

Capacity Building in Earth Observations for Agriculture



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Current Situation of Brazilian Agribusiness

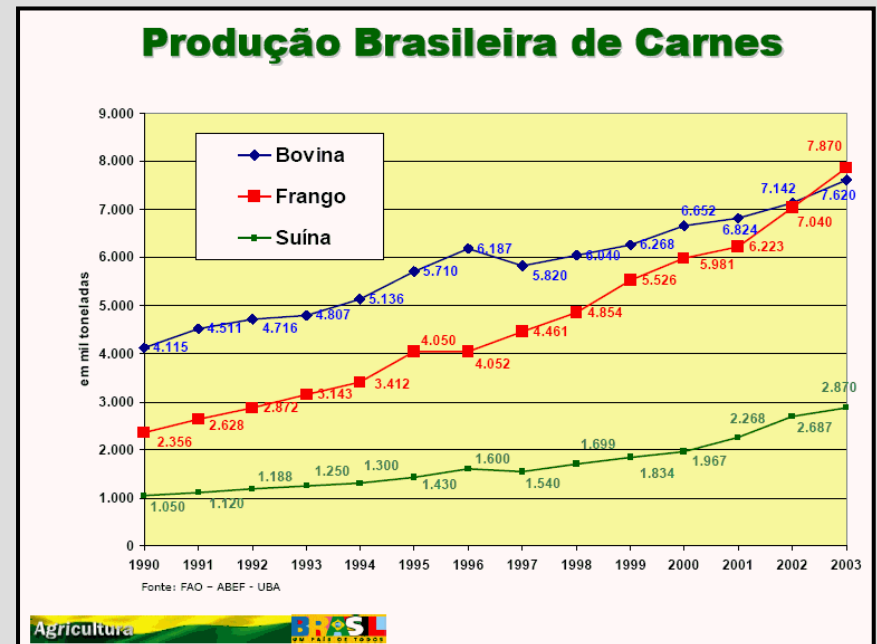
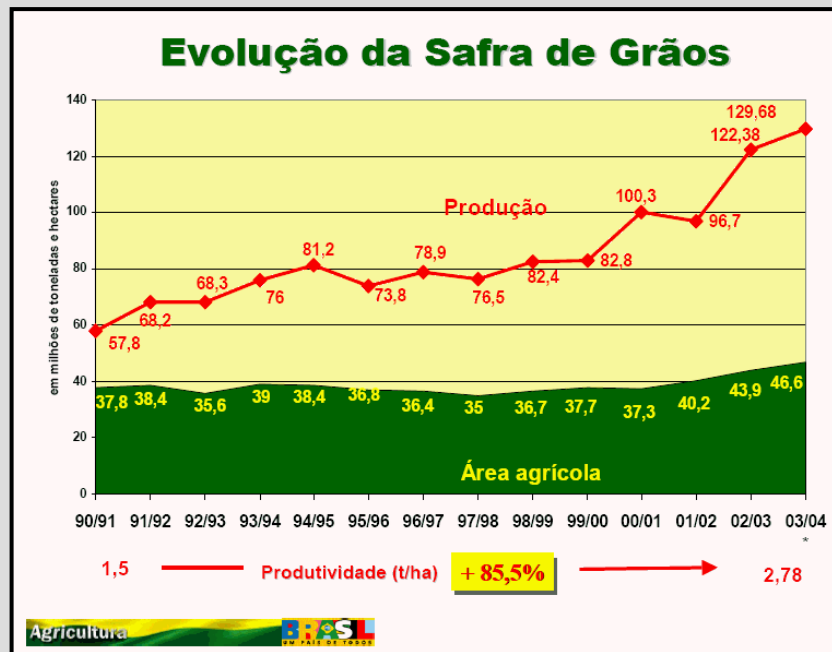
Agribusiness and Brazilian Economy

GDP = US\$ 500 bi (30% of GDP = US\$ 165 bi in 2003)

40% of Exports = US\$ 30 bi

30% of Jobs

World's Larger Exporter of Sugar, Alcohol, Orange Juice, Coffee, Soybean, Chicken and Beef



Causes:

- 1) Natural Resources: Climate, Soil and Water**
- 2) Human Resources**
- 3) Technology**

Climate

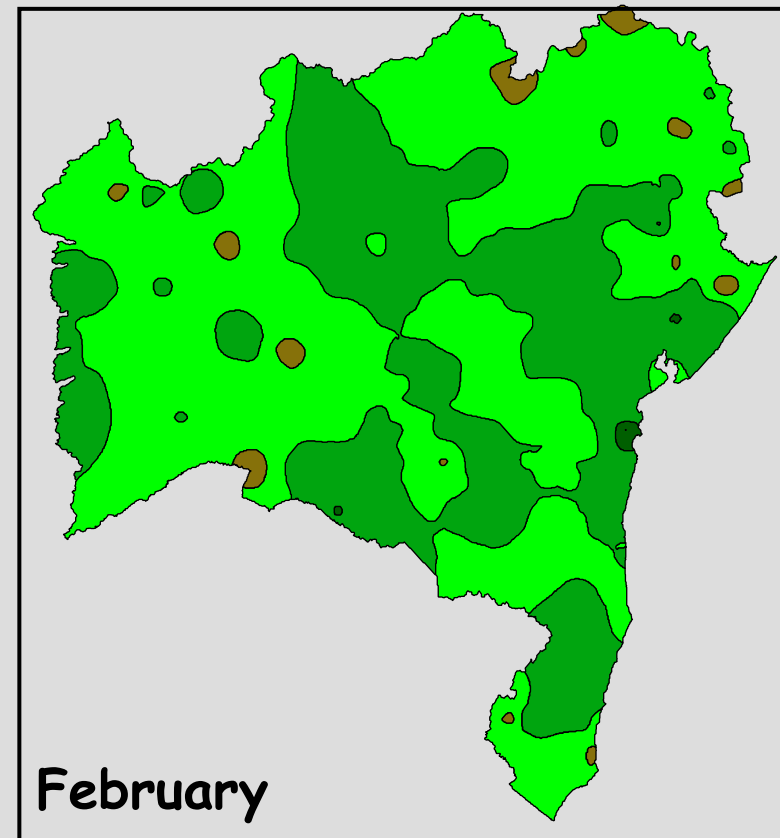
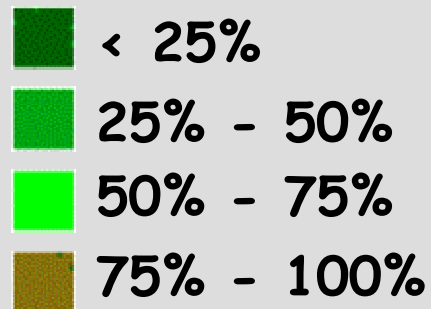
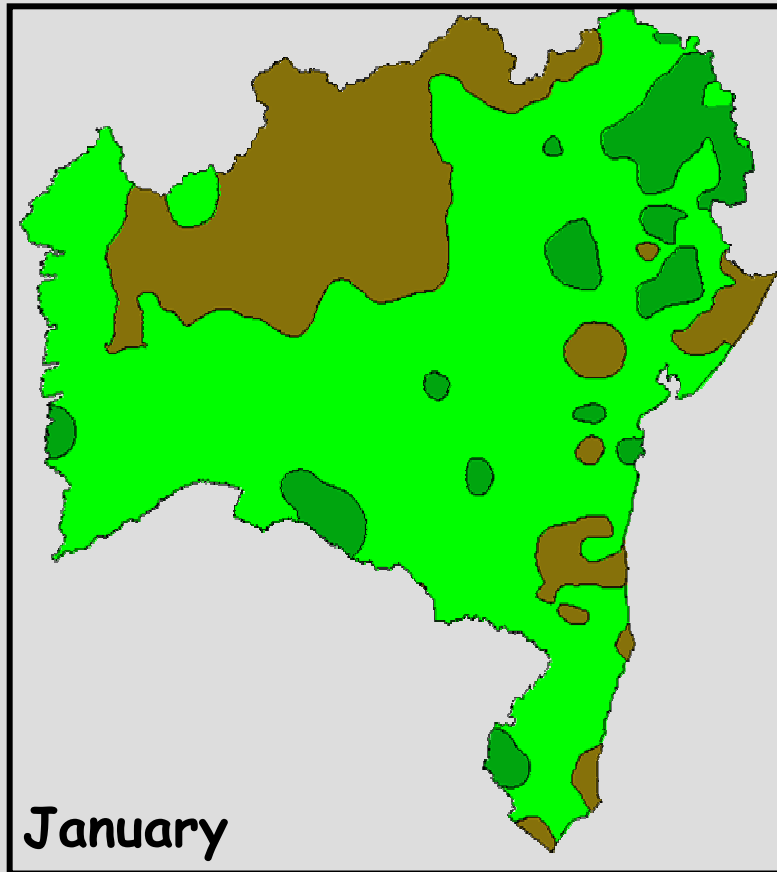
Advantages of Climate Conditions

- Great variations around the country - Large number of different crops;**
- Low occurrence of phenomena as tornadoes, snow and hurricanes;**

Constraints

- The main crops are rainfed (grow during the rainy season);**
- 90% of all agricultural losses in the beginning of 90's were caused**
 - by dry spells during the rainy season, specially during the reproductive phase (flowering and grain-filling) - 60%**
 - by rainfall excess during harvest - 30%**

Probability of 10-days dry spells in the State of Bahia



Political Coordination: Ministry of Agriculture

Beginning: 1995

Technical Coordination: EMBRAPA (Brazilian Agricultural Research Corporation)

Participants: Research Institutes and Universities

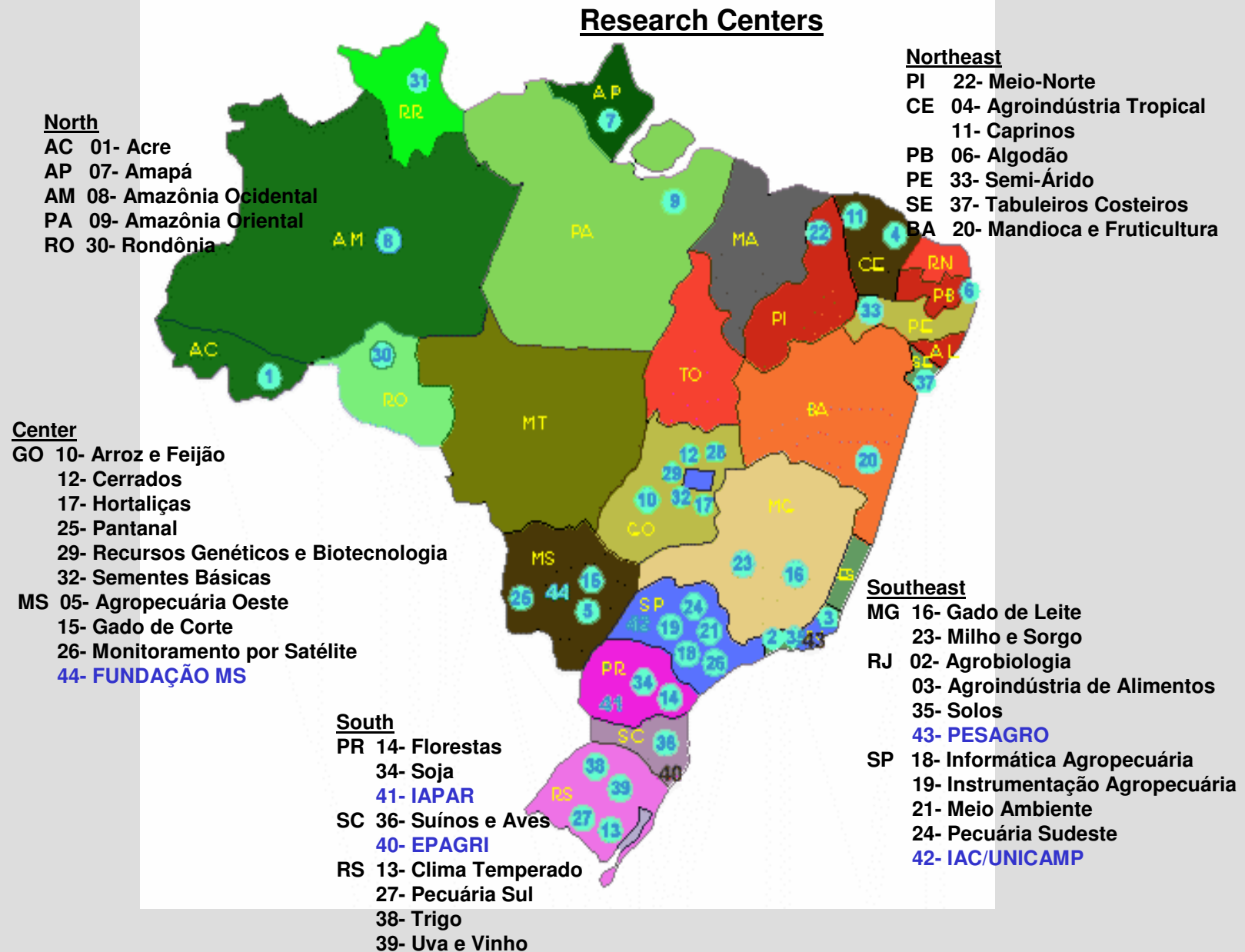
Objective: Decrease the Climate Risks for less than 20%

