

Potential Production of Sugar Cane of Mozambique

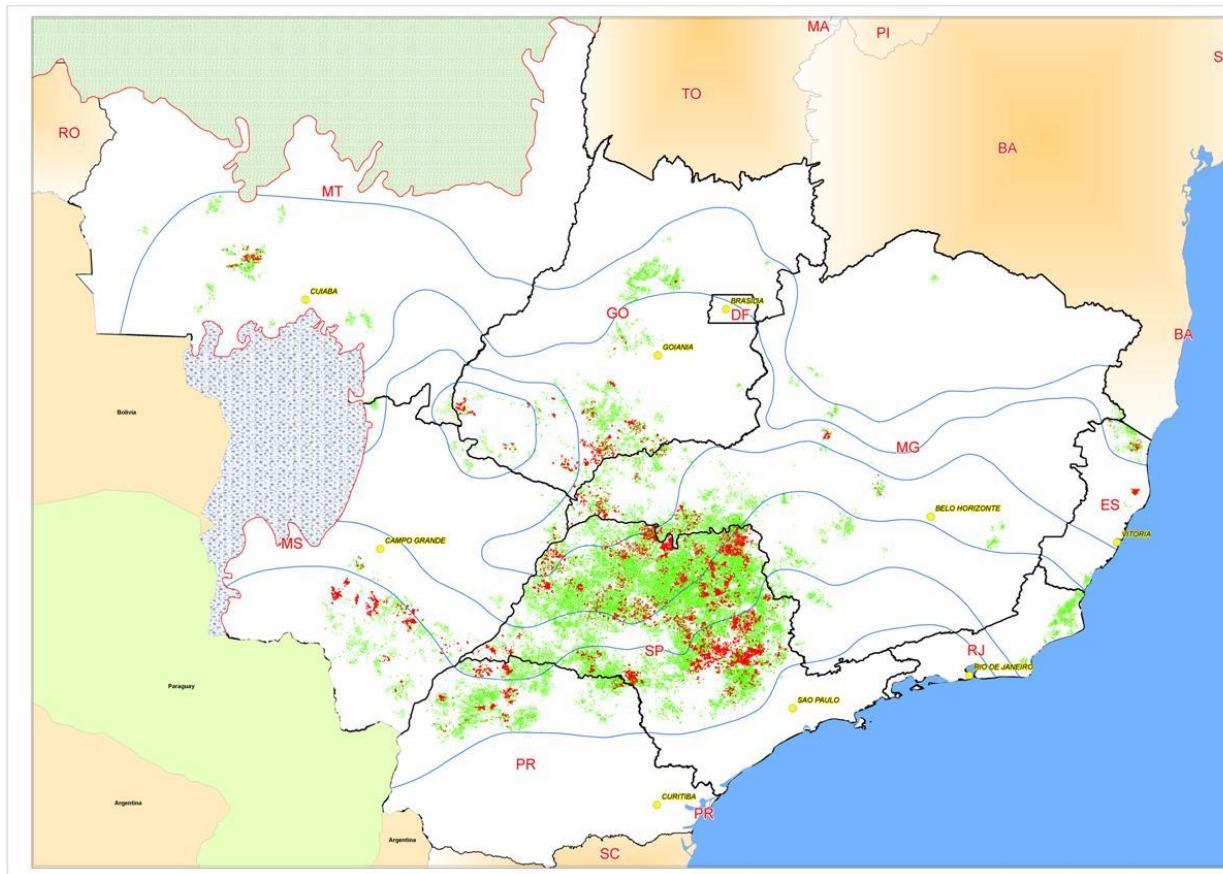
Fernando Cesar Bertolani

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Felipe Haenel Gomes

felipe@pedologica.com.br

- Sugar Cane area: 9.000.000ha
- Mapped area: more than 2.000.000ha (>150 mills)
- Largest data soil x productivity



- **Felipe Haenel Gomes**
 - **Pedologist (D.Sc. ESALQ/USP)**
- **Detailed Soil Mapping**
- **Greenfields studies**
- **Research (potential production)**

Soil

- **Importance of soil**
- **Soil surveys**
- **Basis of agricultural planning and researches**

Potential Production of Sugar Cane

Objectives

- Identify potential areas to sugar cane production in Mozambique
- Quantify the different production potential of sugar cane crops

Data:

- **Project – Embrapa**
 - **Soil map (Local, FAO and USDA classification and others)**
 - **Slope classes**
 - **Preservation areas**
 - **Rainfall**

<http://mapas.cnpm.embrapa.br/mocambique/mapa.html>

Árvore de Camadas

Mapas Moçambique

Legendas

Mapas Base

Escalas : 17471330.182978

Ver Camadas

Ver Legendas

Ajuda

- Mapas Base
 - OpenStreetMap
 - Bing Aerial
 - Bing Roads
 - Google Physical

Estruturas Moçambique

- Solos
- Zonas Agroecológicas
- Parques e Reservas
- Aptidão Agrícola
- Altimetria
- Classes de Declive
- Limites Politicos
 - Distritos
 - Províncias
 - Mocambique
 - Africa
- Clima
- Transportes
- Hidrografia

