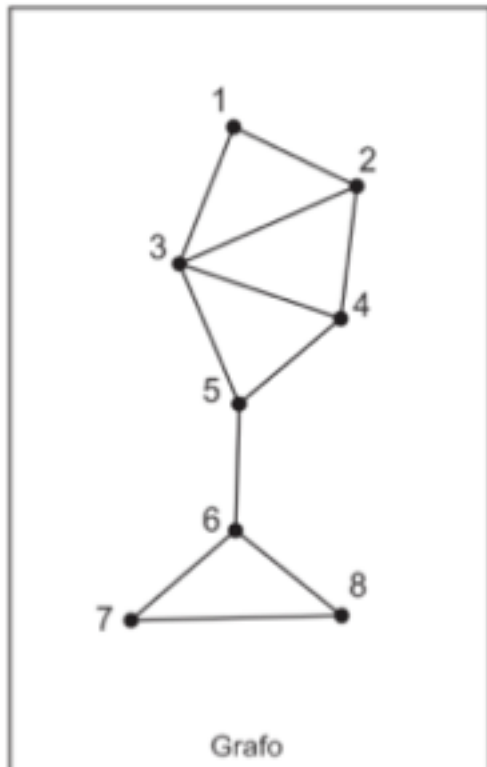


SKATER

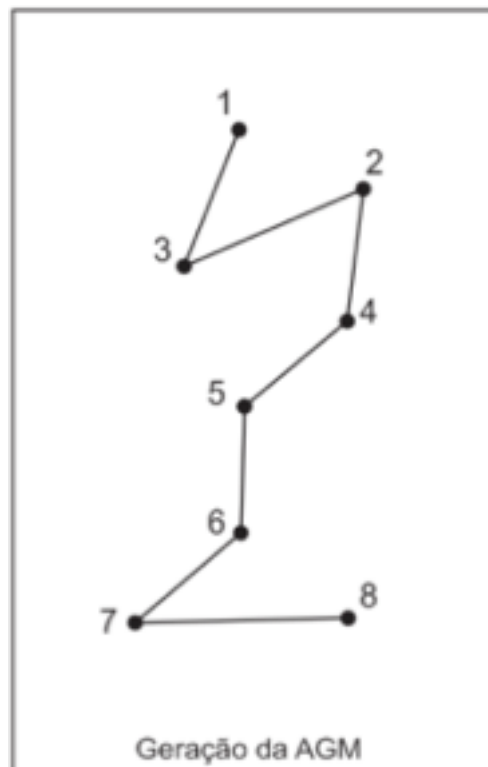
Fonte: Camargo, 2021.



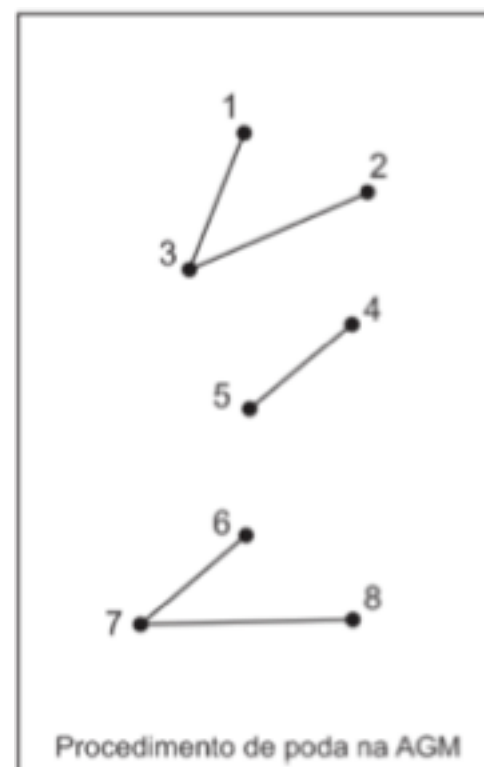
Geo-objetos



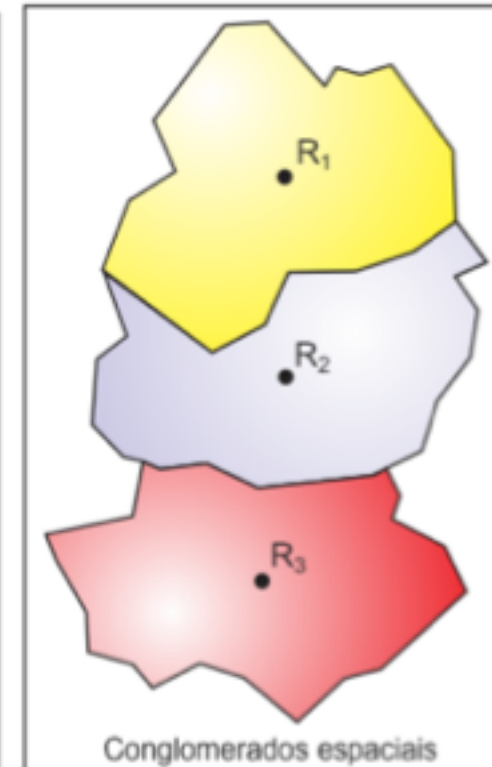
Geração do grafo



Construção da árvore geradora mínima

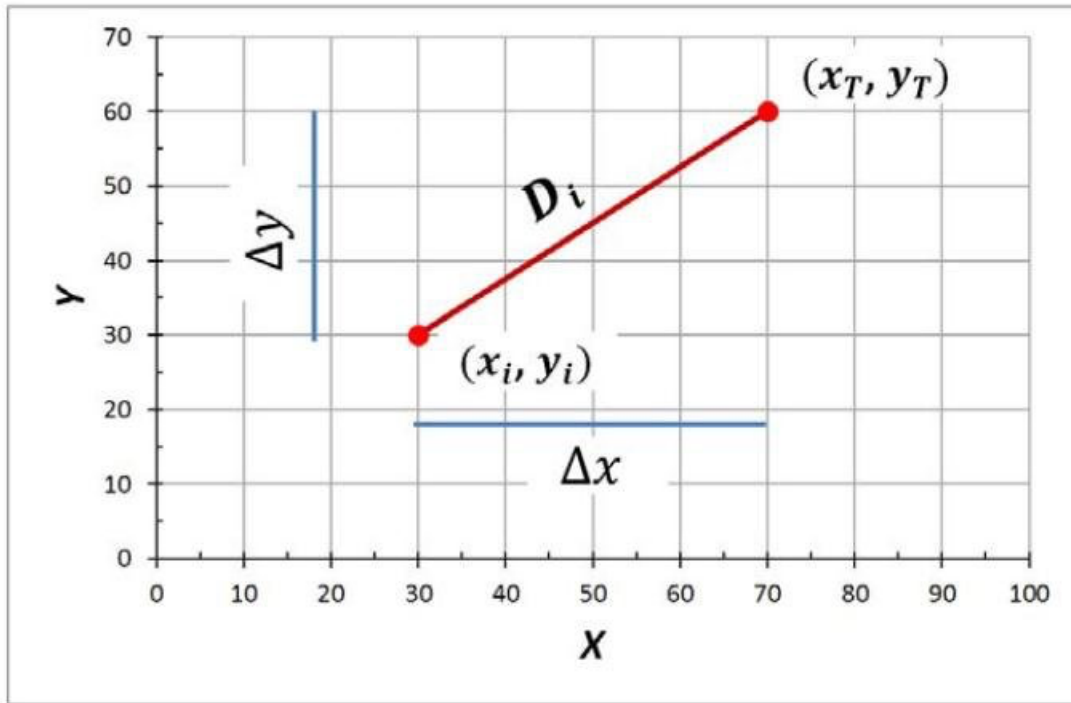


Realização da poda



Definição dos conglomerados espaciais





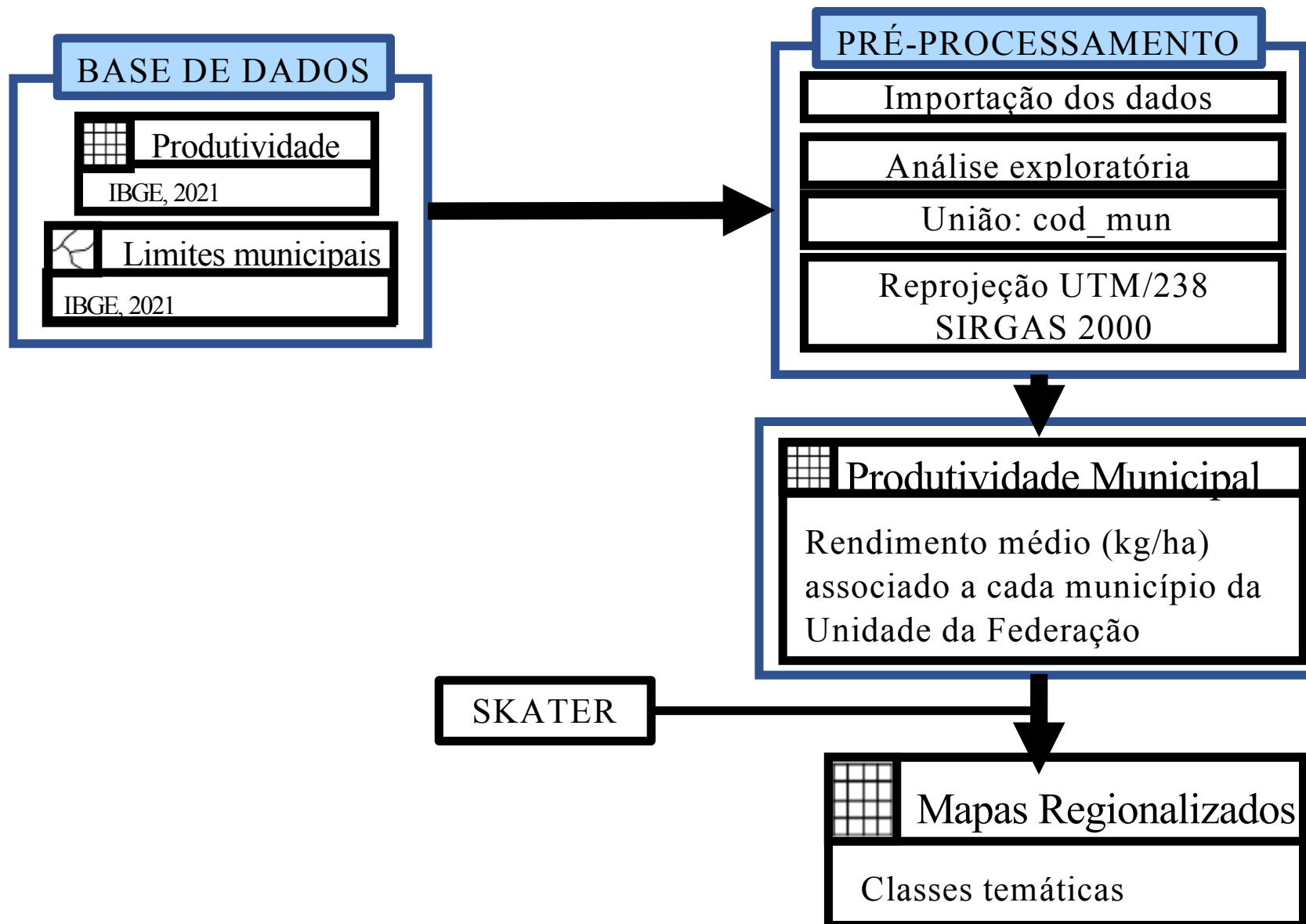
$$d_{Ti} = \sqrt{(x_T - x_i)^2 + (y_T - y_i)^2} \quad d_{T1} = \sqrt{(x_T - 30)^2 + (y_T - 30)^2}$$