Dry spells during the reproductive phase

Rainfall excess during the harvest period

Methodology: Simulation of Cumulative Water Balances for Different Soil Types, Planting Dates, Cycle Lengths, Surface Stations

Program of Climate Risk Reduction - Team



Soybean

Early Cultivar

Clay Soil

Period: Oct 1st-10th

Goiás (341.000km²)



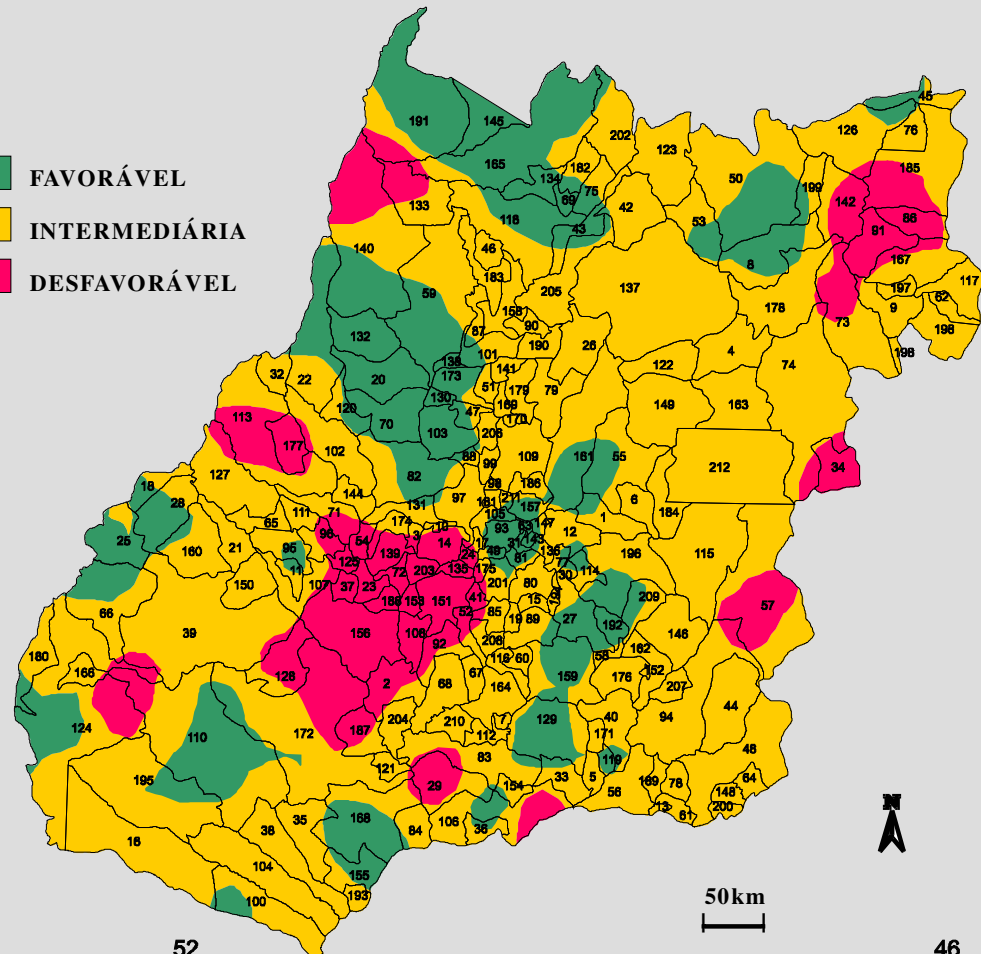
ZONEAMENTO AGROCLIMÁTICO DA CULTURA DA SOJA NO ESTADO DE GOIÁS

CICLO: PRECOCE

SOLO: TIPO 3

SEMEADURA: 01/10 a 10/10

- FAVORÁVEL
- INTERMEDIÁRIA
- DESFAVORÁVEL



MAA/FINATEC/EMBRAPA-CNPSO/DNAEE/INMET

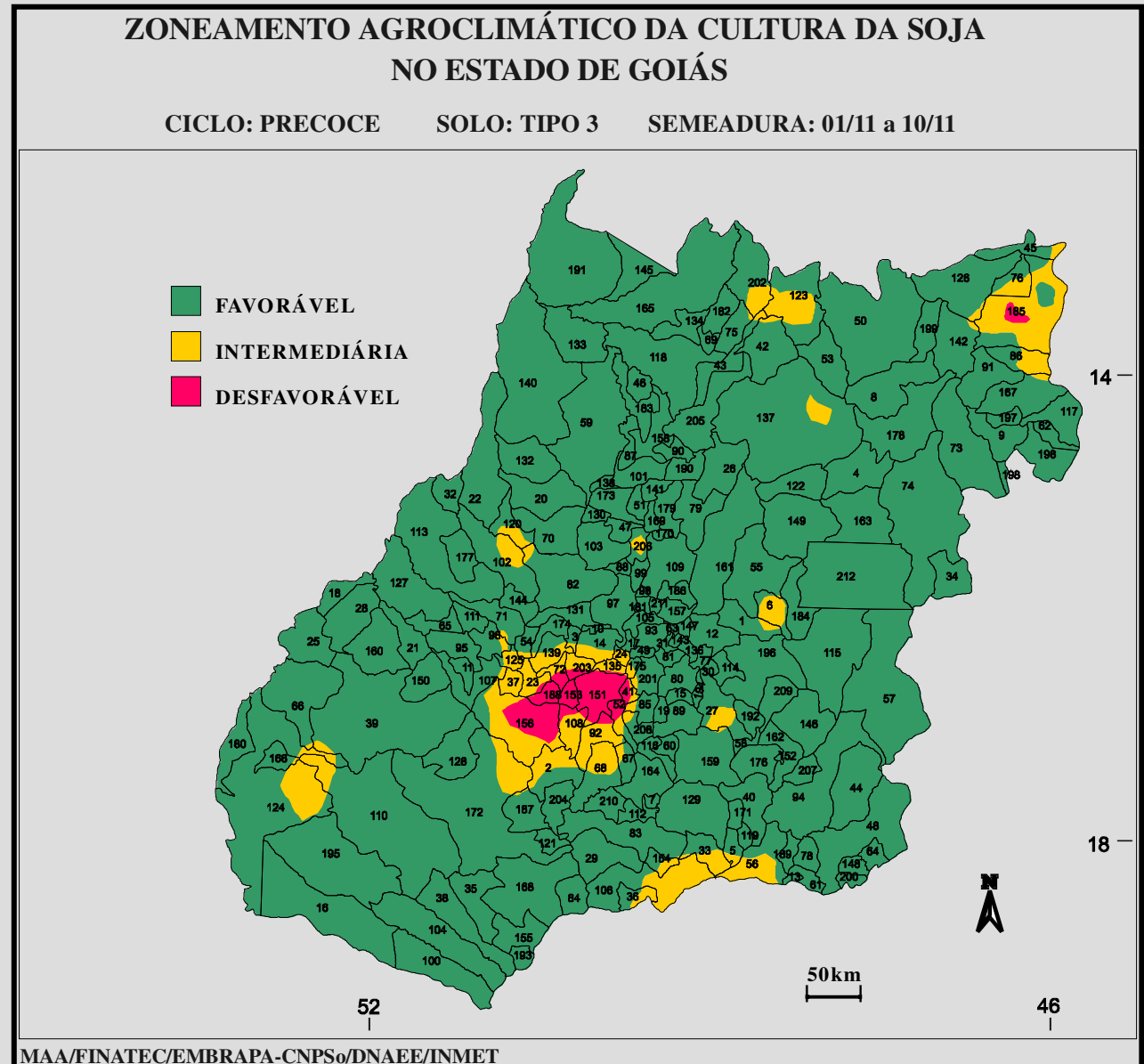
Soybean

Early Cultivar

Clay Soil

Period: Nov 1st-10th

Goiás (341.000km²)



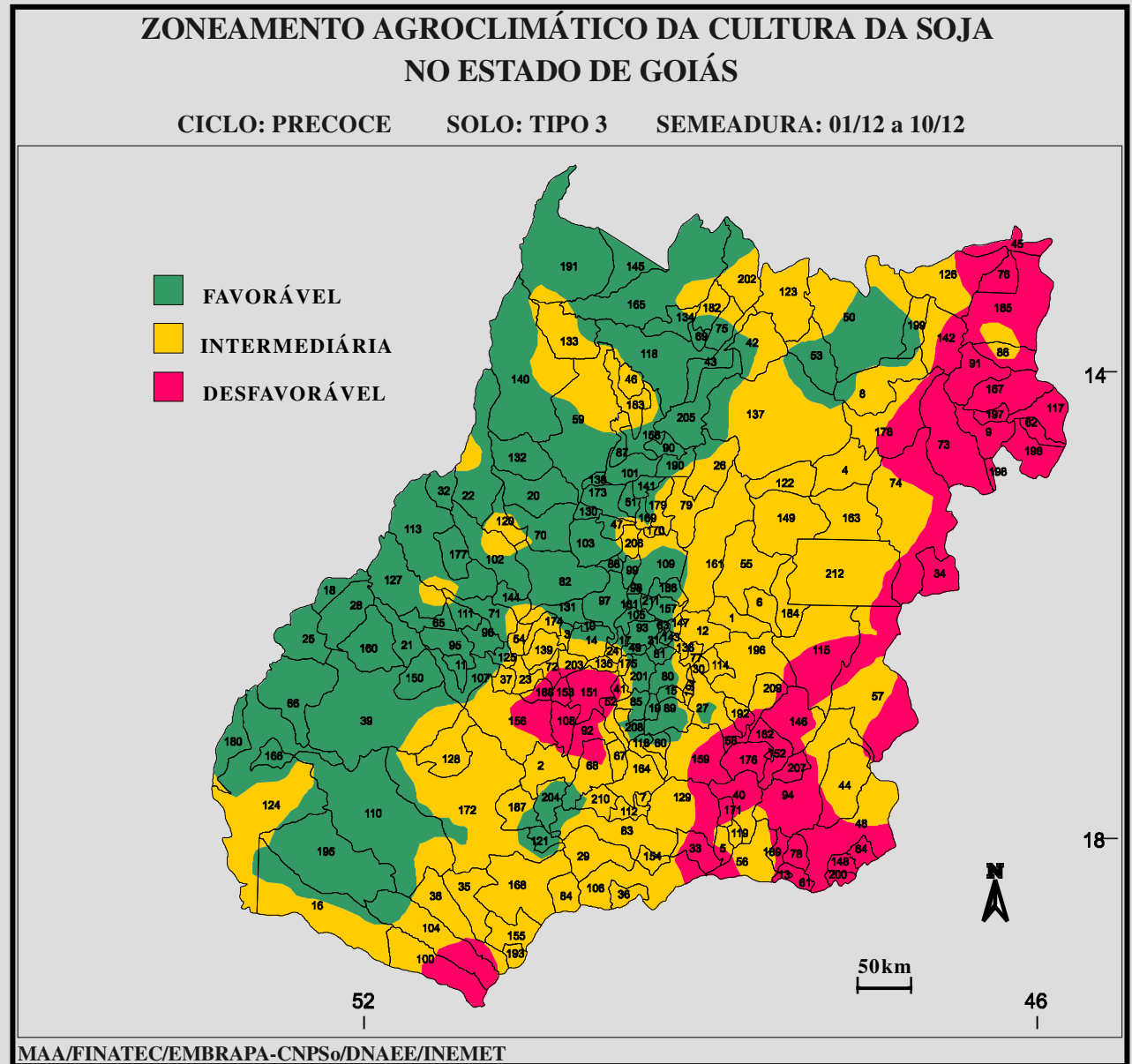
Soybean

Early Cultivar

Clay Soil

Period: Dec 1st-10th

Goiás (341.000km²)