Zoom: Transparencia:

Acesso Restrito

- Imagens de Satélite
- Cartas Topográficas

Zoom: Transparencia:



Árvore de Camadas

Mapas Moçambique

Você está no modo de tela inteira. [Sair do modo tela cheia \(F11\)](#)

Legendas

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Estruturas Moçambique

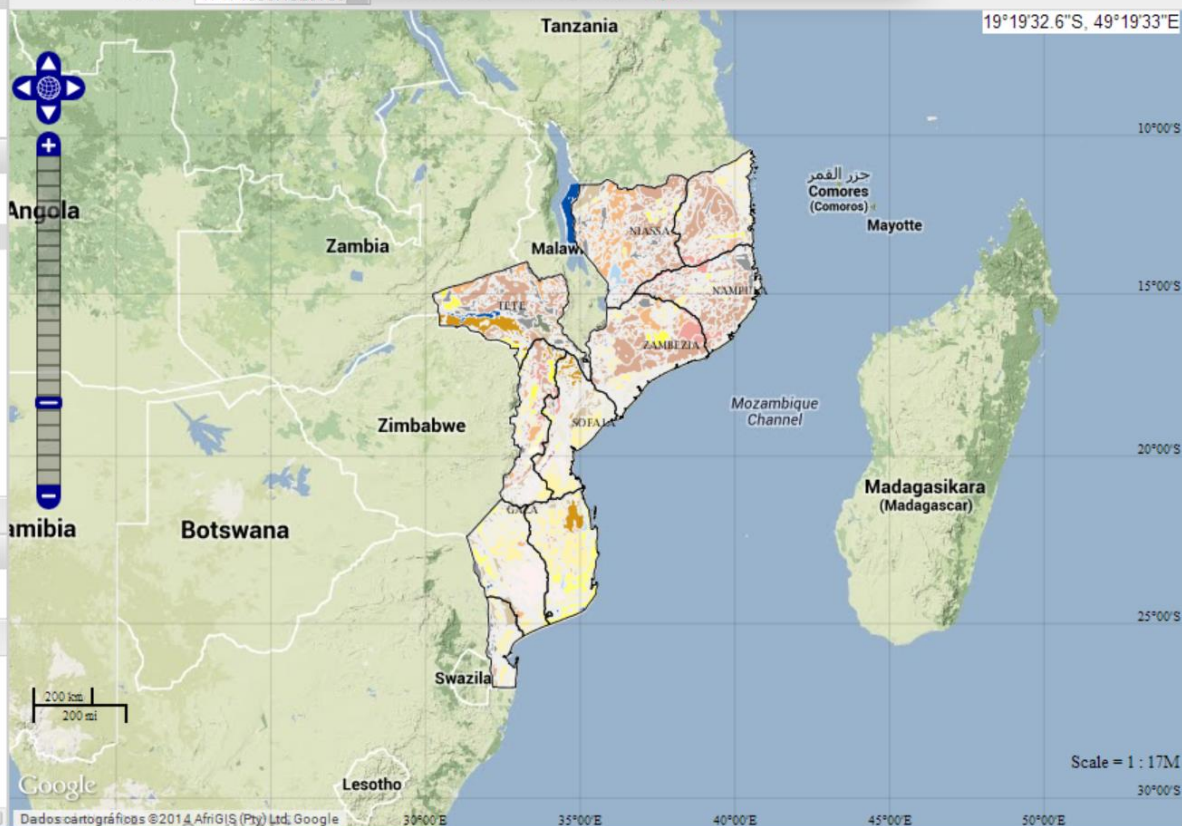
- Solos
 - Uso do Solo
 - Solos
 - Drenagem
- Zonas Agroecológicas
- Parques e Reservas
- Aptidão Agrícola
- Altimetria
- Classes de Declive
- Limites Políticos
- Clima
- Transportes
- Hidrografia

Zoom: Transparencia:

Acesso Restrito

- Imagens de Satélite
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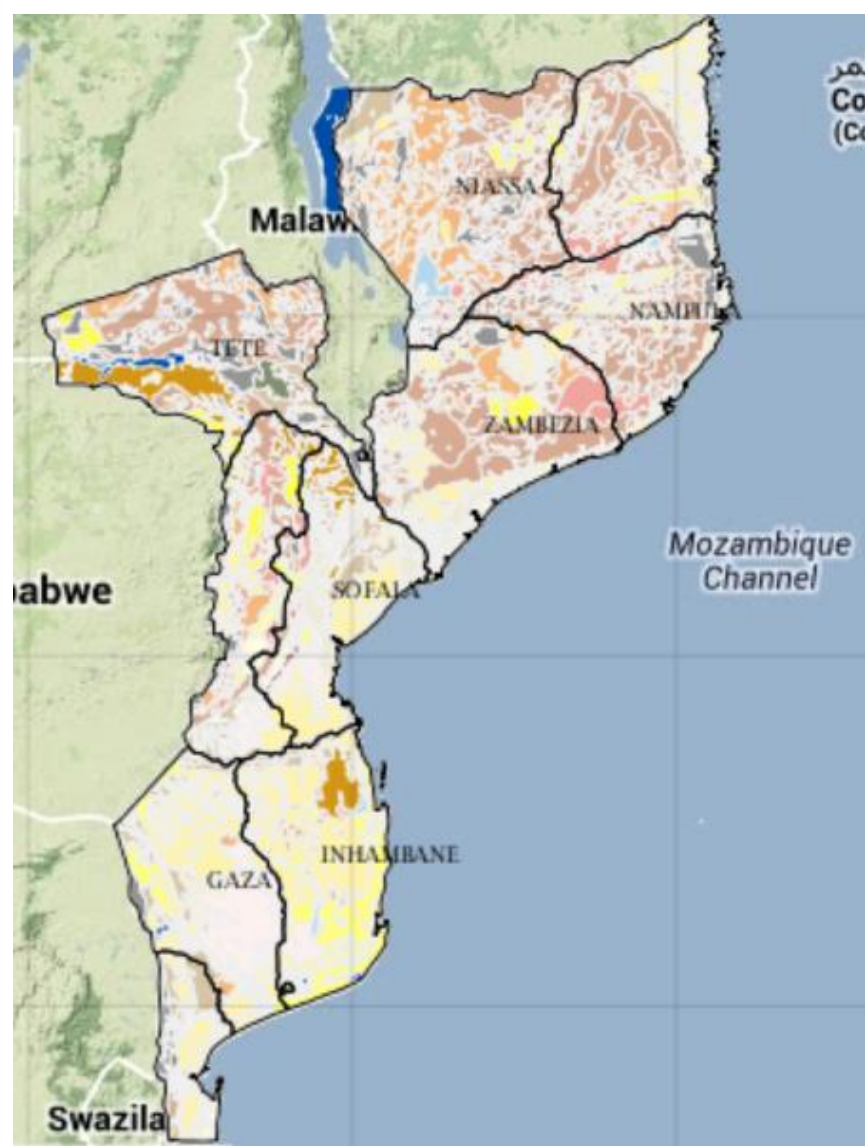
Zoom: Transparencia:







































Solos

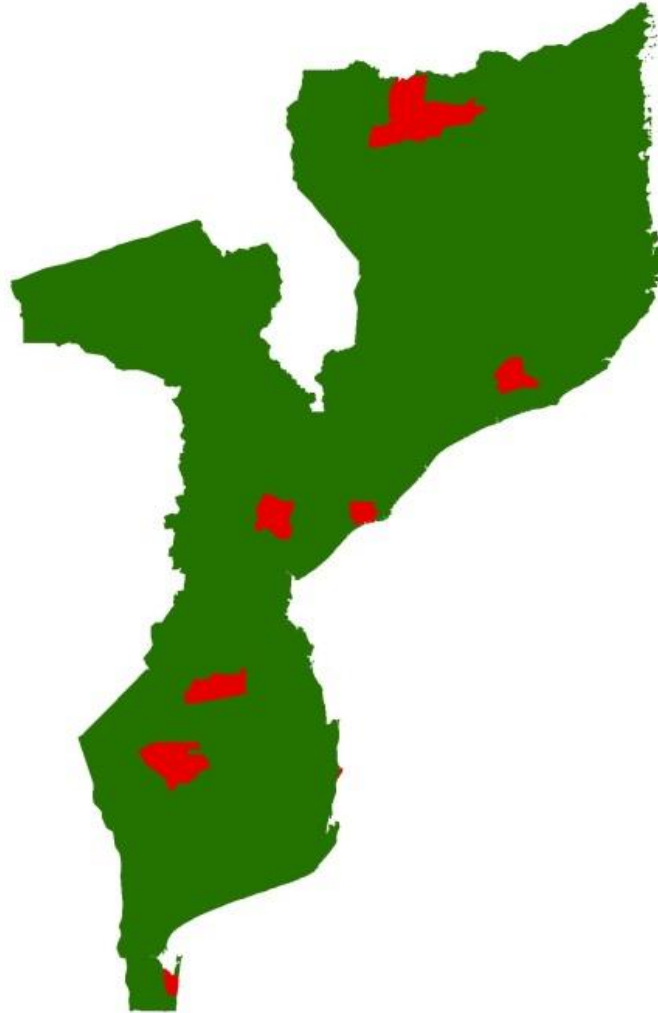
- Albic Arenosols
- Albic e Cambic
- Arenosols
- Calcaric Cambis
- Calcic Vertisol
- Cambic arenosol
- Chromic Cambisol
- Chromic Luvisol
- Eutric Cambisol
- Eutric Fluvisol
- Eutric Leptosol
- Eutric fLuvisol
- Ferralic Arenos
- Ferralsols
- Ferric Lixisol
- Ferric Lixisols
- Gleyic Arenosol
- Gleyic Phaeozem
- Gleysols
- Gleysols Fluvis
- Haplic Acrisols
- Haplic Lixisols
- Haplic Arenoso
- Haplic Chernoz
- Haplic Lixisol
- Lagos, lagoas ou
- Luvic Chernozem
- Mollic Fluvisol
- Mollic Leptosol