$$SQD_T = \sum_{j=1}^m \sum_{i=1}^n (x_{ij} - x_j)^2$$

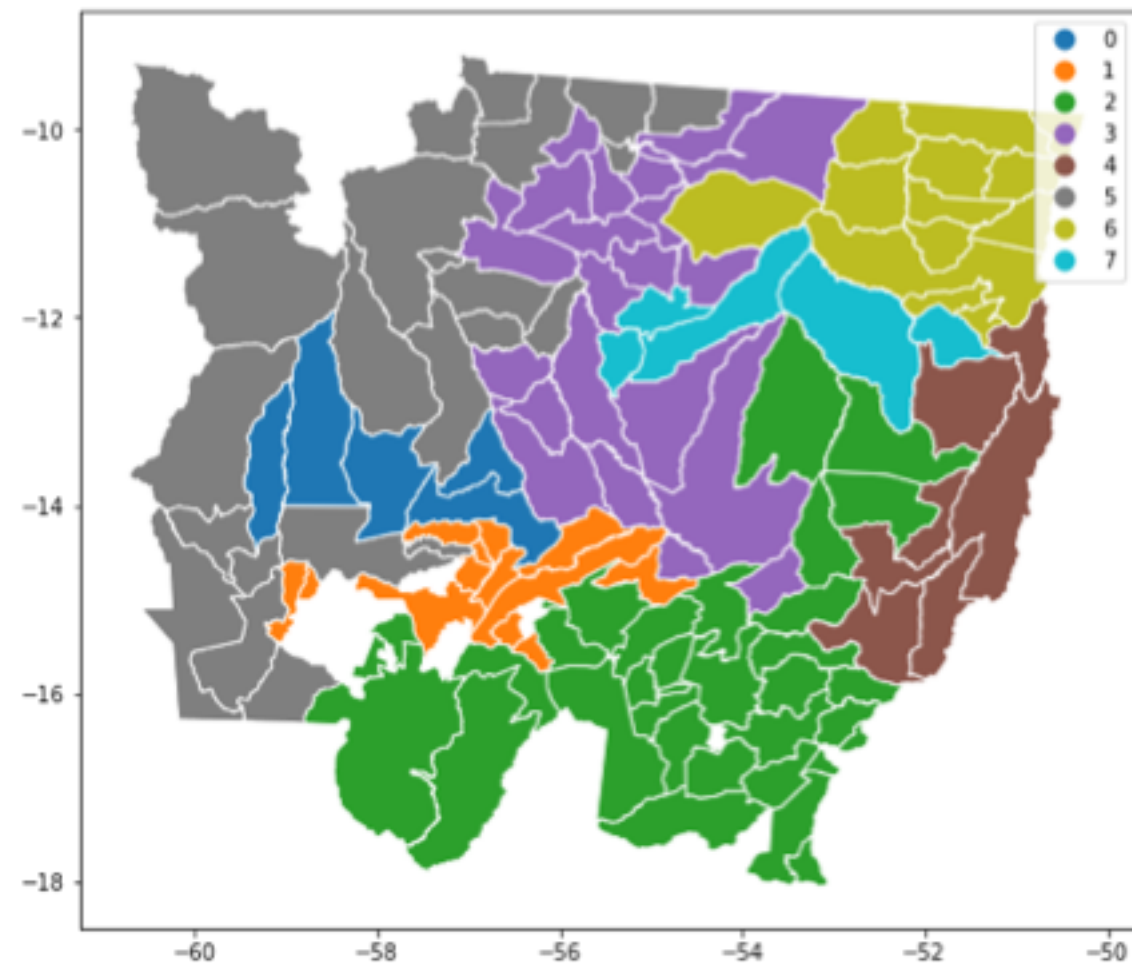
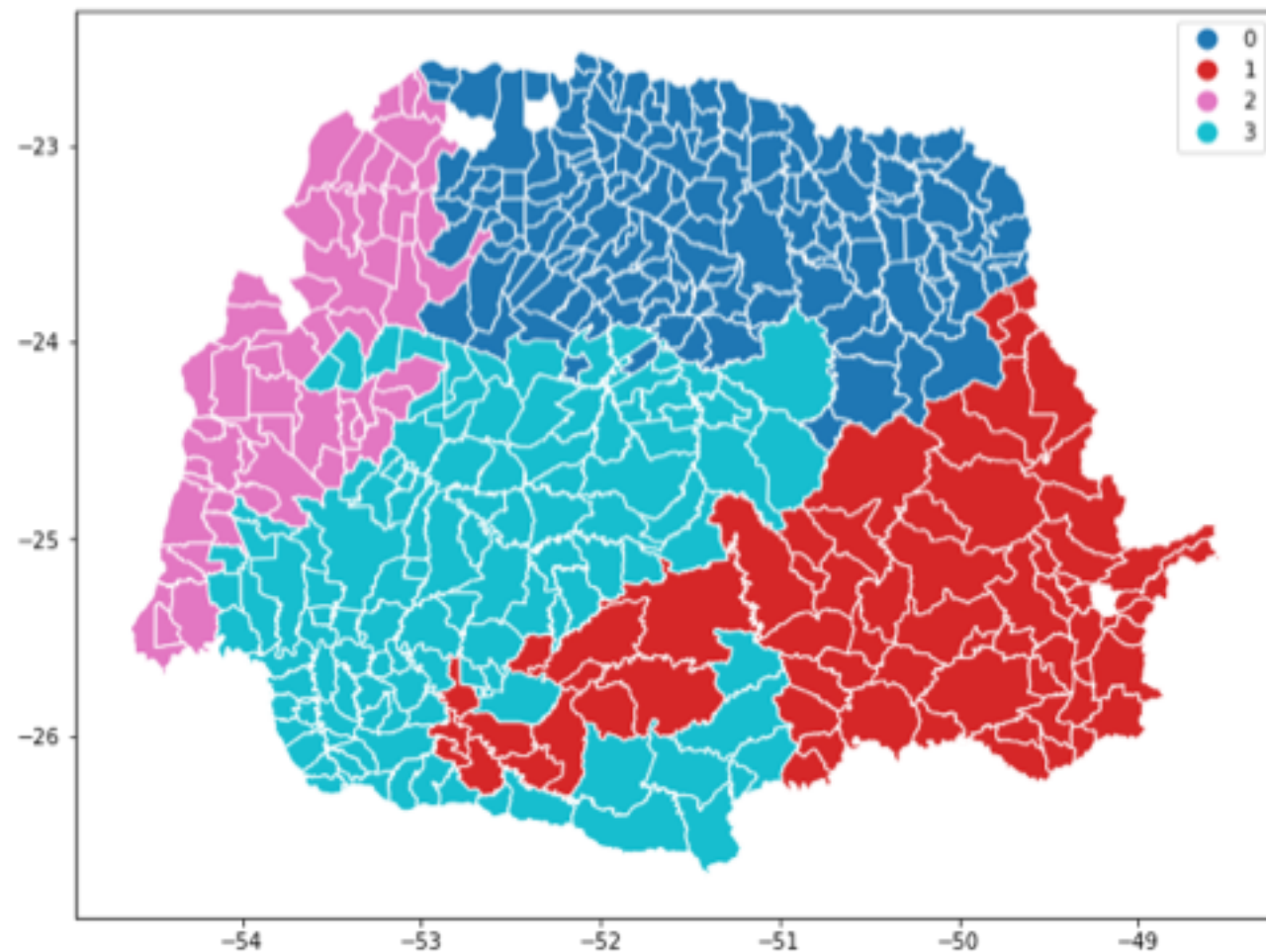
$$I = SQD_T - SQD_I$$