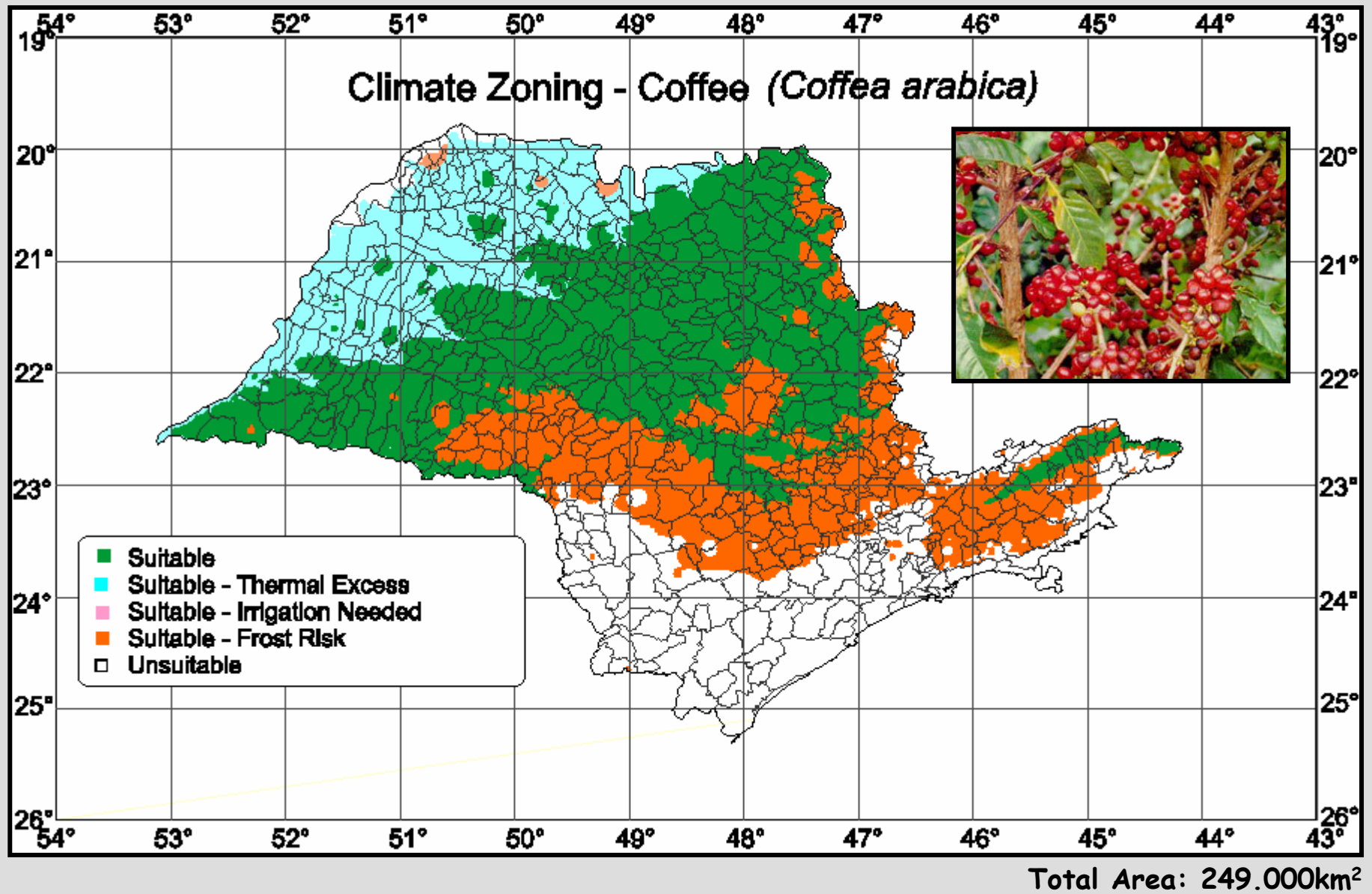


Program of Climate Risk Reduction - Output

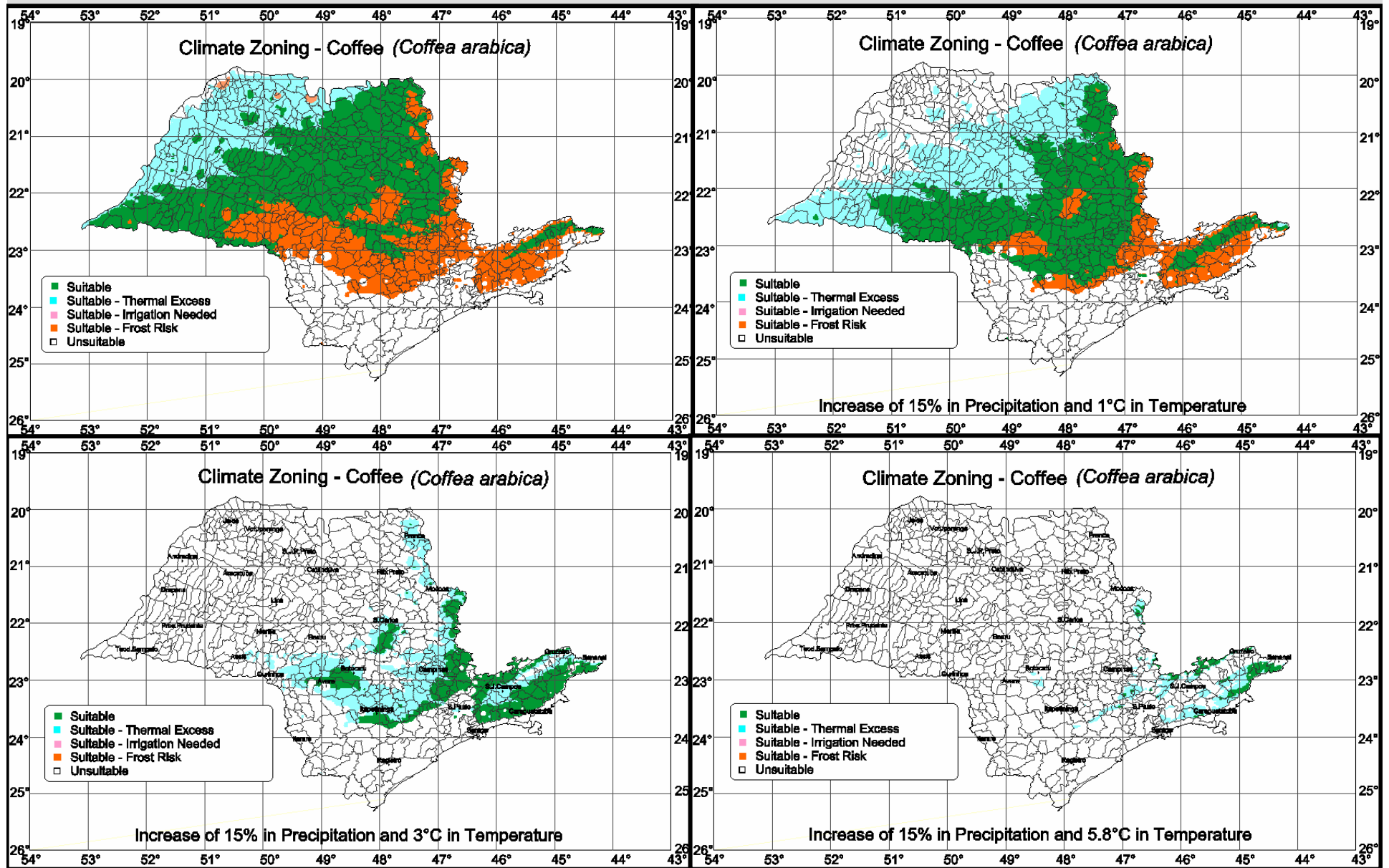
BRASIL.GOV																																						
Agritempo																																						
Sistema de Monitoramento Agrometeorológico																																						
CAMPINAS																																						
Cultura	Ciclo	Solo	Períodos Favoráveis (Verde) e Desfavoráveis (Vermelho) de Plantio por Decêndio																																			
			AGO			SET			OUT			NOV			DEZ			JAN			FEV			MAR			ABR			MAI			JUN			JUL		
			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3						
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	PRECOCE	ARENOSO																																				
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		TEXTURA MEDIA																																				
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		TEXTURA MEDIA																																				
	MEDIO	ARENOSO																																				
		ARGILOSO																																				
		TEXTURA																																				

Use: as Federal Farm Credit Policy (US\$ 14 billion)