Scale = 1 : 17M



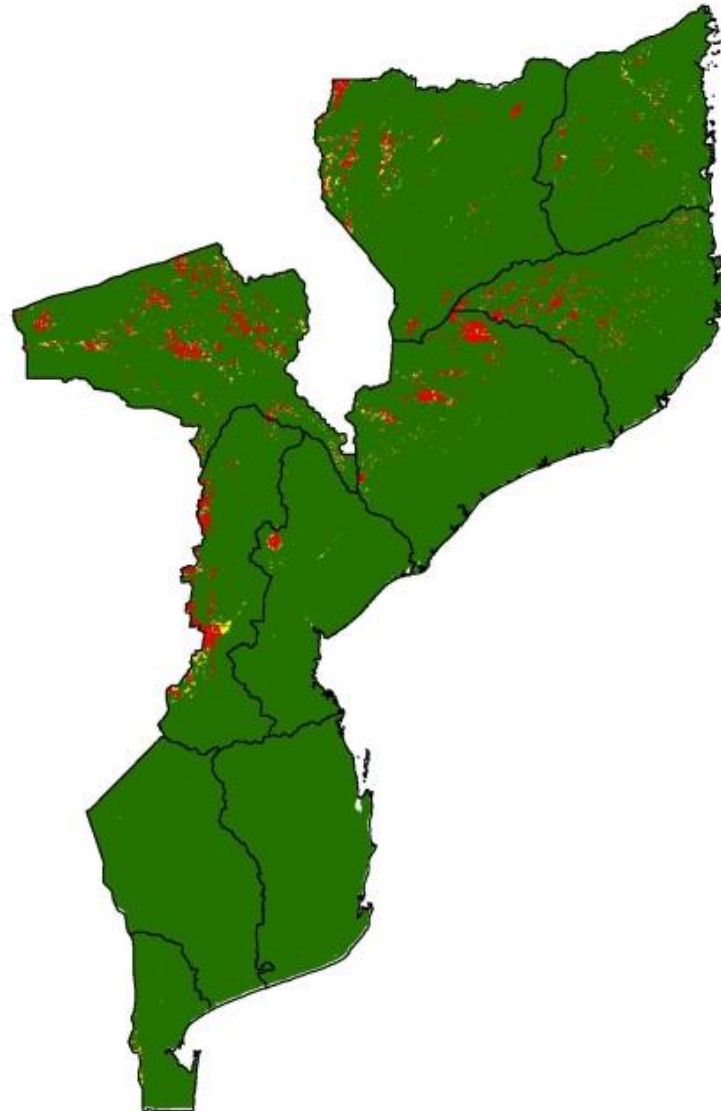
- | | |
|--|---|
|  Albic Arenosols |  Gleysols |
|  Albic e Cambic |  Gleysols Fluvis |
|  Arenosols |  Haplic Acrisols |
|  Calcaric Cambis |  Haplic Lixisols |
|  Calcic Vertisol |  Haplic Arenoso |
|  Cambic arenosol |  Haplic Chernoz |
|  Chromic Cambiso |  Haplic Lixisol |
|  Chromic Luvisol |  Lagos, lagoas ou |
|  Eutric Cambisol |  Luvic Chernozem |
|  Eutric Fluvisol |  Mollic Fluvisol |
|  Eutric Leptosol |  Mollic Leptosol |
|  Eutric fLuvisol |  Mollic Soloncha |
|  Ferralic Arenos |  Rhodic Ferralso |
|  Ferralsols |  Rhodic Haplusto |
|  Ferric Lixisol |  Rhodic Nitisol |
|  Ferric Lixisols |  Salic Fluvisols |
|  Gleyic Arenosol |  Stagnic ou Hapl |
|  Gleyic Phaeozem |  Umbric Fluvisol |