$$SQD_I = SQD_{Ta} + SQD_{Tb}$$

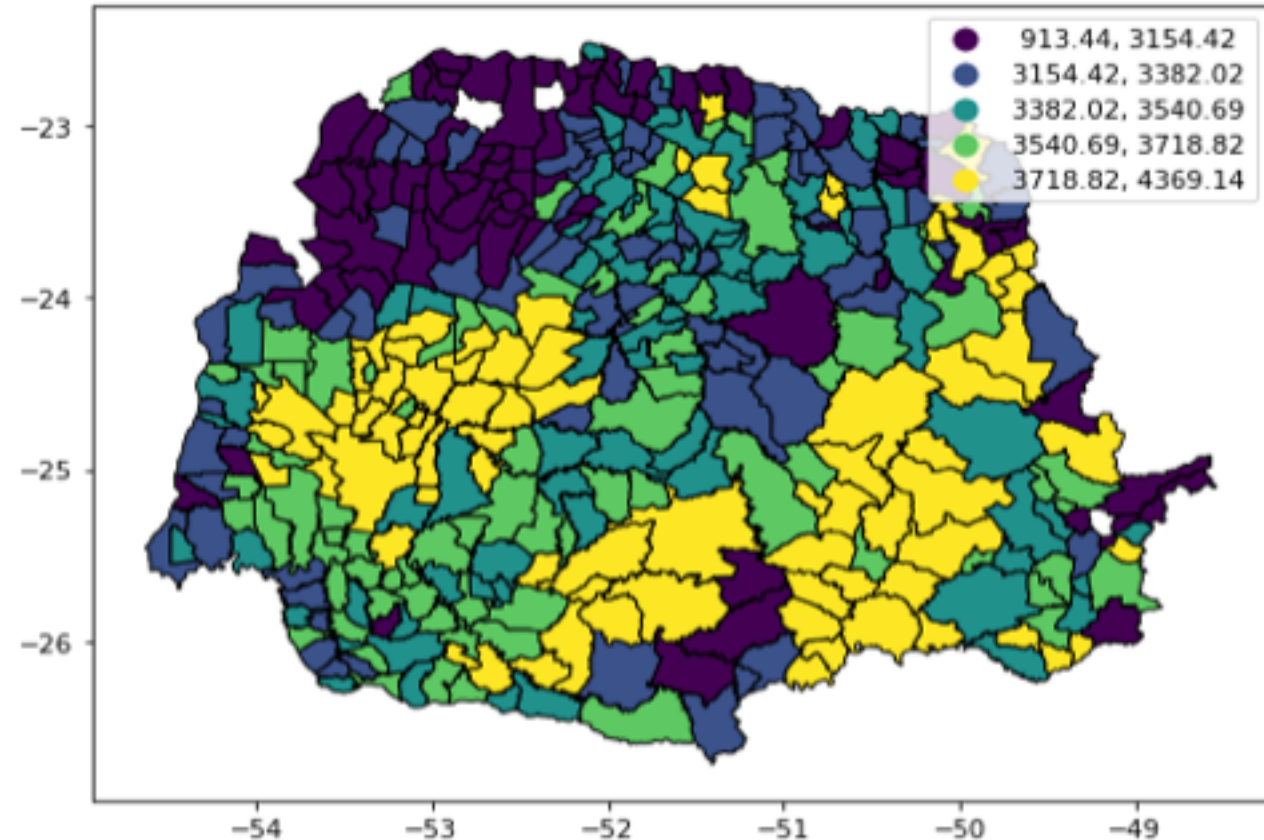
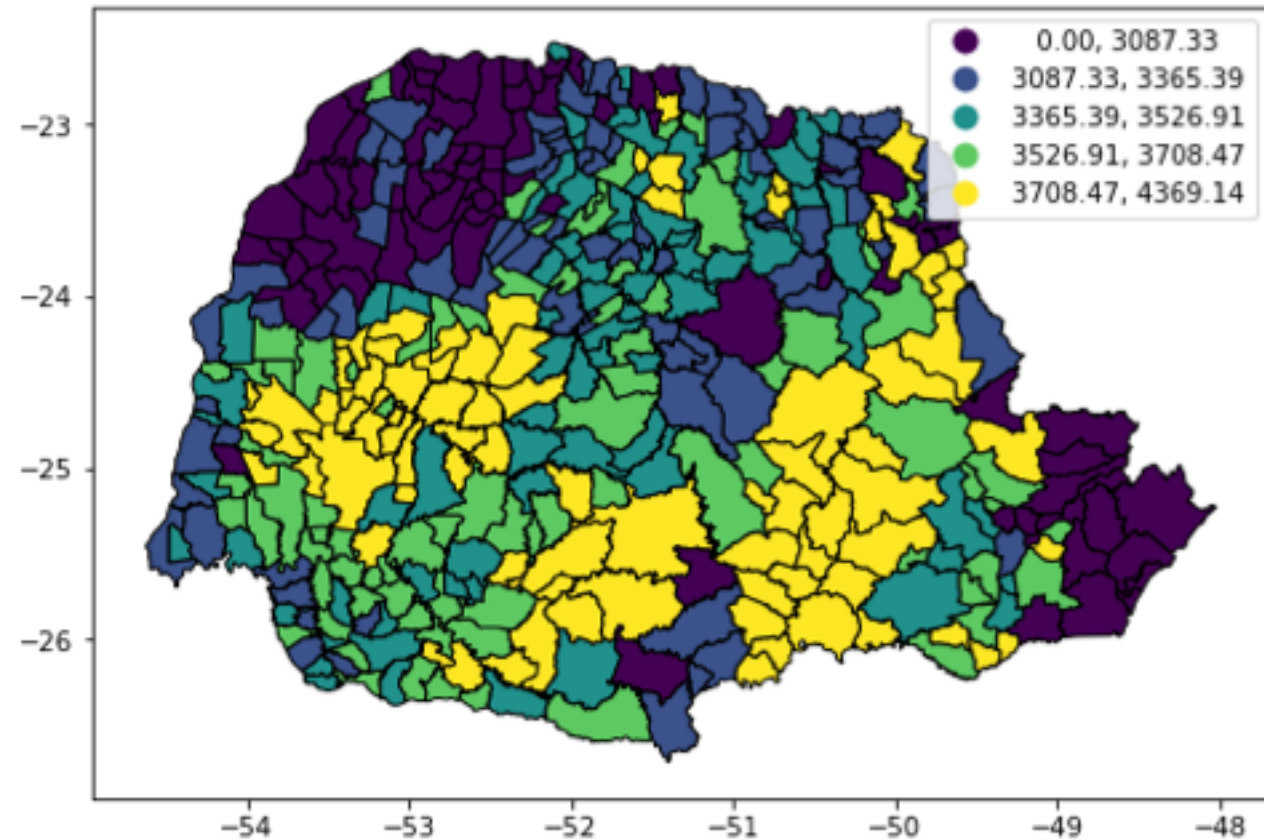
FONTE E PROCESSAMENTO DOS DADOS



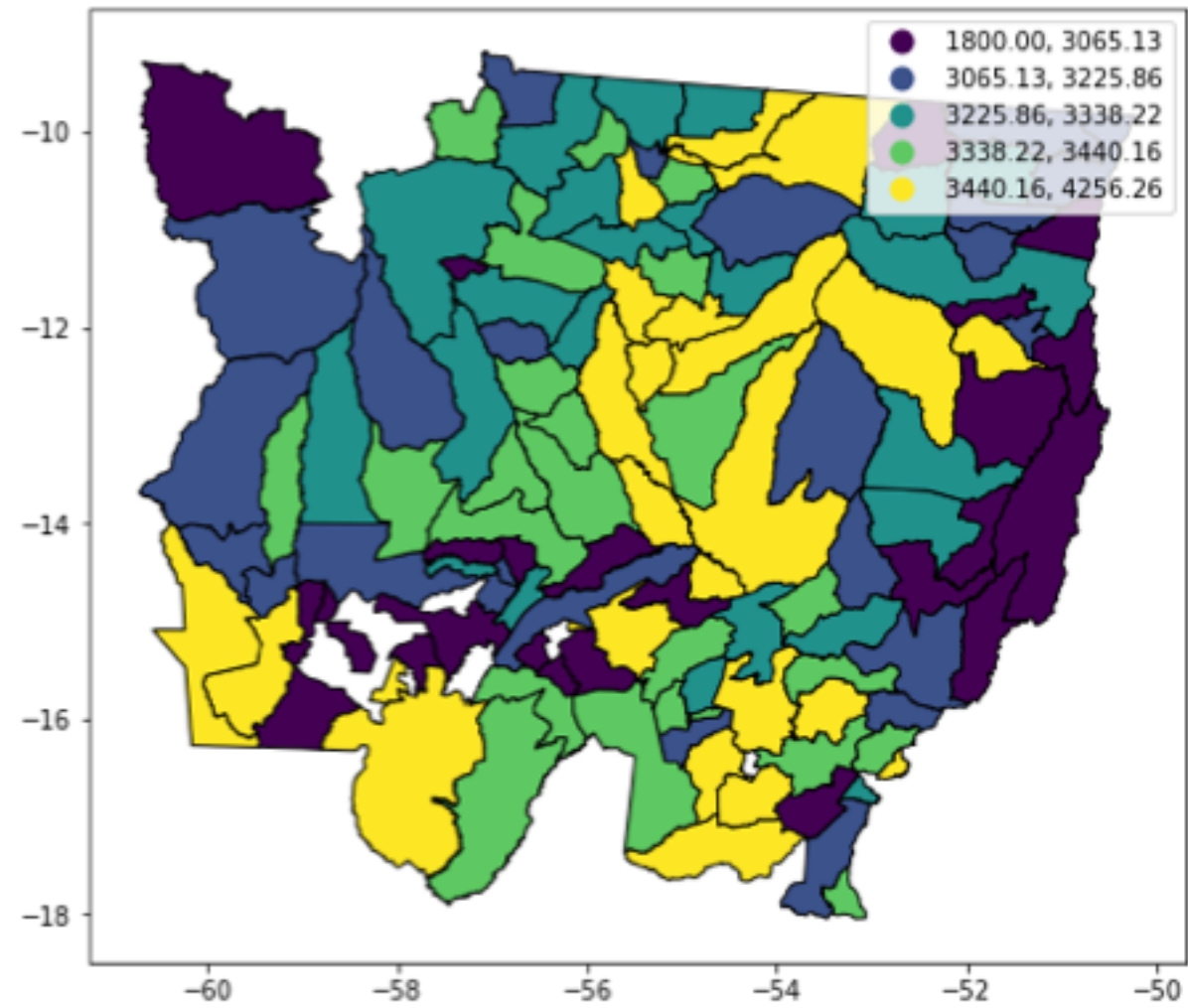
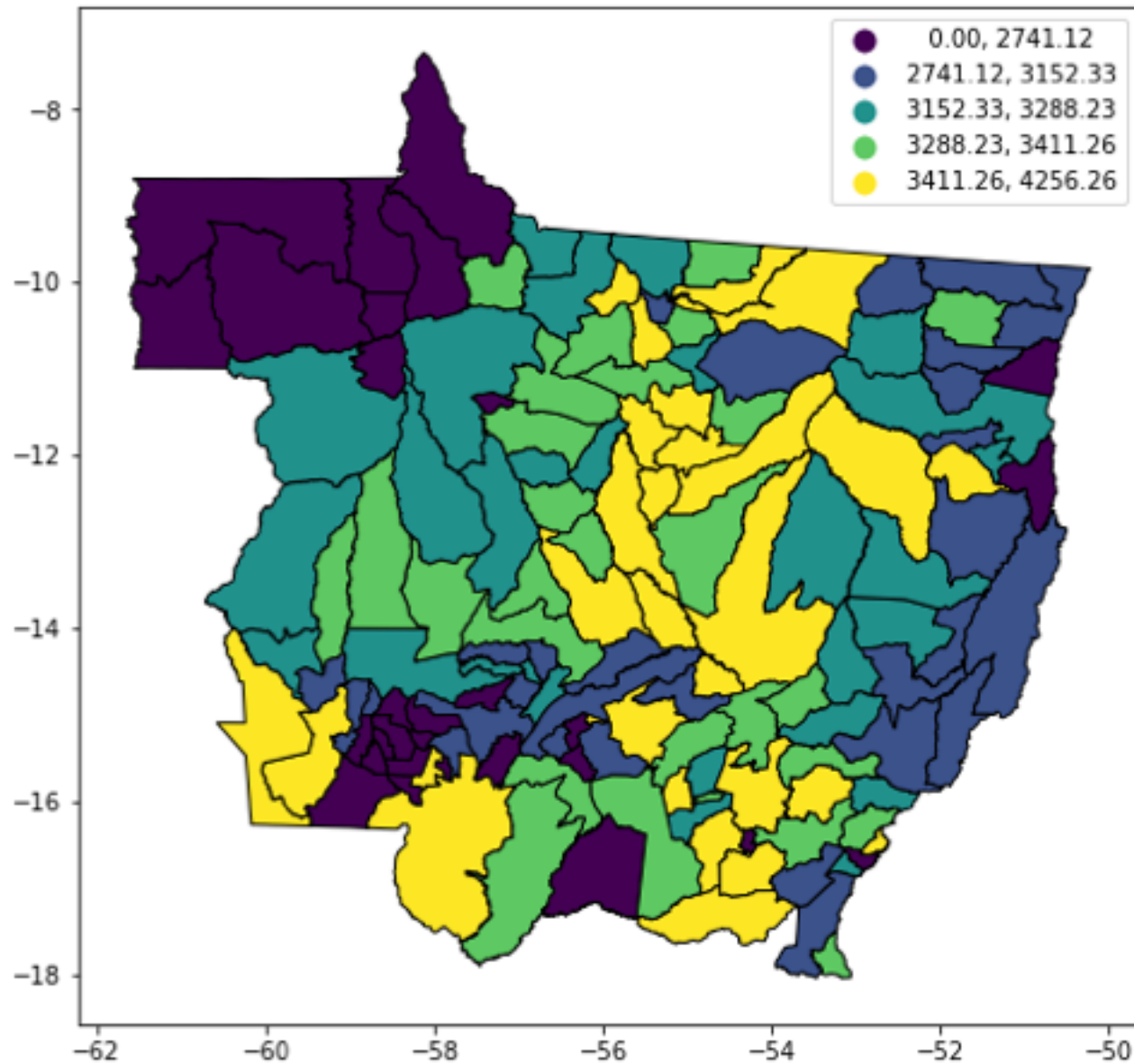
REGIONALIZAÇÃO (CENSO AGRO 2017)