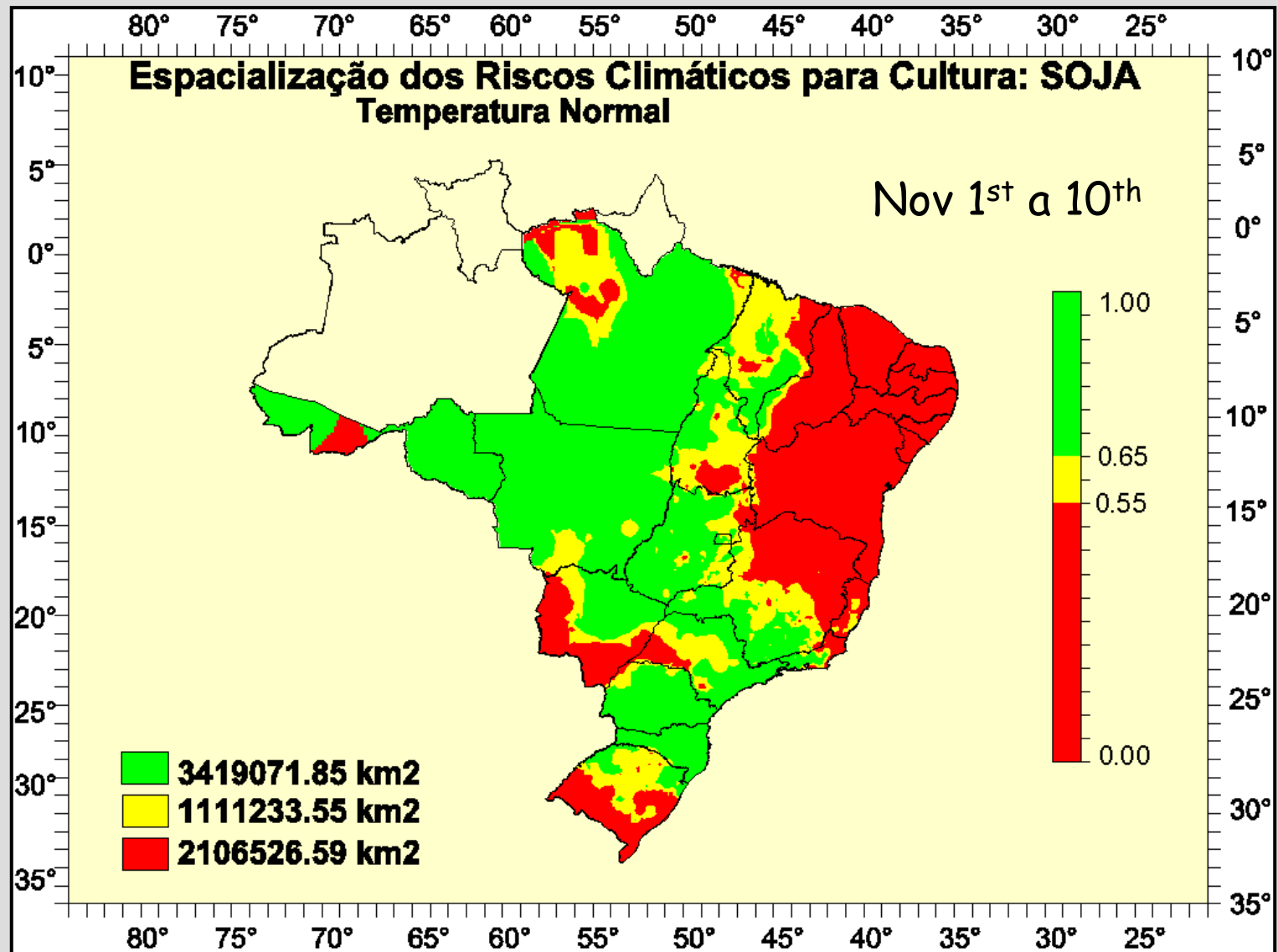
Program of Climate Risk Reduction - Output