**Environment
restriction**

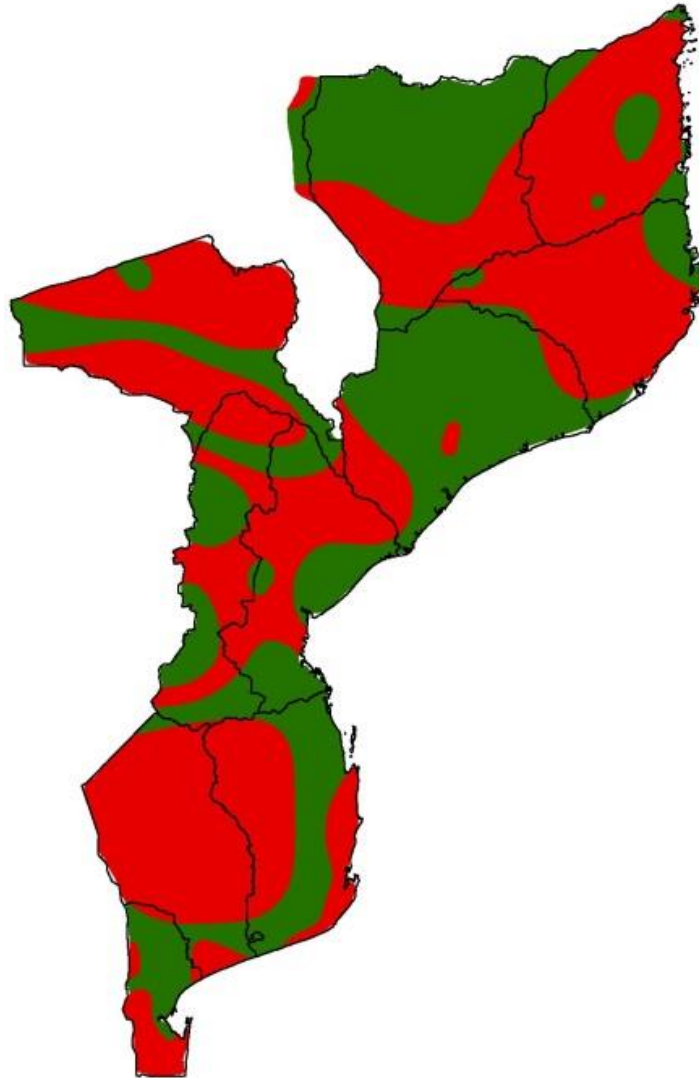


Basic Data

Slope < 12%



Climate (rainfall)

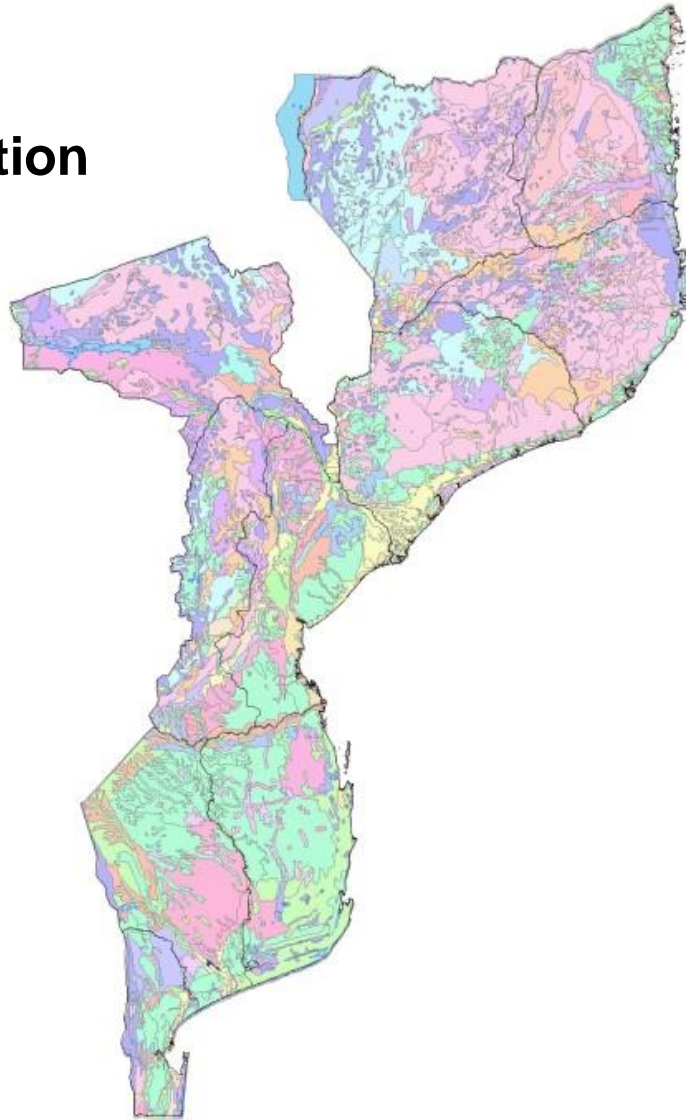


Climate conditions

Appropriate ($\geq 900\text{mm}$)

Inappropriate ($< 900\text{mm}$)

Soil Classification



agruSoip_solo	Solos argilosos vermelhos oxicos
carc_domin	Argiloso castanho, avermelhado escuro, solos profu
geom_geolo	Soco do precamrico,Rochas acida
forma_terr	Intefluvios, encostas superiore
topografia	Ondulado 0 - 10
textura	FAr - Ag
drenagem	Boa
profundi__	> 100
acidez_alc	Moder. Acido - Lig. acido
mater_rgan	Baixa a moderada
sal_superf	Nao salgado
sodic_supe	Nao sodico
class_fao	Rhodic Ferralso
class_usda	Rhodic Eustrusto
tip_vegeta	Floresta aberta, savana a
princ_limi	Fixacao de fosforo, fertilidades