PRODUTIVIDADE DE SOJA - PR

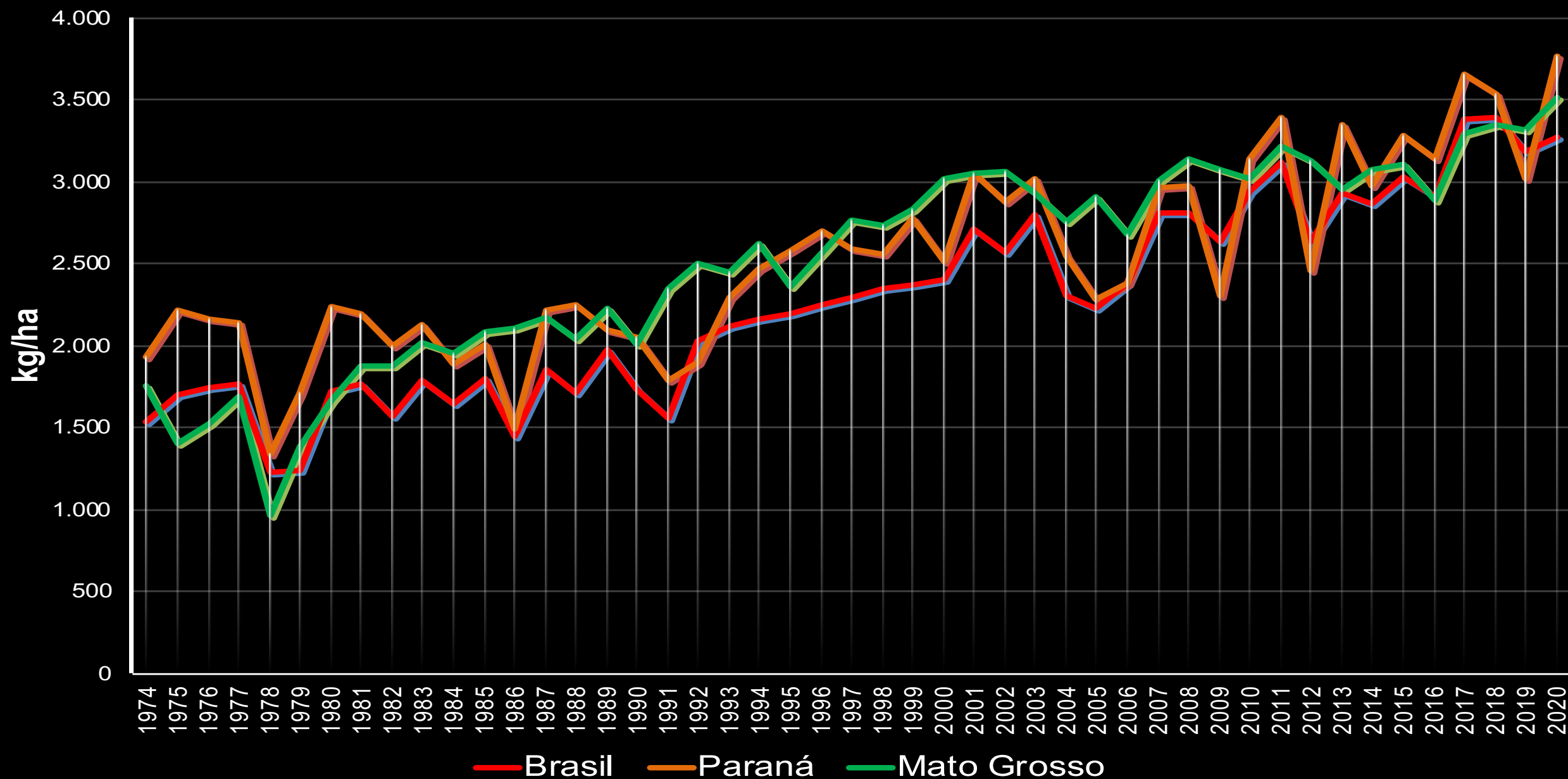


PRODUTIVIDADE DE SOJA - MT



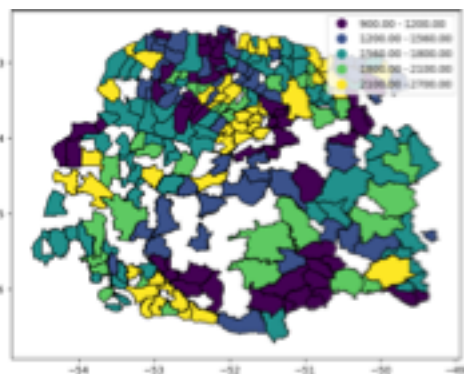
PESQUISA AGRÍCOLA MUNICIPAL

Fonte: IBGE, 2020.



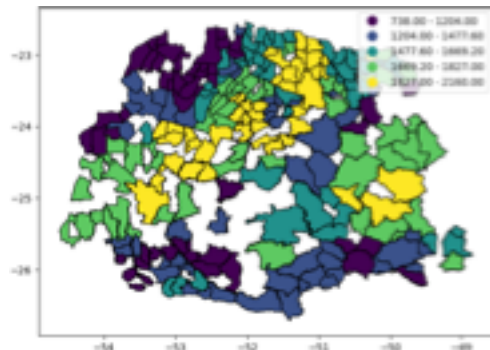
PRODUTIVIDADE DE SOJA - PR

1974



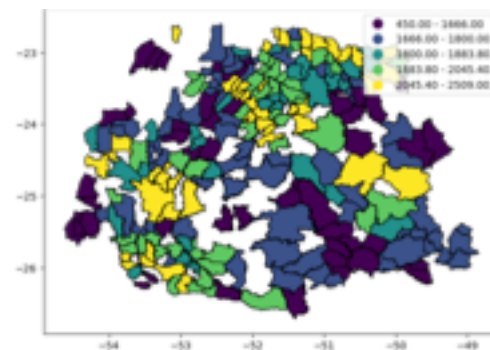
Fonte: IBGE (Soja (em grão)-Safr_1974)

1979



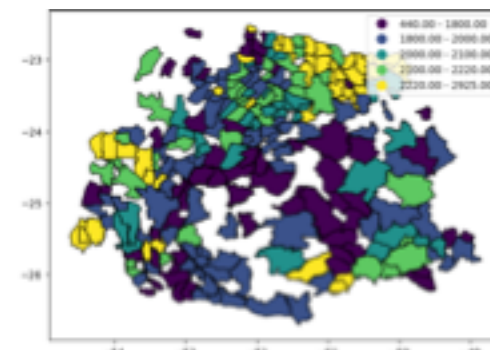
Fonte: IBGE (Soja (em grão)-Safr_1979)

1984



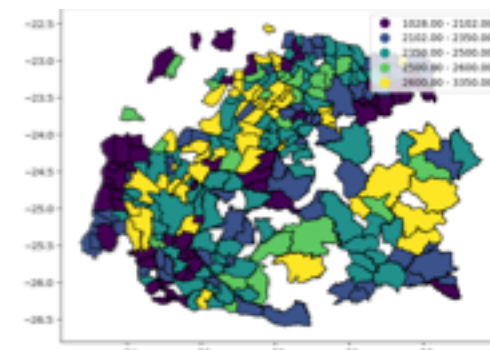
Fonte: IBGE (Soja (em grão)-Safr_1984)

1989



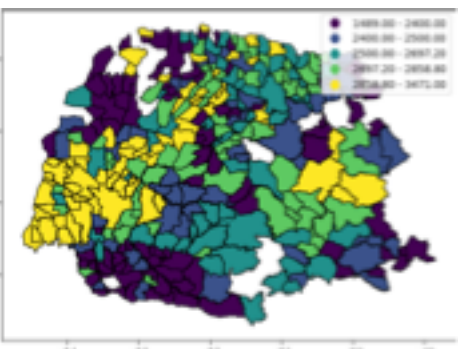
Fonte: IBGE (Soja (em grão)-Safr_1989)