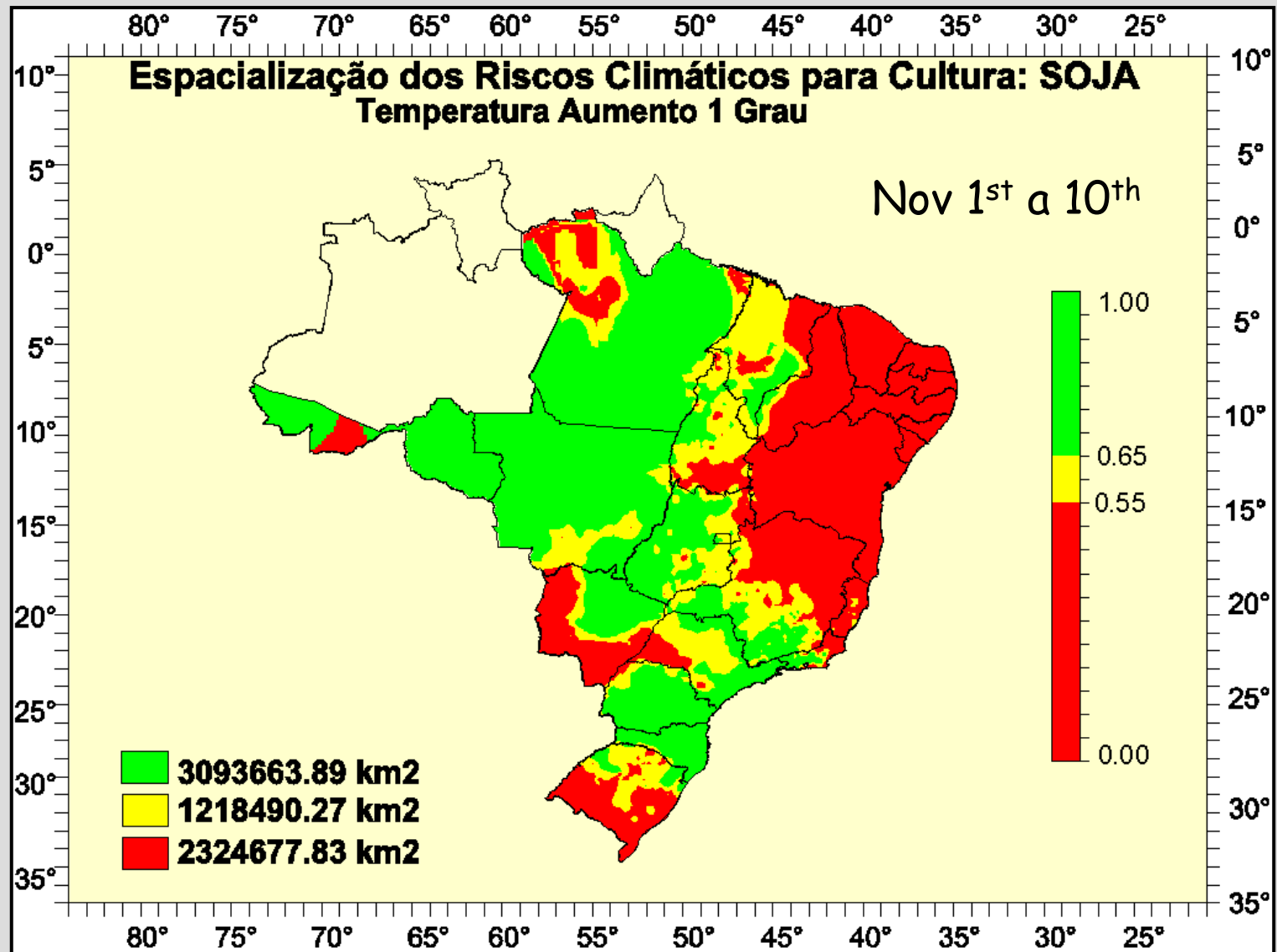


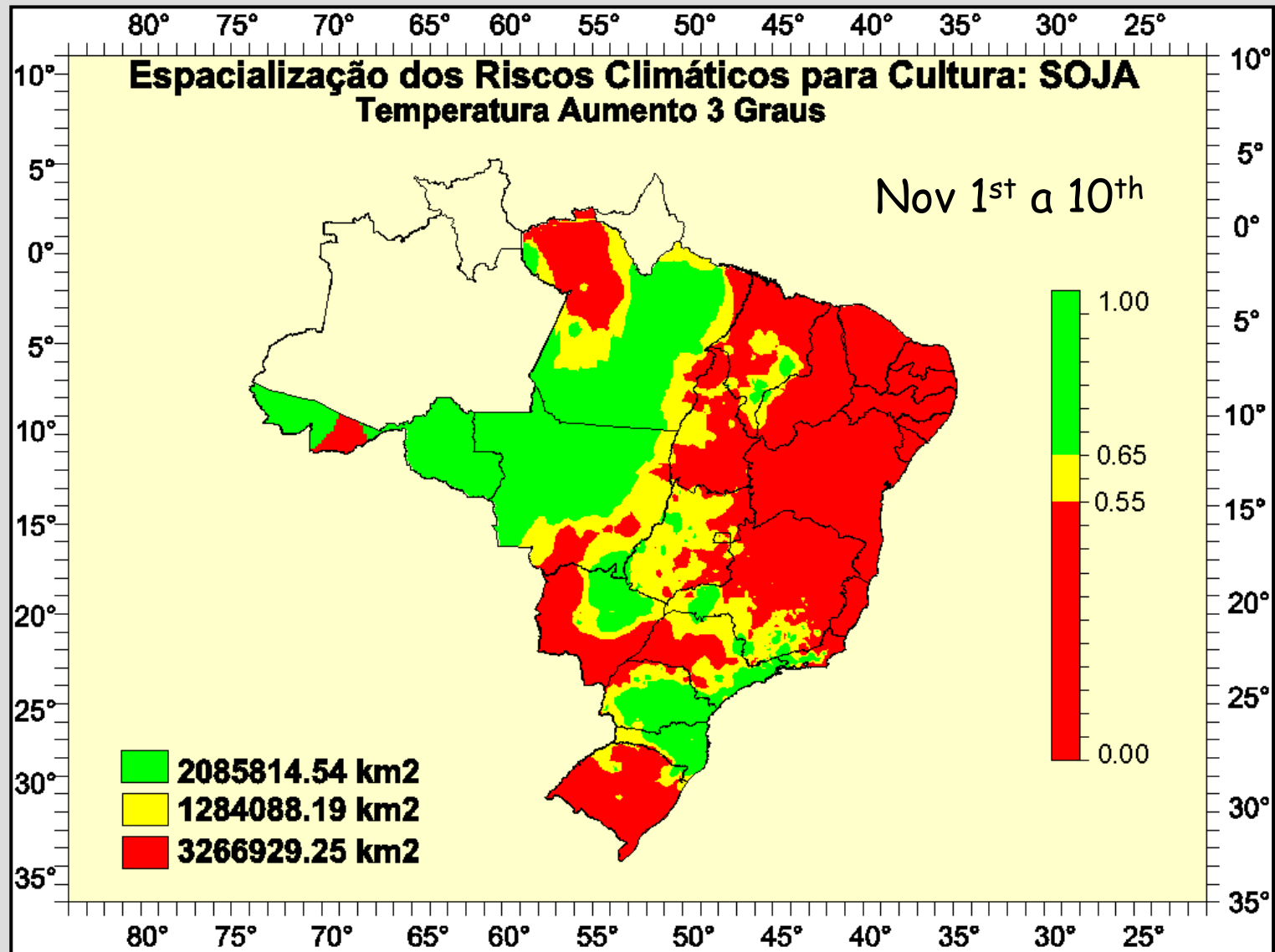
Climate Change - Coffee - São Paulo



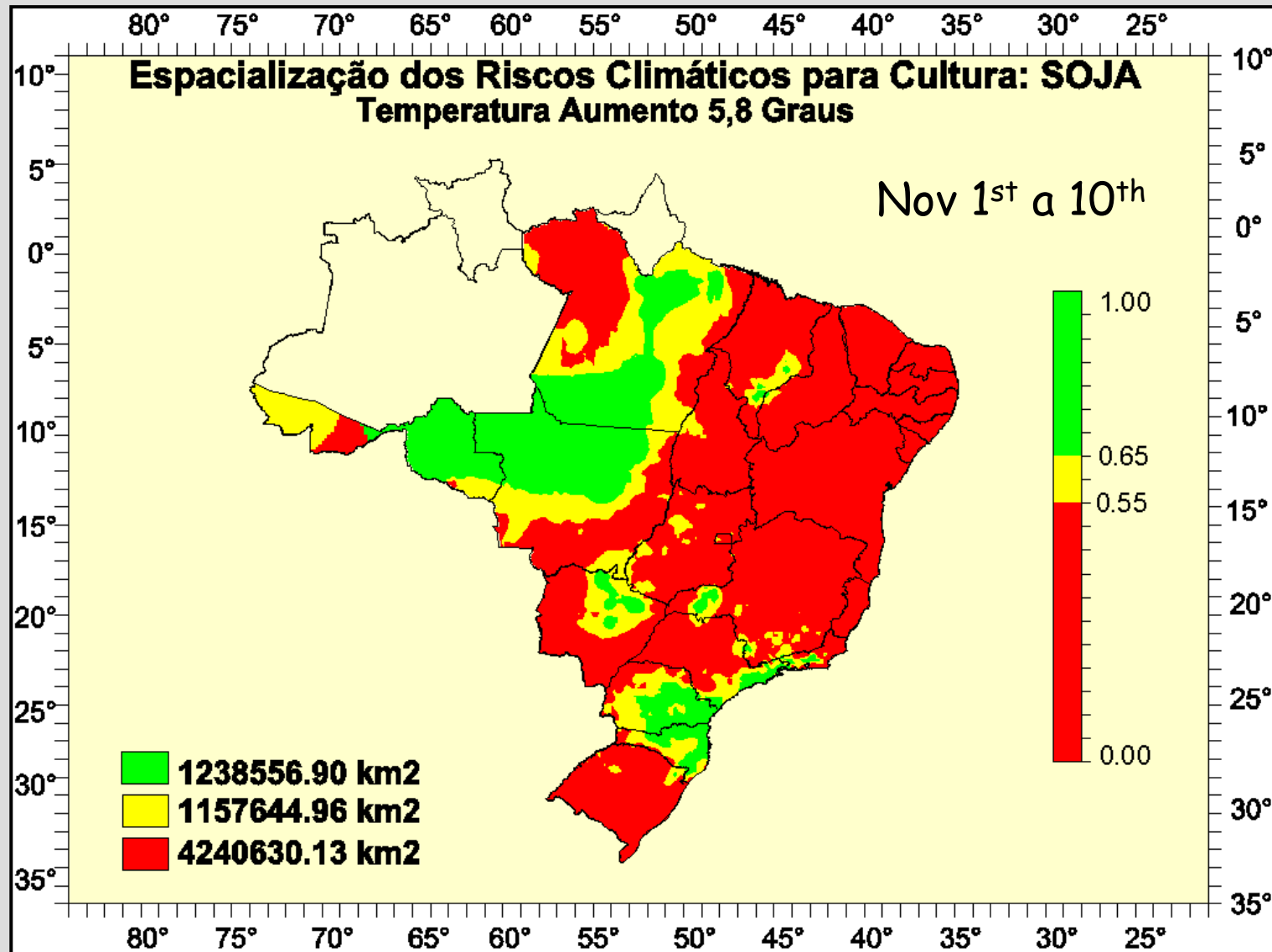
Climate Change - Soybean - Brazil





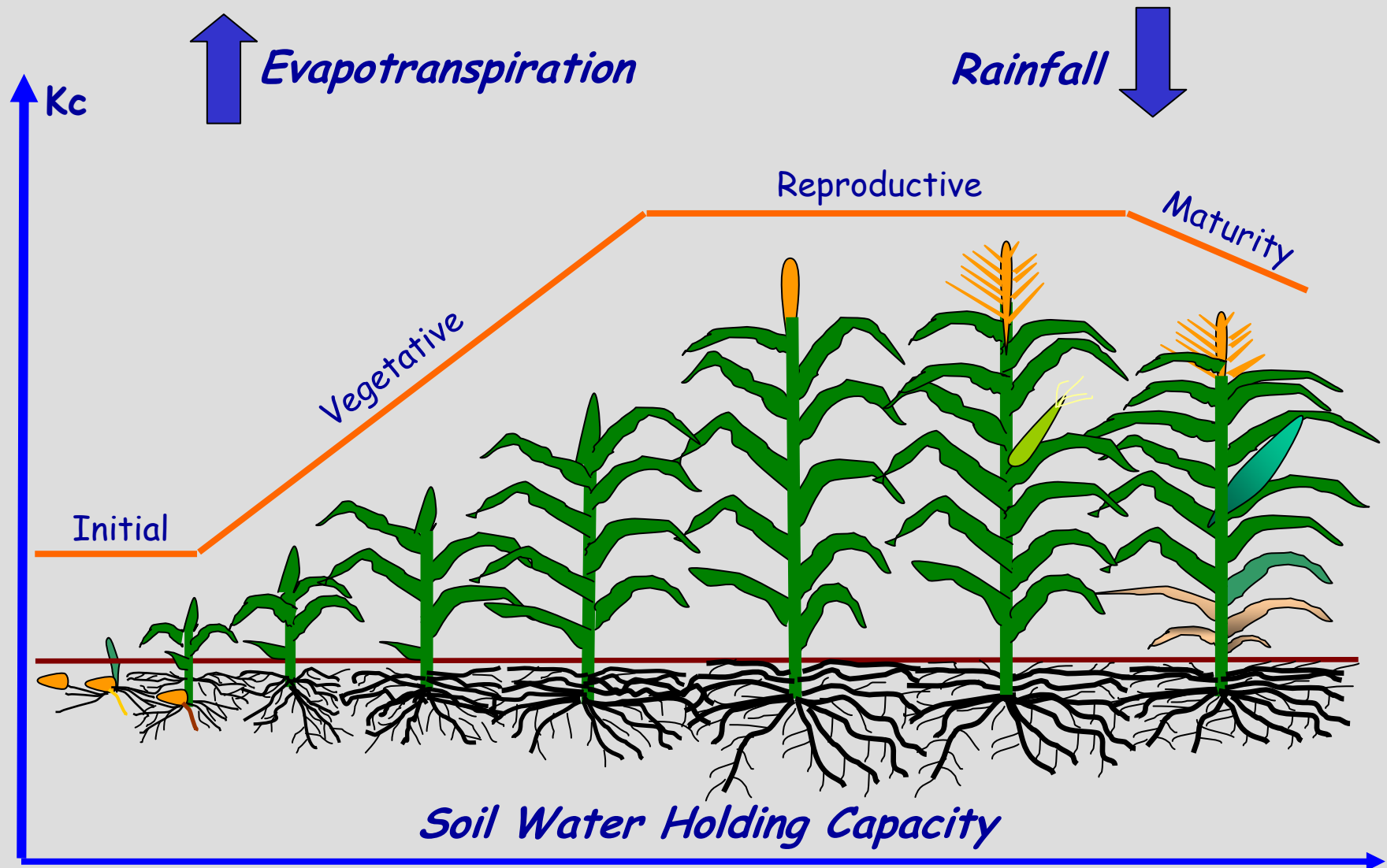


Climate Change - Soybean - Brazil

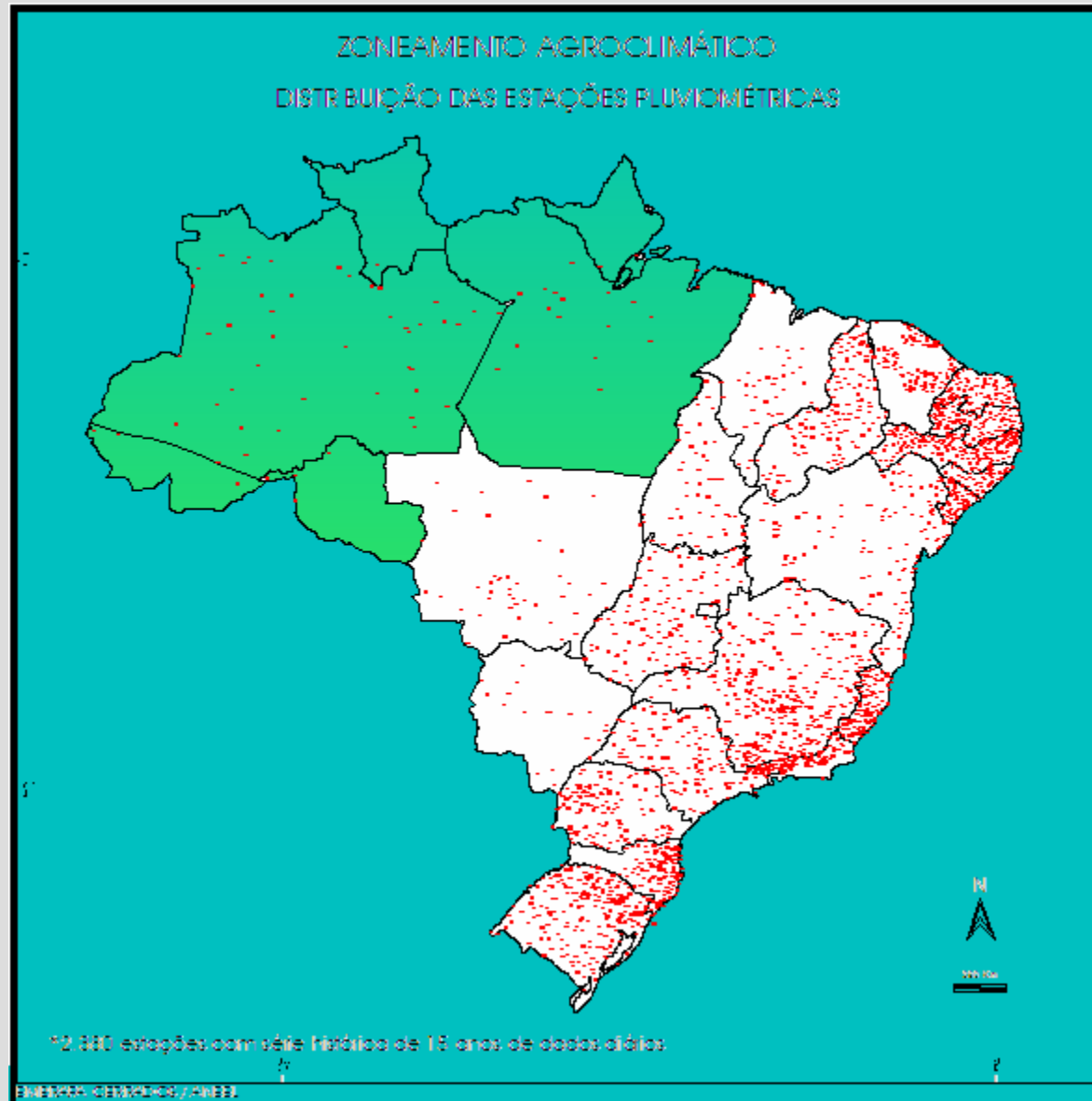


More results: <http://www.agritempo.gov.br/cthidro>

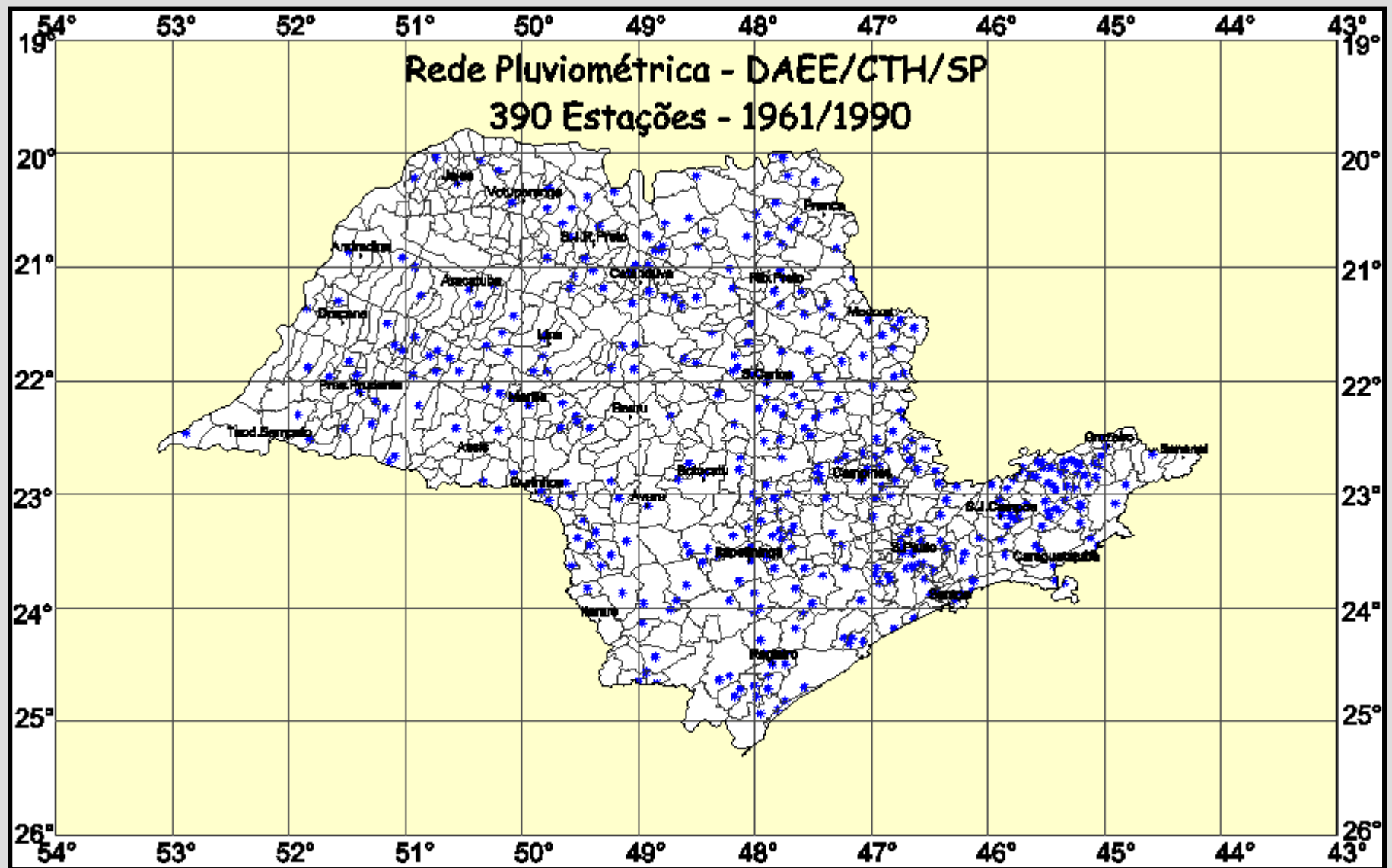
Input Data



Rainfall - Surface Network - Brazil



Rainfall - Surface Network - State of São Paulo



Results

- ✓ **Organization of National Farm Credit Policy and Insurance**
- ✓ **Decrease of agricultural losses due to climate events**
- ✓ **Even self-financed farmers use the results (planting calendars)**
- ✓ **Increase of Yield, Production and Use of Technology**
- ✓ **Decrease and Inhibition of Frauds**
- ✓ **Availability of Data for Agricultural Planning**
- ✓ **Demand for New Crops, Regions and Periods**

Information System for Monitoring Weather and Climate

Agritempo
Sistema de Monitoramento Agrometeorológico

Info Agritempo
O que é ?
Glossário
Equipe
Parcerias
Publicações - Pesquisa
Publicações - Download
Links
Notícias
Mapa do Site
Trabalhe Conosco
Cadastro de Clientes

On Line
Atualmente: 19 visitante(s)
188885 Pageviews
Hoje: 00322
Desde 01/08/03: 406026
Apoio:

Em Destaque
Sistema de Avaliação e Premiação por Resultados da pesquisa
O Sistema de Avaliação e Premiação por Resultados da pesquisa, em quatro categorias: qualidade técnica, parceria e captação de recursos. O "Projeto Quilombo" recebeu o Prêmio Nacional de Equipes da Embrapa, Empresa Brasileira de Pesquisa Agropecuária, vinculada ao Ministério da Agricultura, Pecuária e Abastecimento. A Embrapa Informática Agropecuária (Campinas, SP) também é