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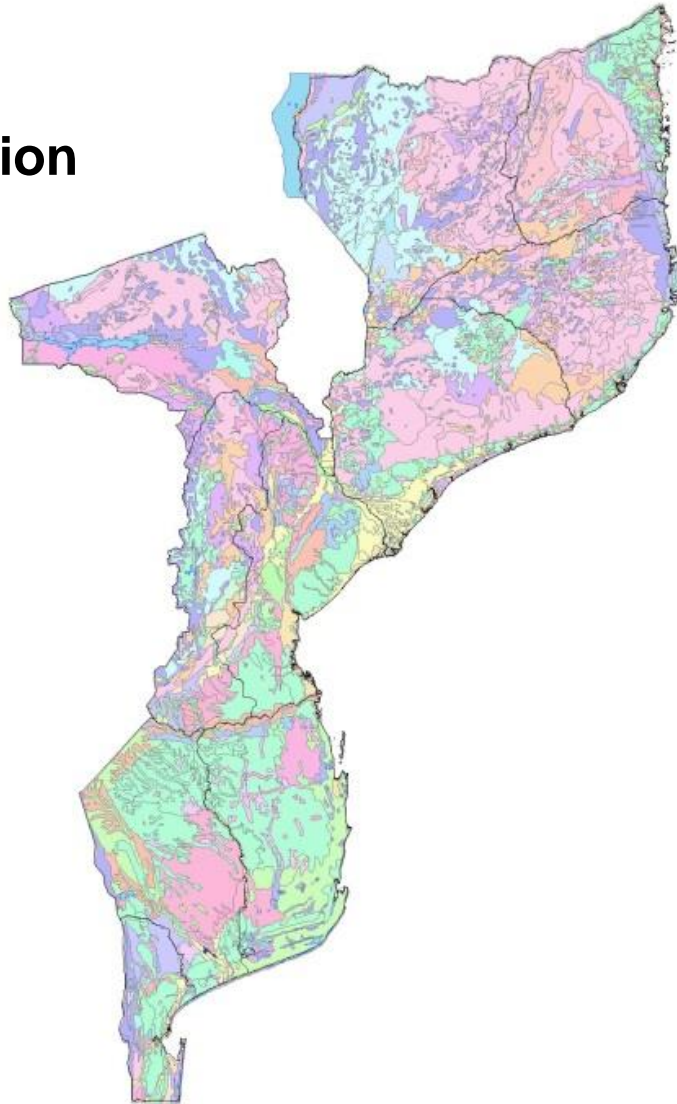
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textura	FAr - Ag

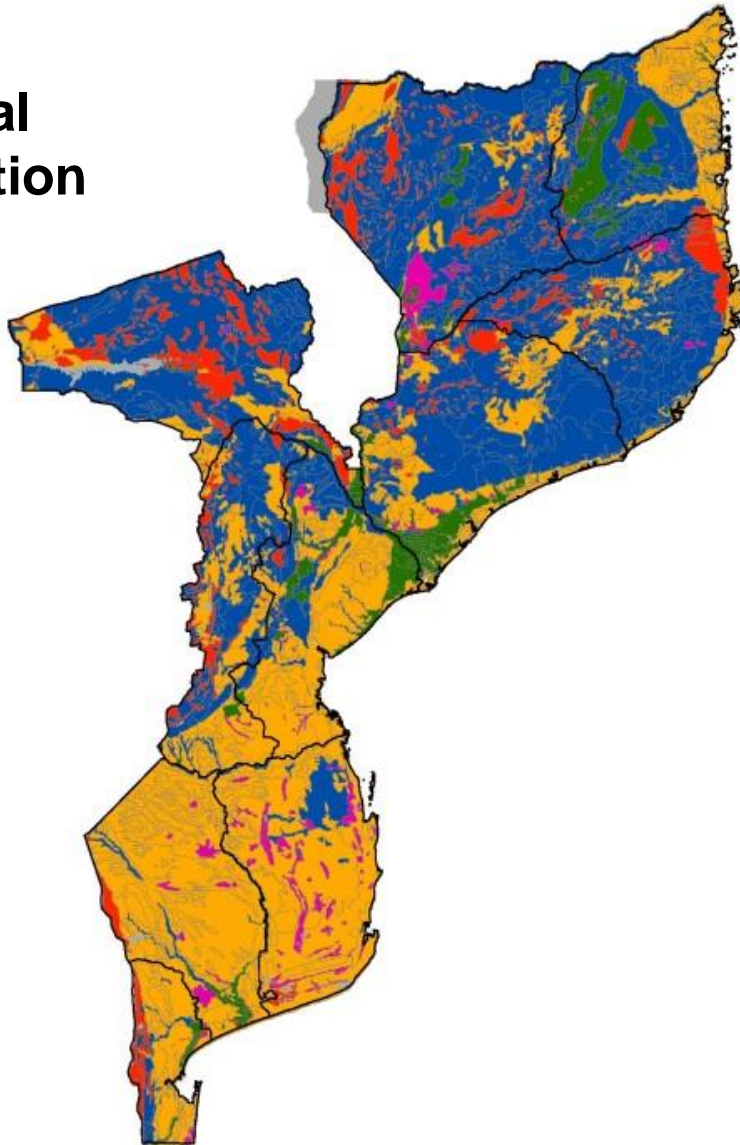
**Latossolo Vermelho distrófico, SB baixa ou álico,
textura média e argilosa –
Medium**

sal_superf	Nao salgado
sodic_supe	Nao sodico
class_fao	Rhodic Ferralso
class_usda	Rhodic Eustrusto
tip_vegeta	Floresta aberta, savana a
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Soil Classification