1994



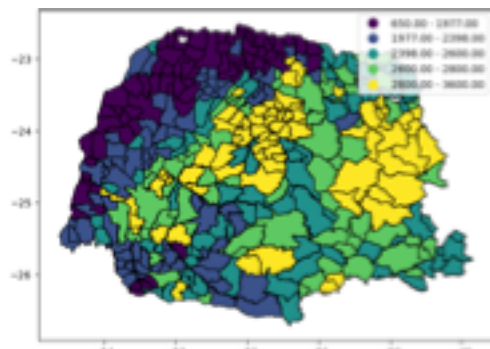
Fonte: IBGE (Soja (em grão)-Safr_1994)

1999



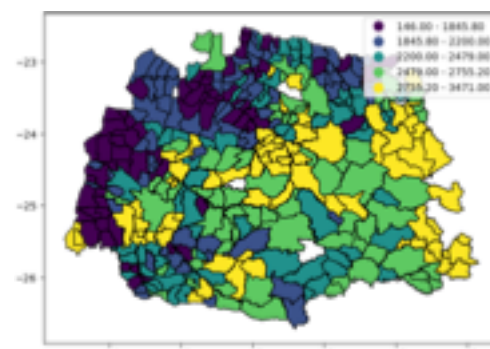
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2004



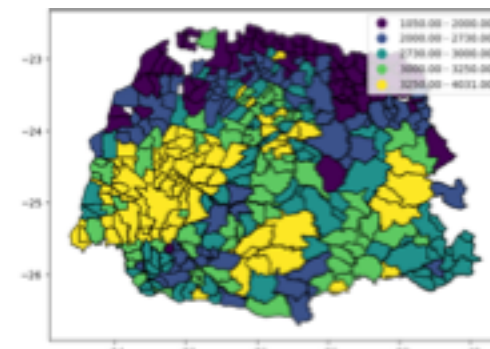
Fonte: IBGE (Soja (em grão)-Safr_2004)

2009



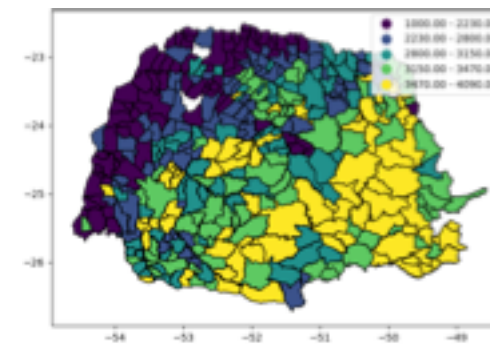
Fonte: IBGE (Soja (em grão)-Safr_2009)

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Fonte: IBGE (Soja (em grão)-Safr_2014)

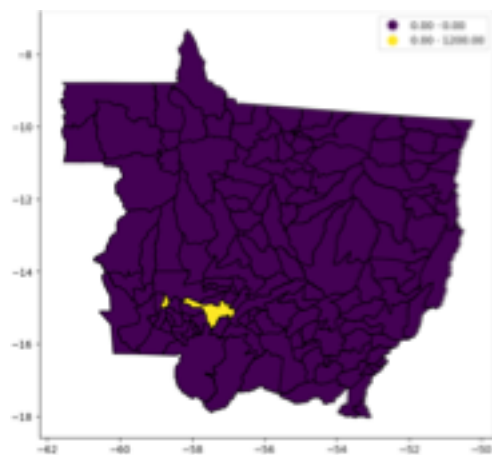
2019



Fonte: IBGE (Soja (em grão)-Safr_2019)

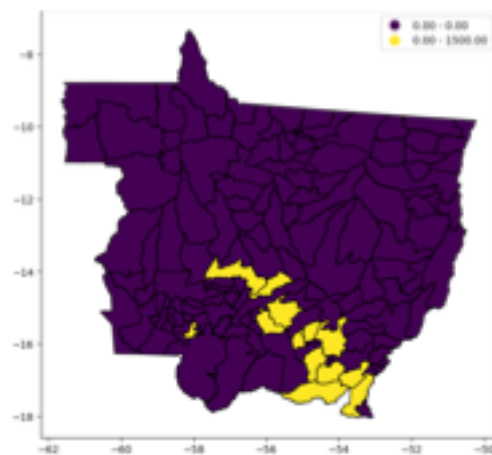
PRODUTIVIDADE DE SOJA - PR

1974



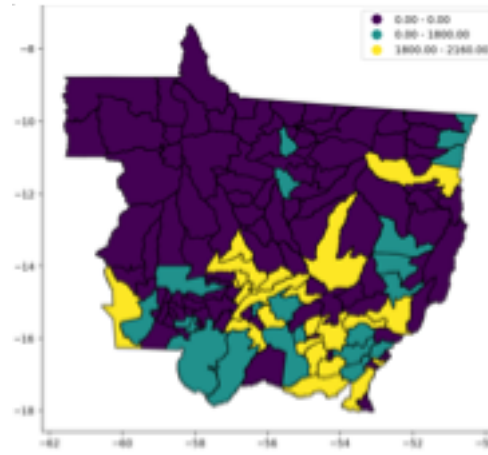
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1979



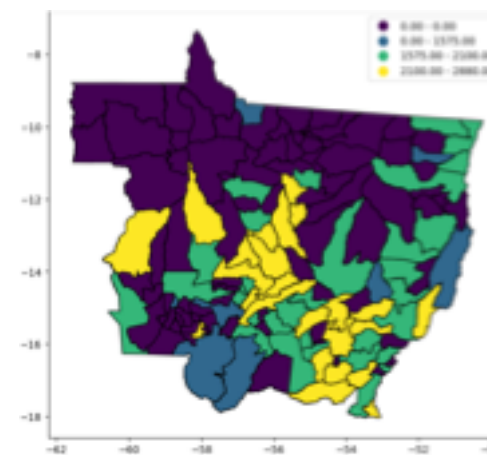
Fonte: IBGE (Soja (em grão)-Safr_1979)

1984



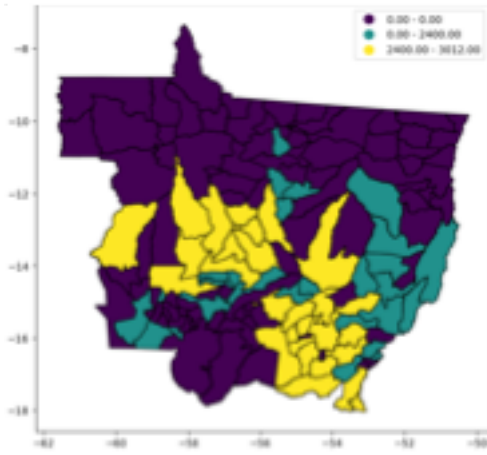
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1989



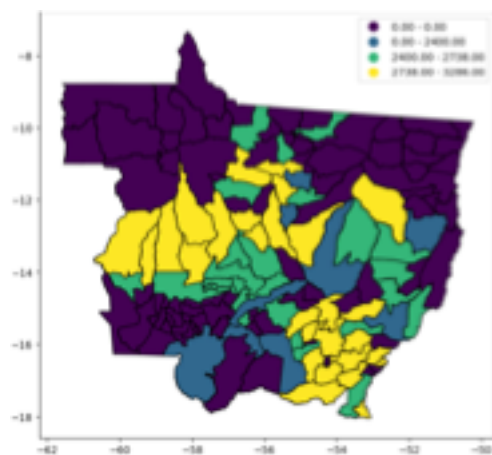
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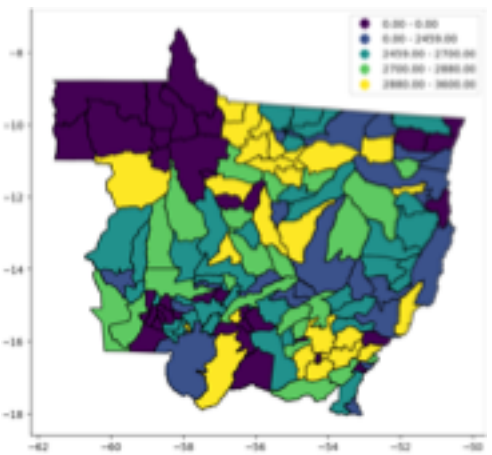
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1999



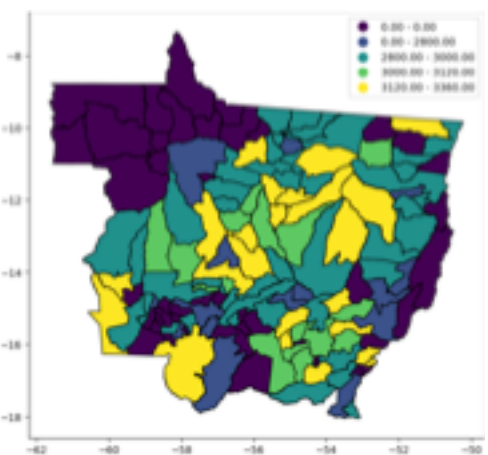
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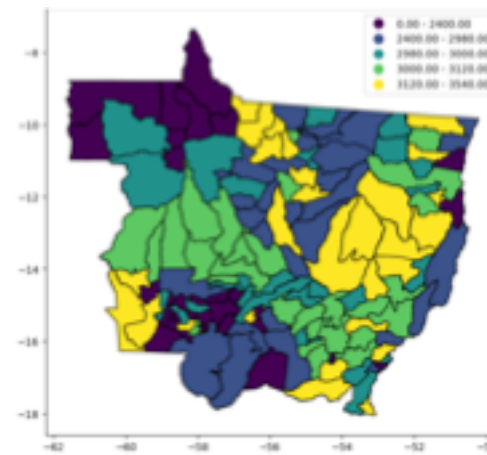
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2009



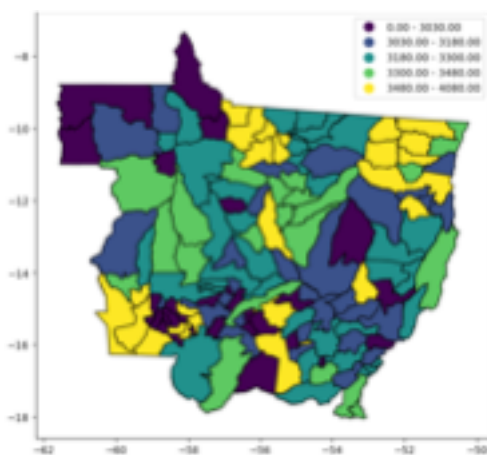
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2014