uma das unidades participantes do projeto, desenvolvido em parceria pela Superintendência de Pesquisa e Desenvolvimento (SPD), pelo Departamento de Gestão de Pessoas (DGP), pela Embrapa Recursos Genéticos e Biotecnologia (Brasília) e pela Embrapa Mandioca e Fruticultura (Cruz das Almas, BA). O Projeto Quilombo foi contemplado em primeiro lugar na categoria parceria, tendo como referência o ano de 2005. O Sape também concedeu premiação por excelência aos empregados de destaque das áreas técnico-científica e de suporte à pesquisa das unidades da empresa. Na unidade de Campinas, a pesquisadora Adriana Delfino dos Santos e a bibliotecária Leila Maria Lenk foram premiadas.
Maiores detalhes sobre a premiação no site da [Embrapa Informática Agropecuária](#)

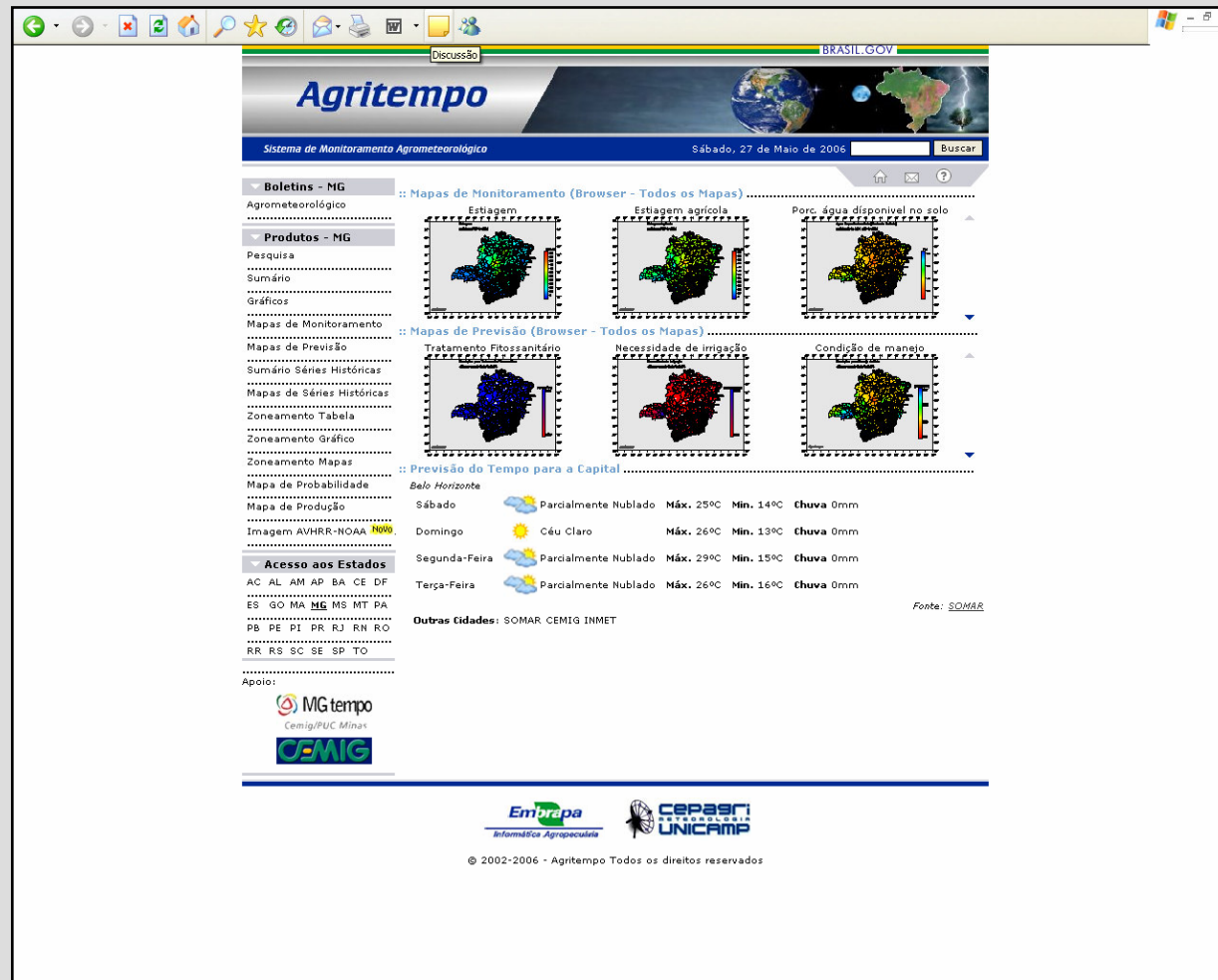
Notícias
Embrapa expõe suas tecnologias na 42ª ExpoAgro. Sim... - 25/05/2006
Durante a 42ª edição da ExpoAgro e da 7ª Expodinâmica, no ... [Leia Mais]
Baixa umidade do solo e temperaturas amenas caracterizam o período de 19 a 23 de maio, a Região Centro-Oeste r... - 25/05/2006
No período de 19 a 23 de maio, a Região Centro-Oeste r... [Leia Mais]
Alunos capacitados pelo ITAB testam conhecimentos n... - 24/05/2006
A Embrapa Meio Ambiente (Jaguariúna, SP) em parceria com o... [Leia Mais]
Embrapa estuda custo de produção da mandioca. - 23/05/2006
A Embrapa Agropecuária Oeste (Dourados-MS) elaborou levan... [Leia Mais]
Altas temperaturas e umidade do solo instável marca... - 23/05/2006
No período compreendido entre 17 e 22 de maio, a Região No... [Leia Mais]

Acesso Restrito
Usuário:
Senha: OK

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Embrapa Informática Agropecuária
Centro Pesquisa Meteorológicas e Climáticas aplicadas à Agricultura