Potential Production



Potential

-  High
-  Medium
-  Low
-  Limited
-  Inappropriate



Potential Production



Environment
restriction

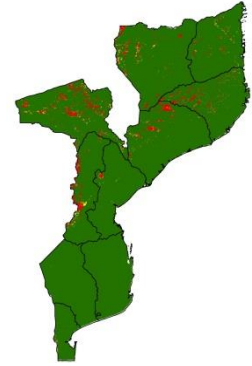


Potential Production



**Environment
restriction**

Slope < 12%



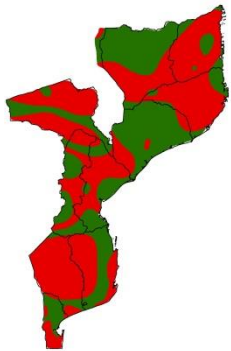
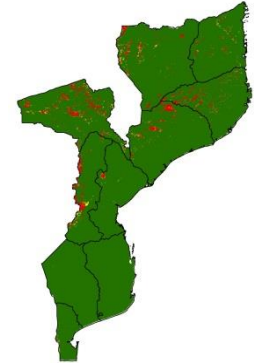


Potential Production



**Environment
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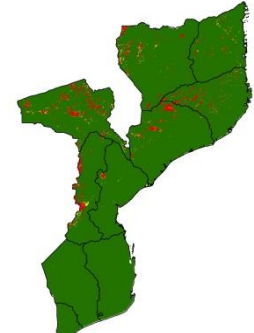
**Climate
(rainfall)**

Potential Production

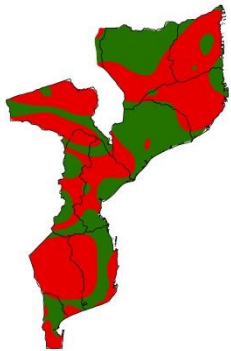


Environment
restriction

Slope < 12%



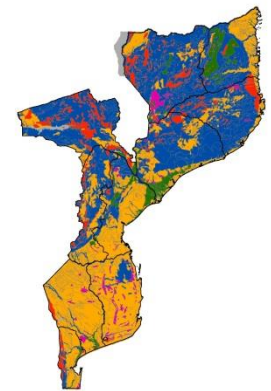
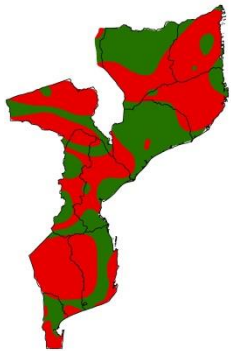
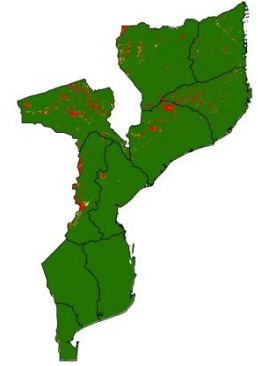
Eliminatory Steps