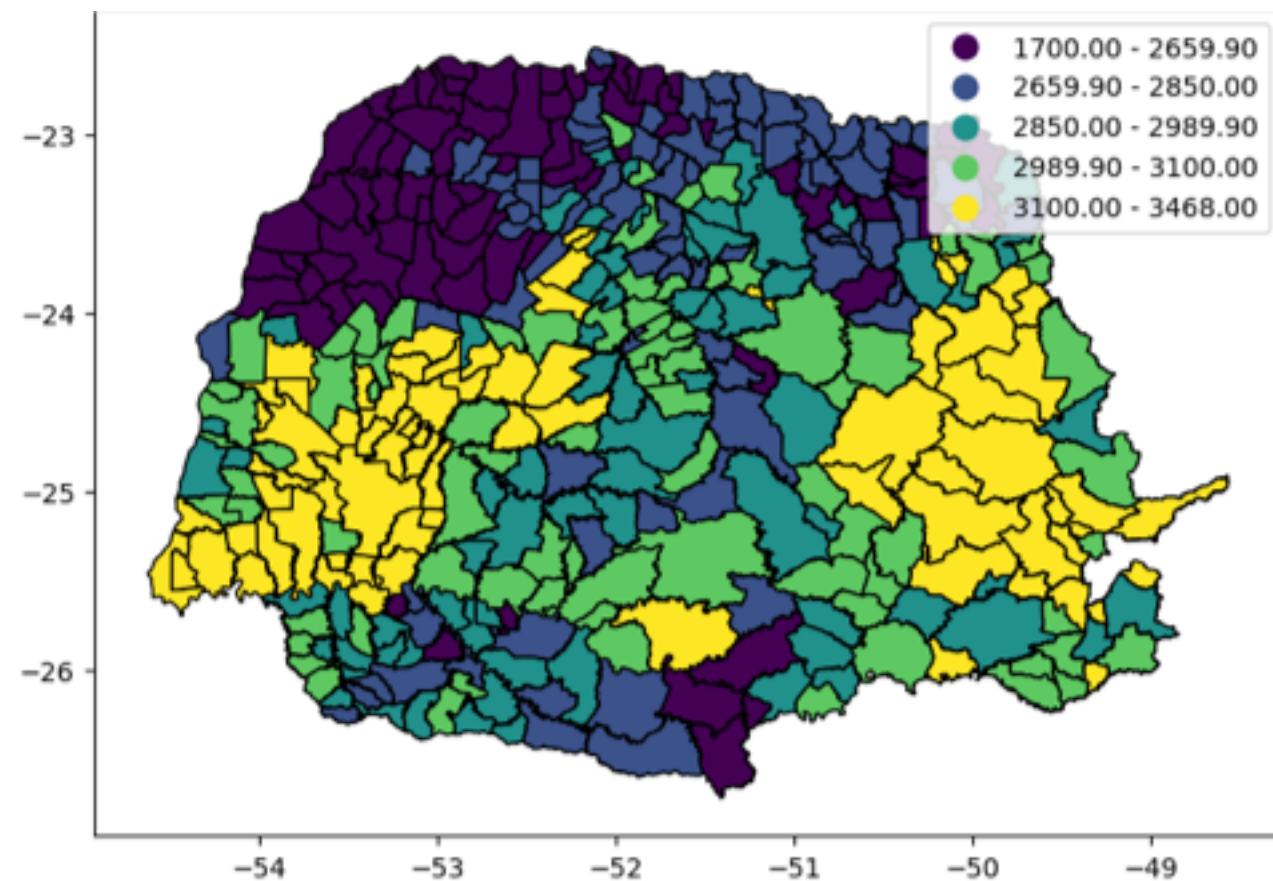
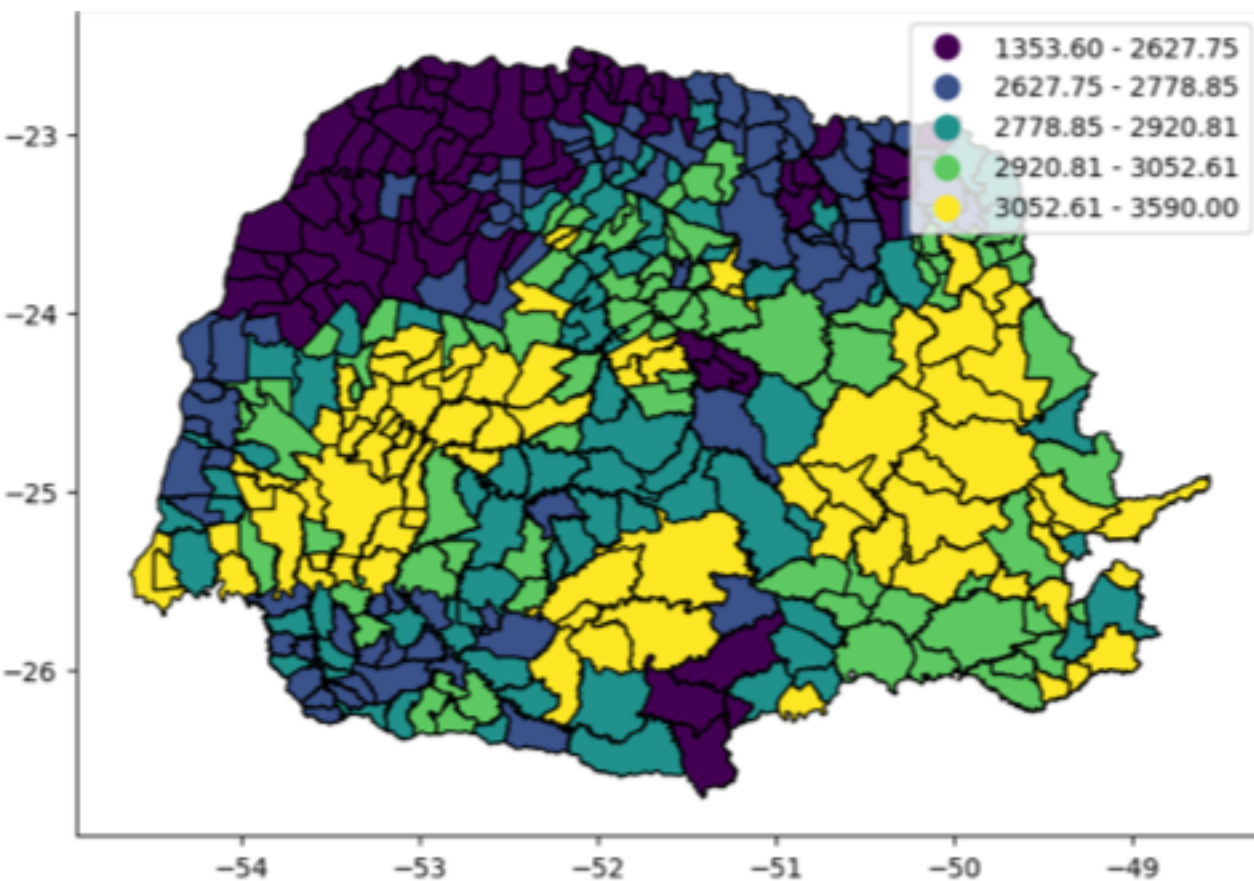
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2019