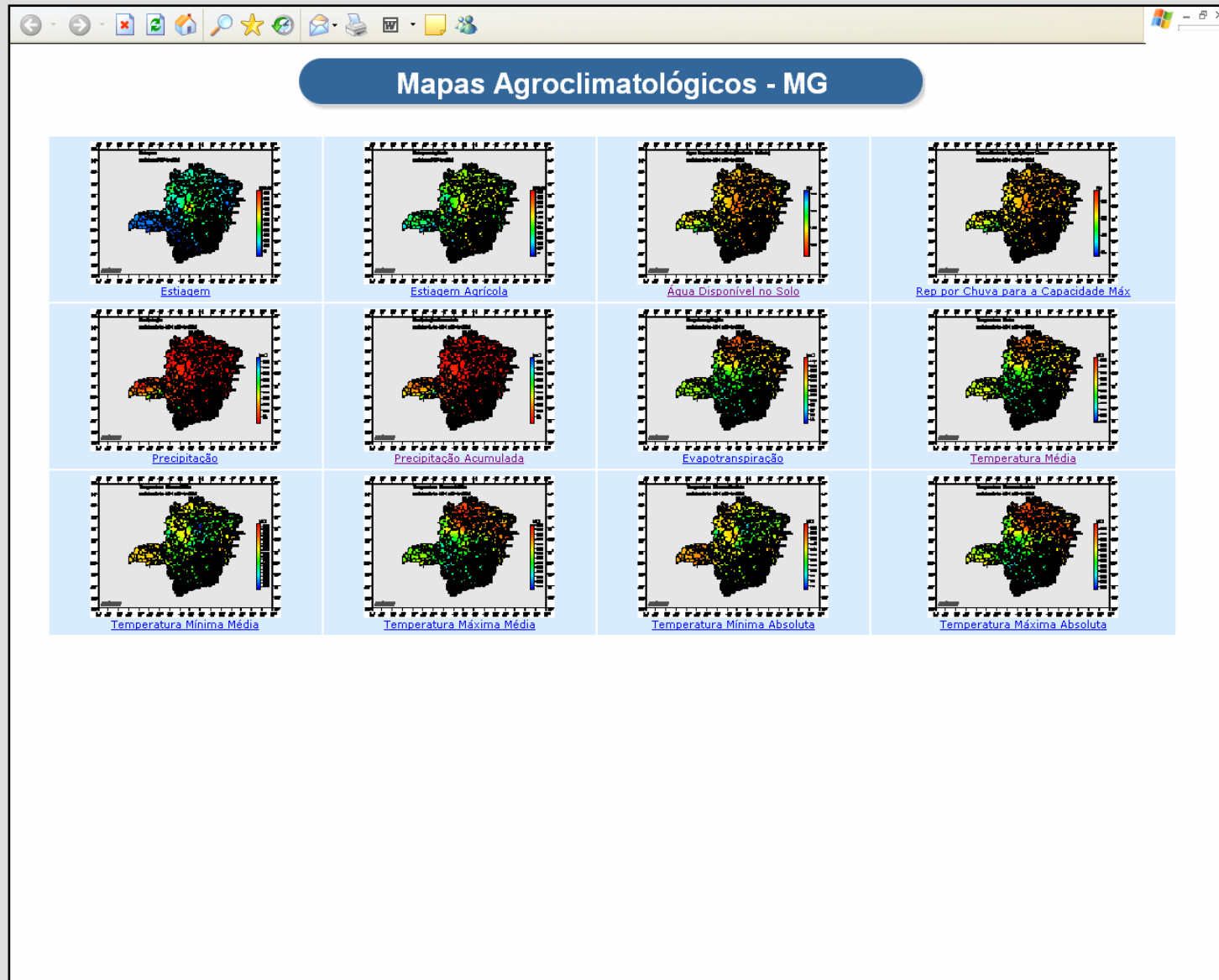
<http://www.agritempo.gov.br>

Agritempo System - Output

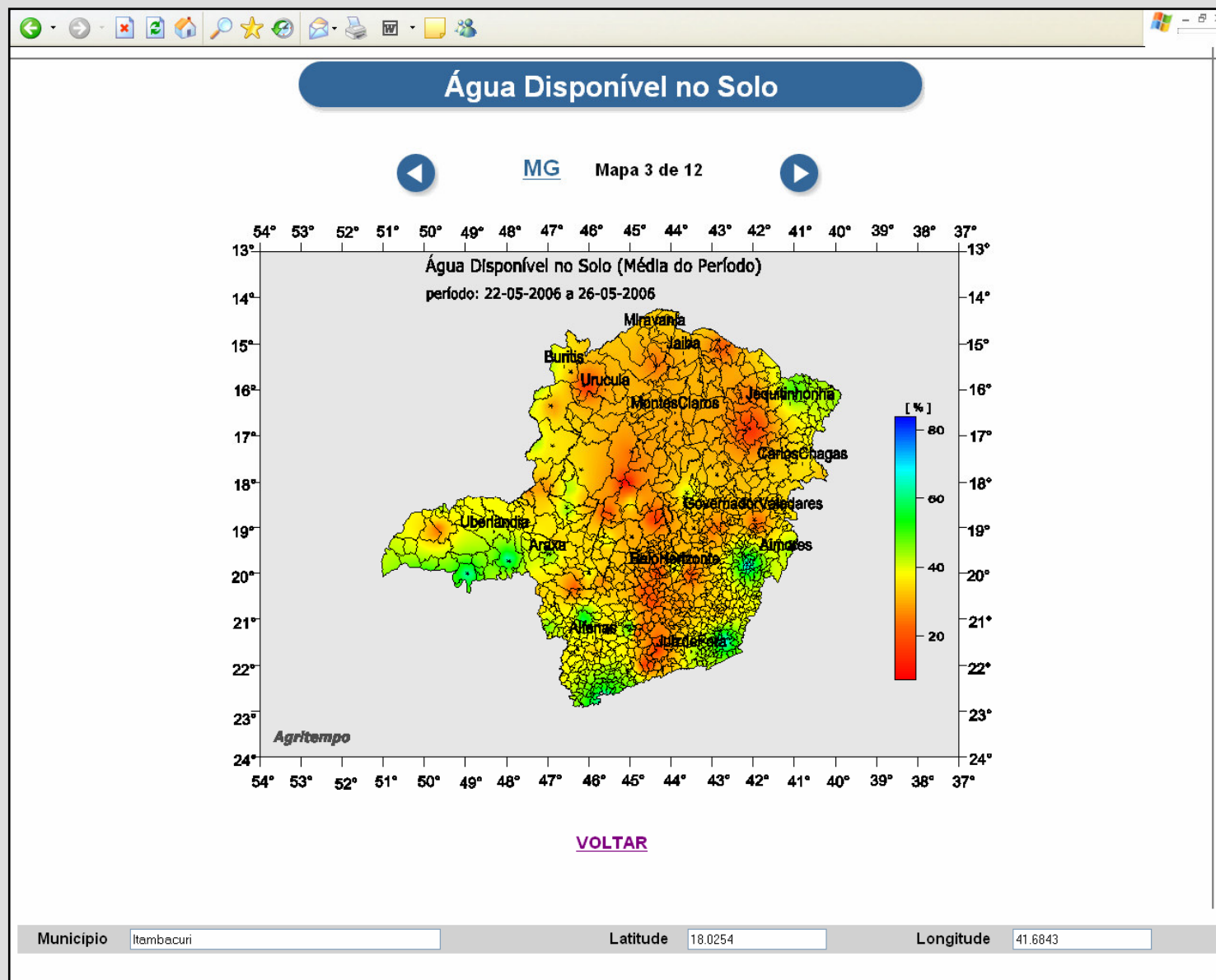


Output: Maps, Bulletins, Graphs and Tables with Meteorological and Climate Data and Information Applied to Agriculture