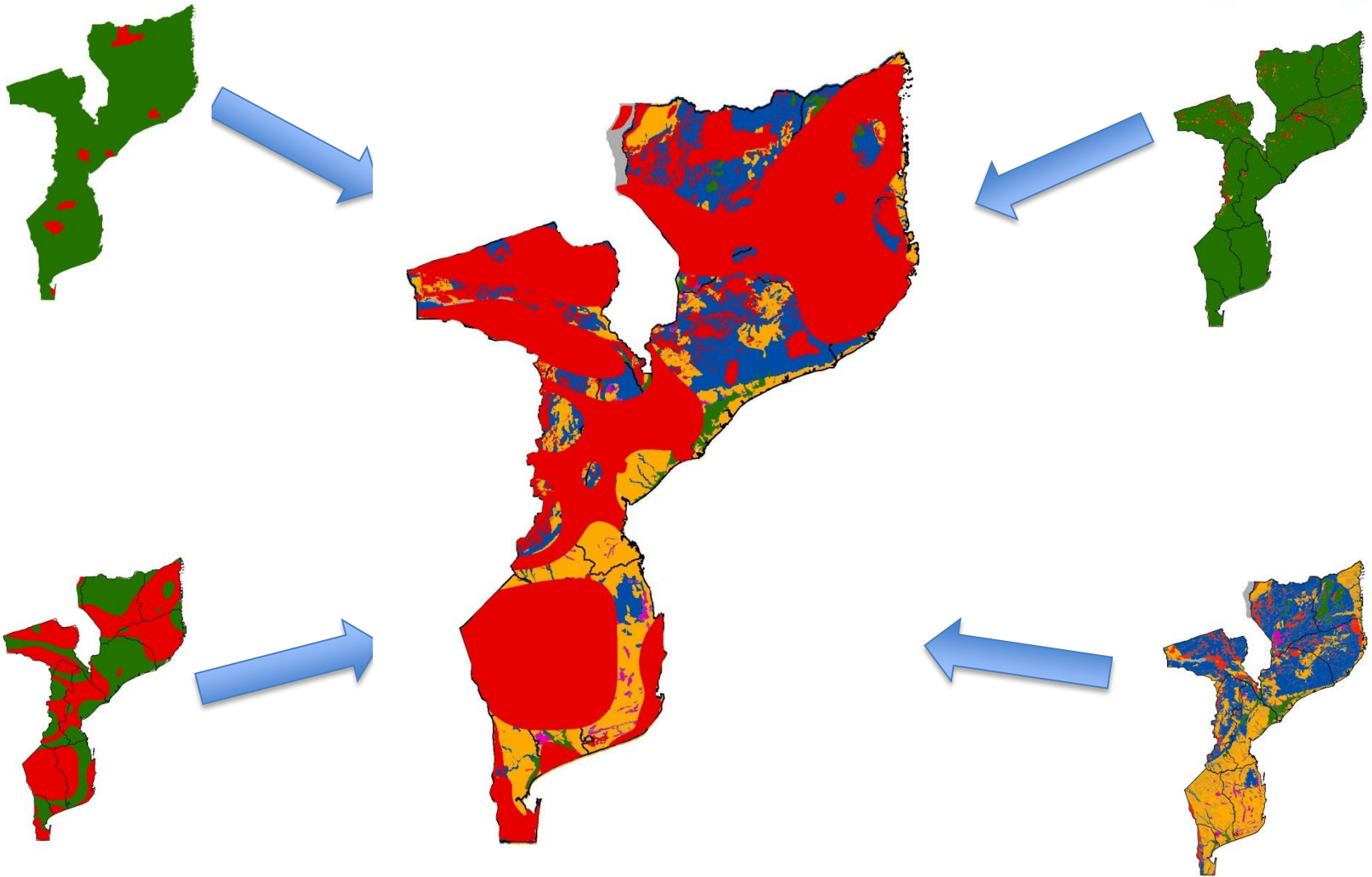
Climate
(rainfall)



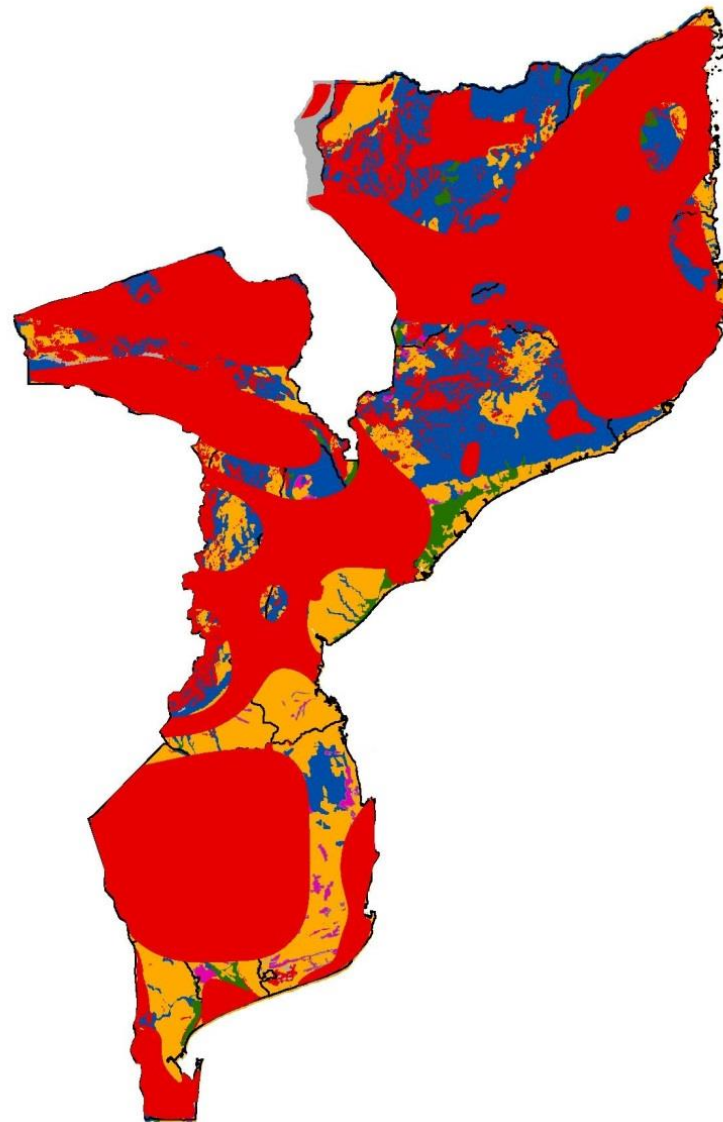
Potential Production




Potential Production



Potential Production



Potential

-  High
-  Medium
-  Low
-  Limited
-  Innapropriate

Data:

- **Validate data**
 - **Climate**
 - **Rainfall**
 - **Rain distribution**
 - **Water balance**
- **Compare with existing data**
 - **Agricultural Zoning**



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