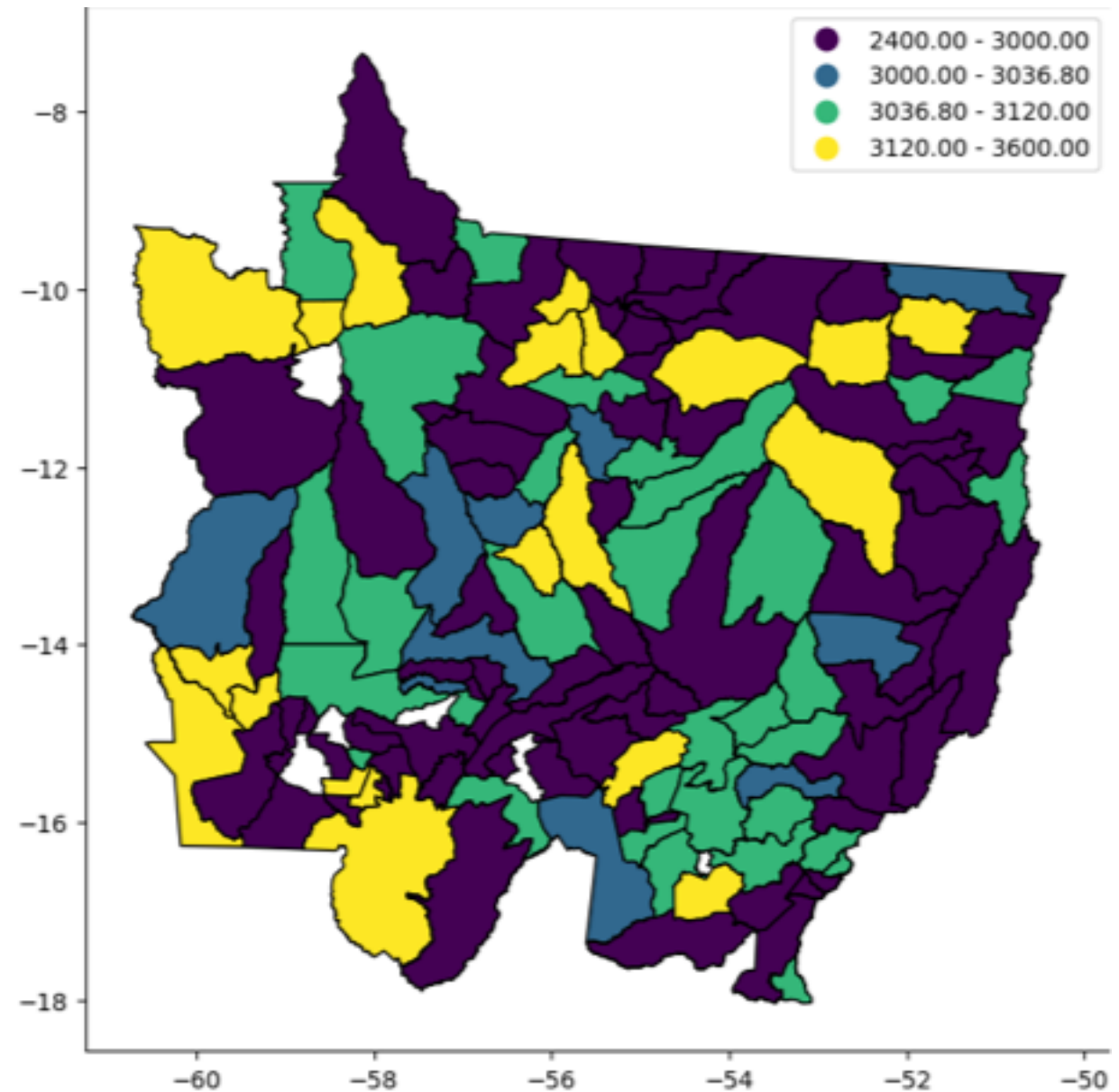
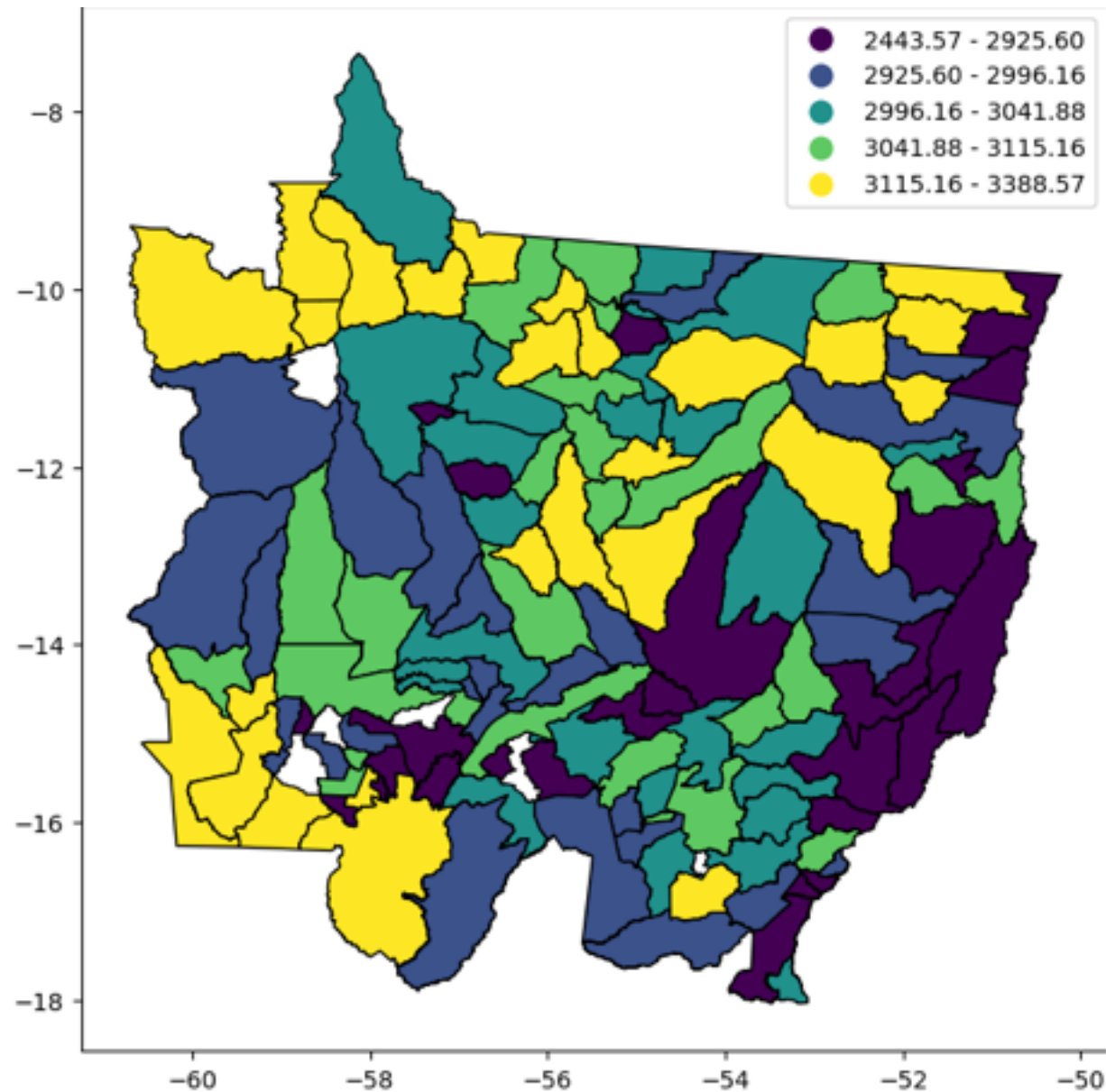


Fonte: IBGE (Soja (em grão)-Safr_2019)

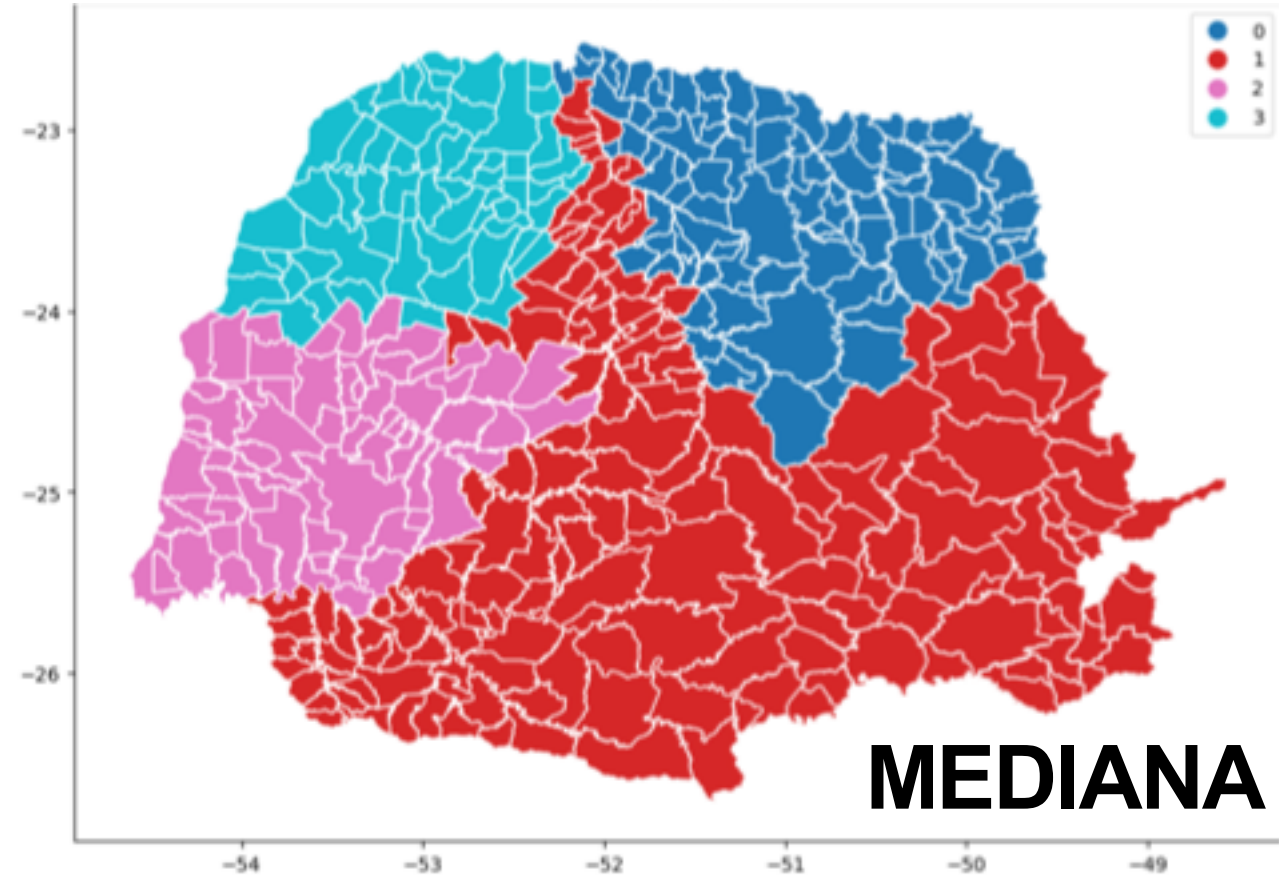
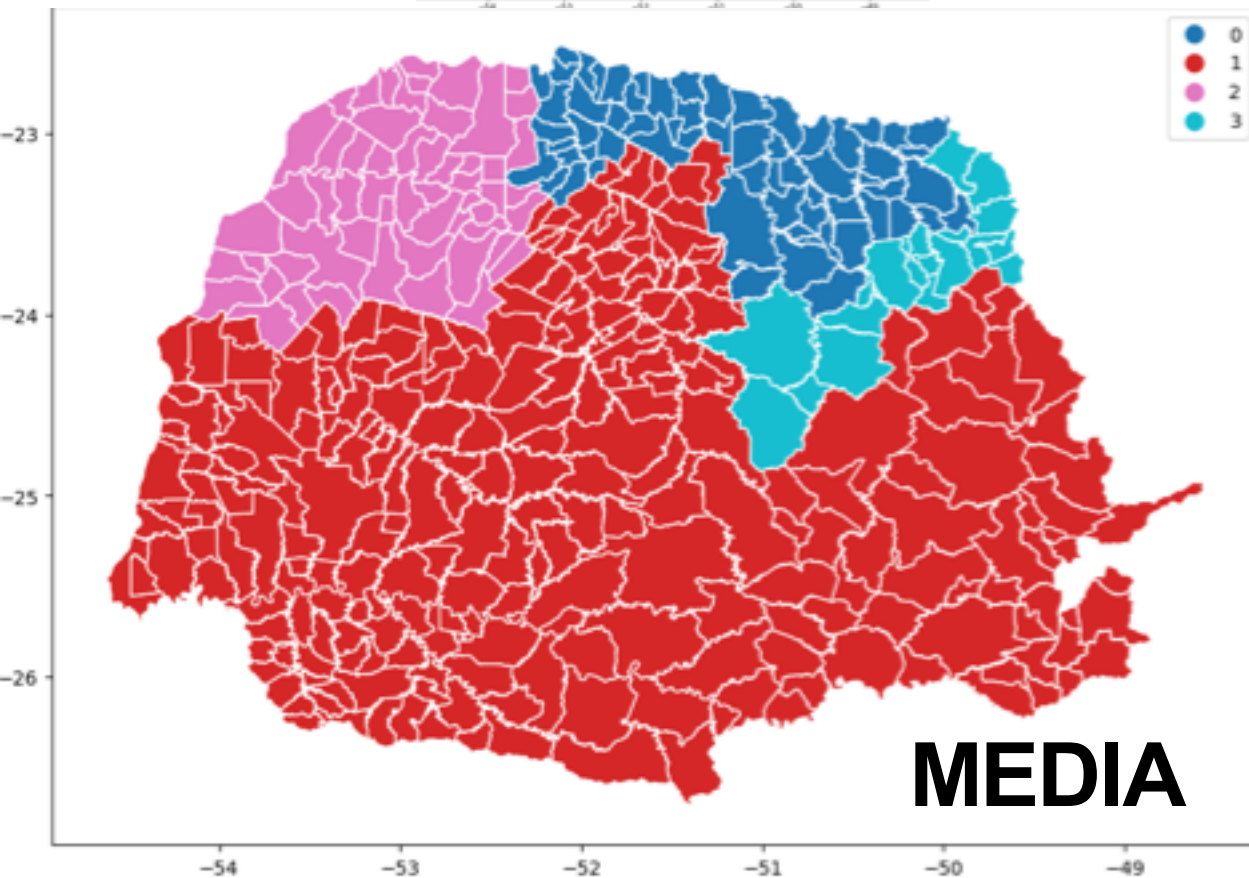
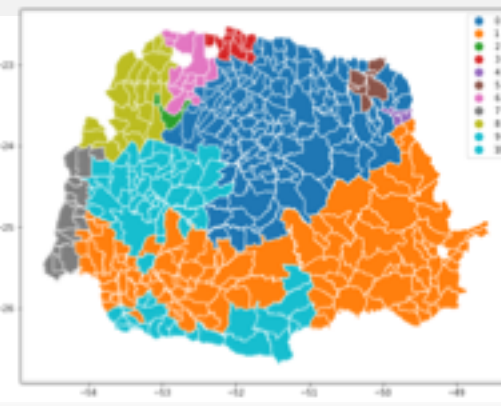
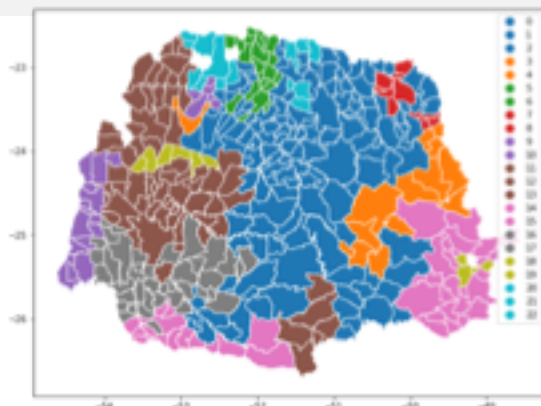
MÉDIA E MEDIANA - PARANÁ



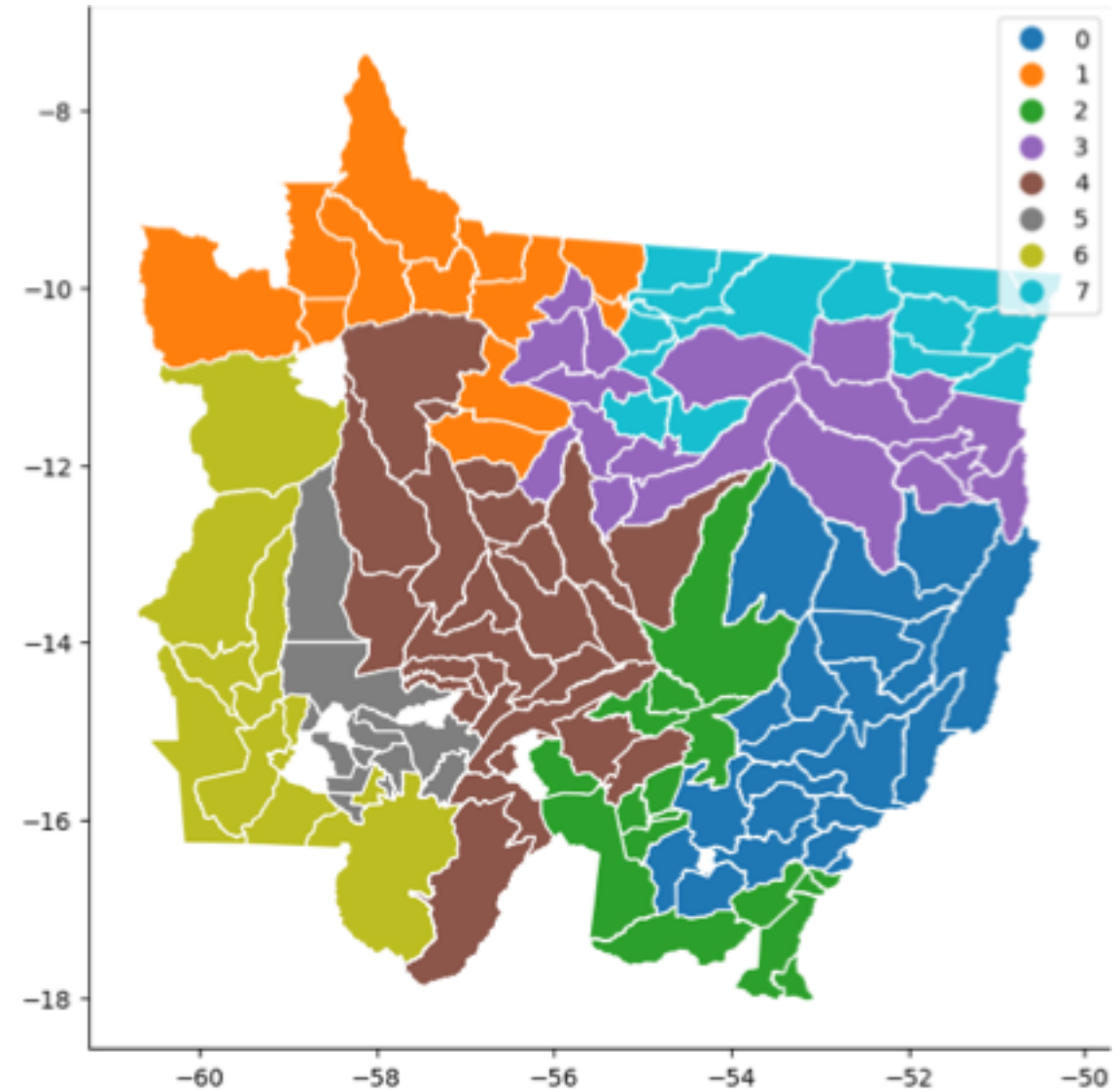
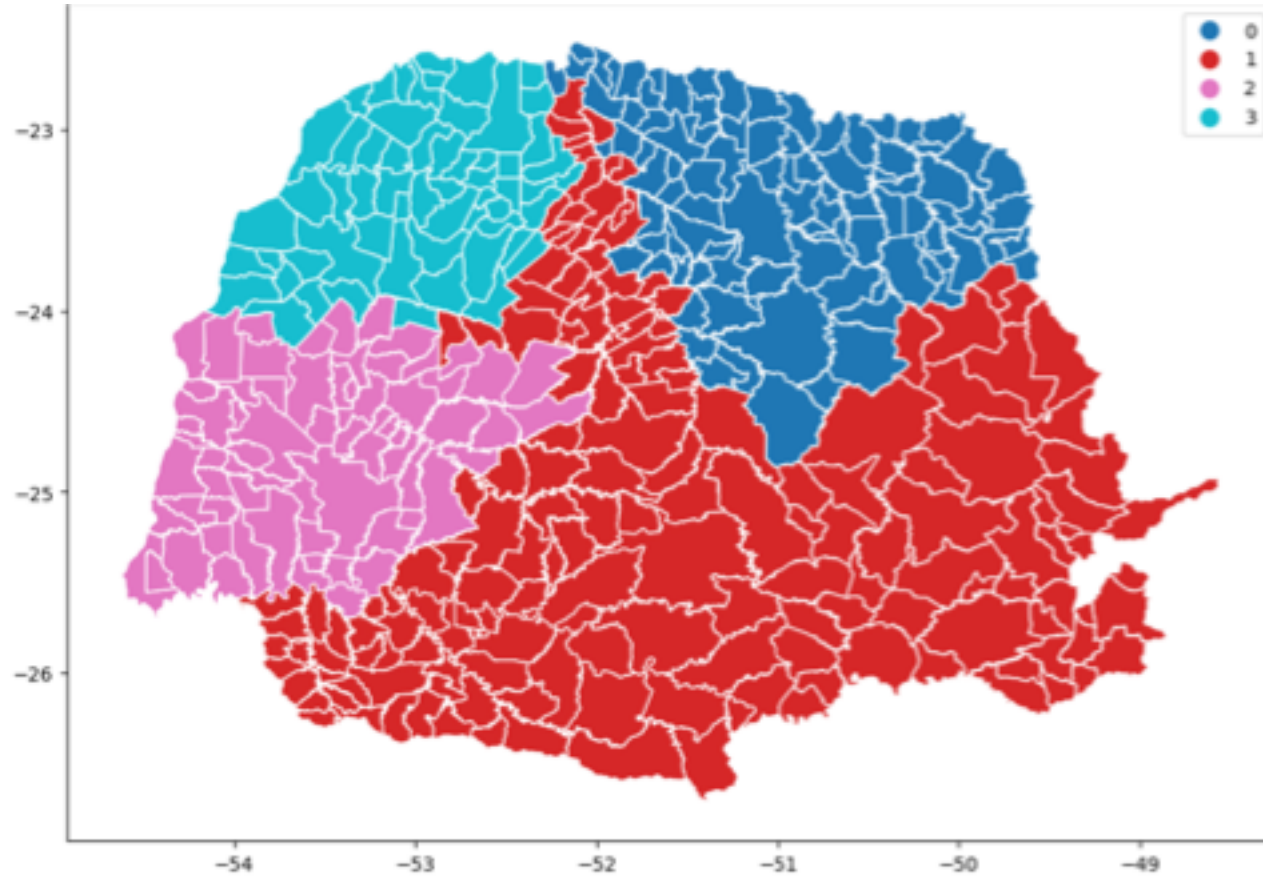
MÉDIA E MEDIANA – MATO GROSSO



PRODUTIVIDADE DE SOJA - PR



RESULTADO FINAL - MEDIANA



CONCLUSÕES

1. Algoritmo Skater permitiu regionalizar as áreas de estudo.
2. Foi possível avaliar a distribuição de região homogêneas e estimar a melhor quantidade de regiões.
3. Dados de um ano agrícola induz a resultados diferentes do esperado.
4. Em trabalhos futuros, outras variáveis explicativas podem ser consideradas.

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Obrigado!



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