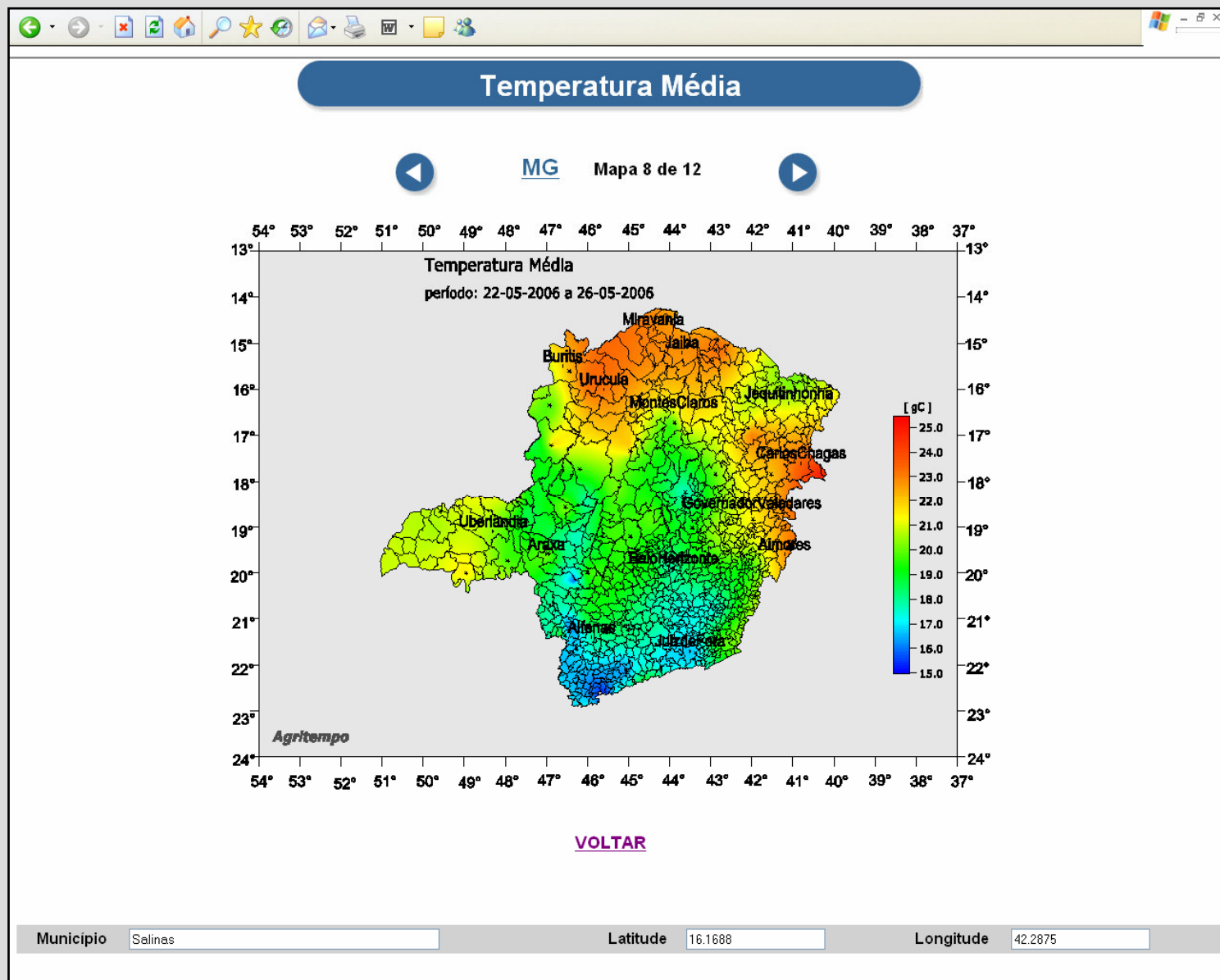
Agritempo System - Output



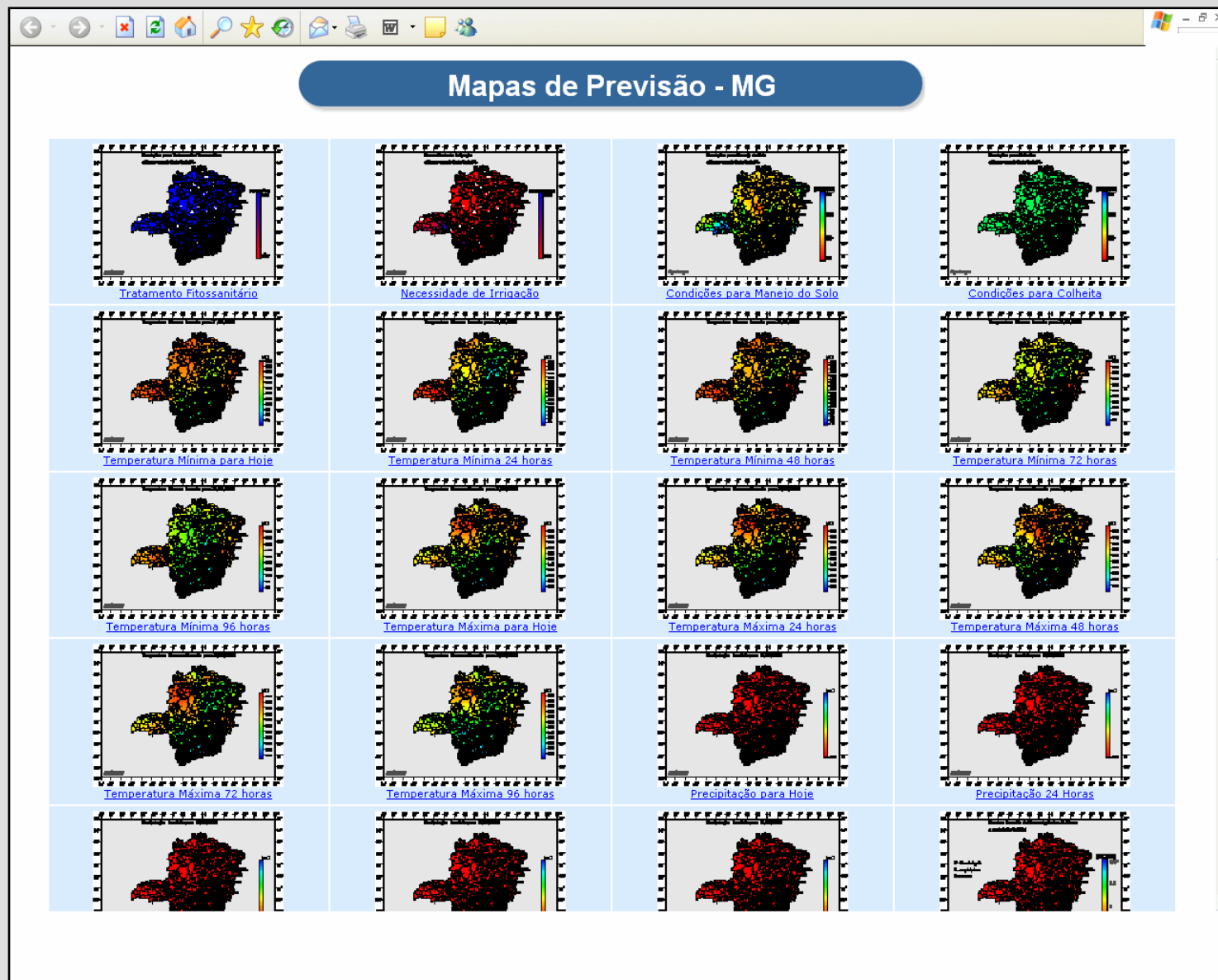
Agritempo System - Output



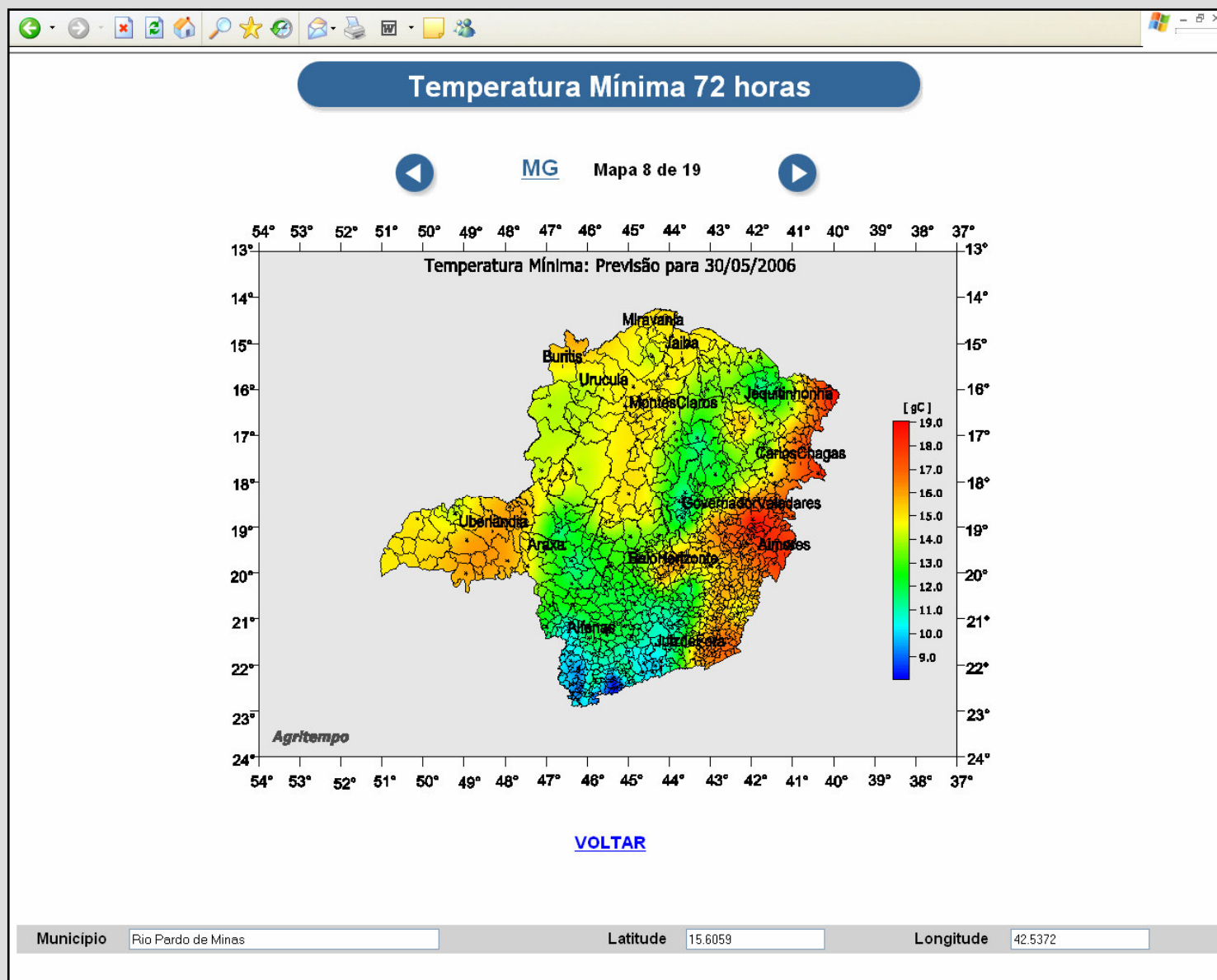
Agritempo System - Output



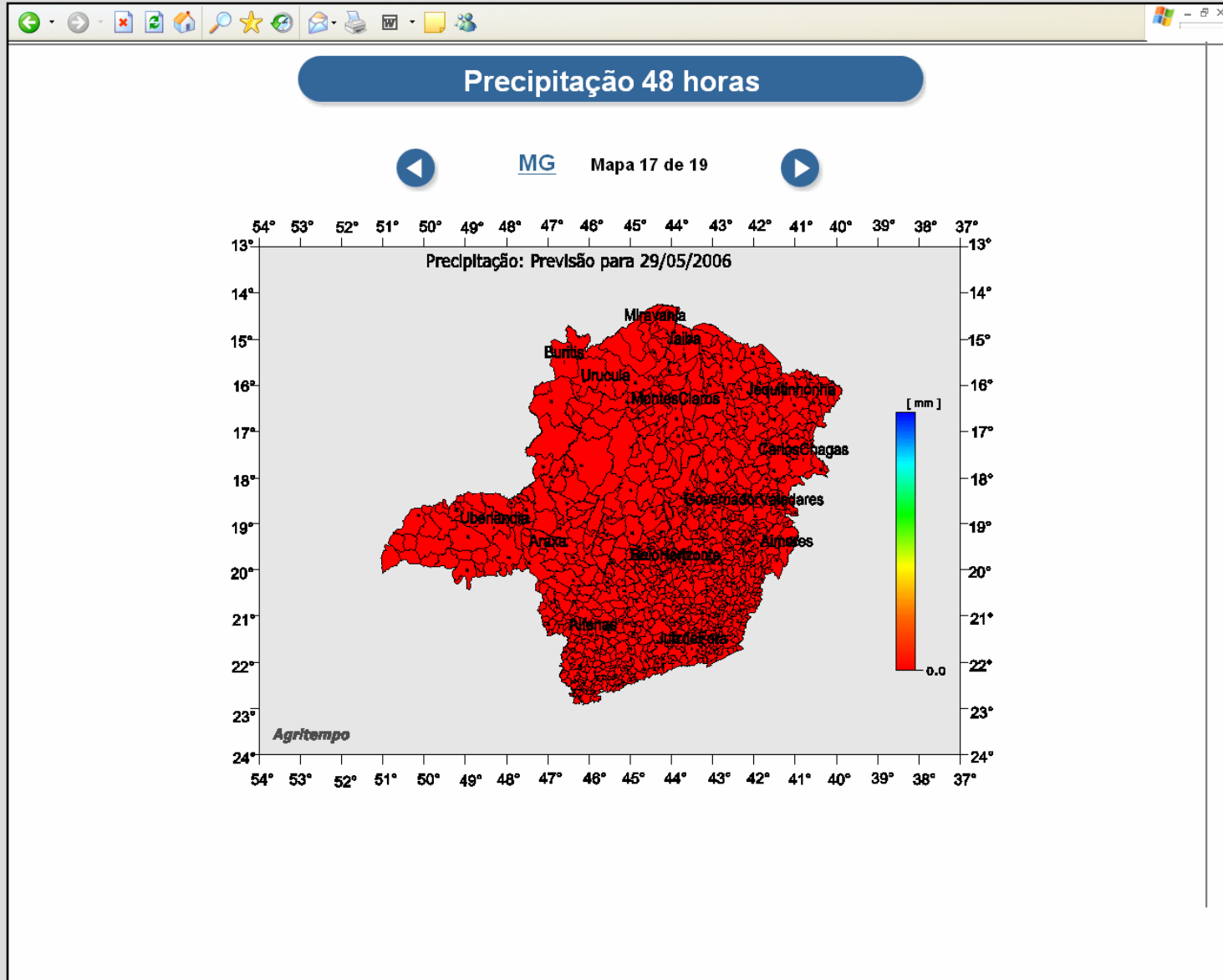
Agritempo System - Output



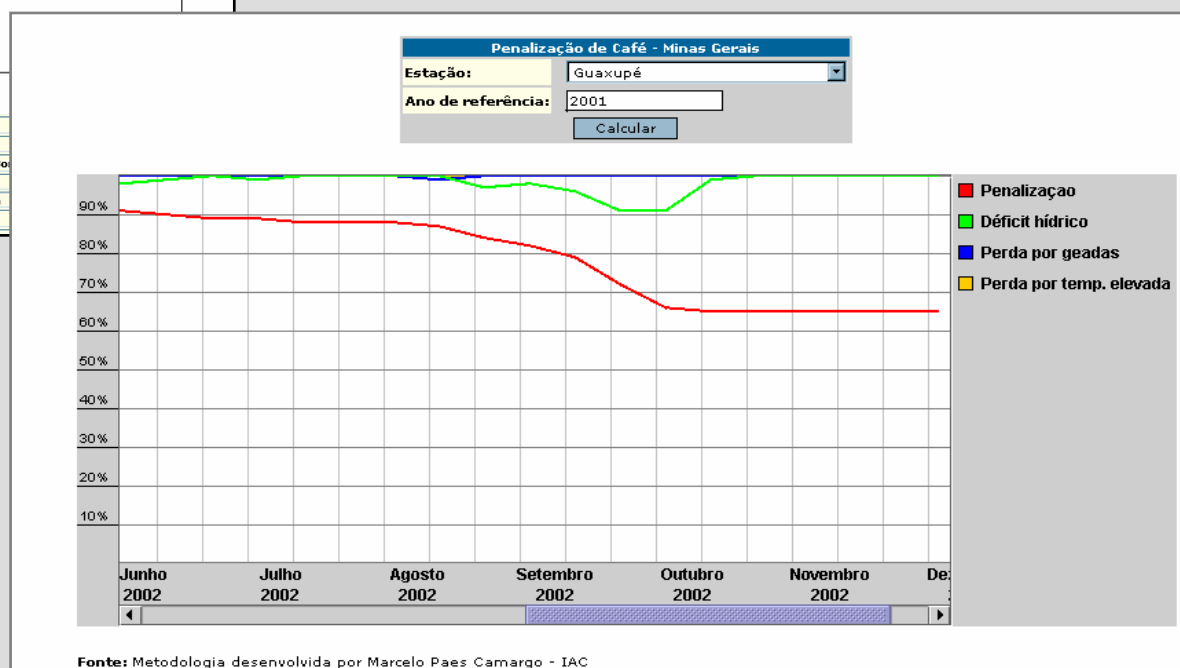
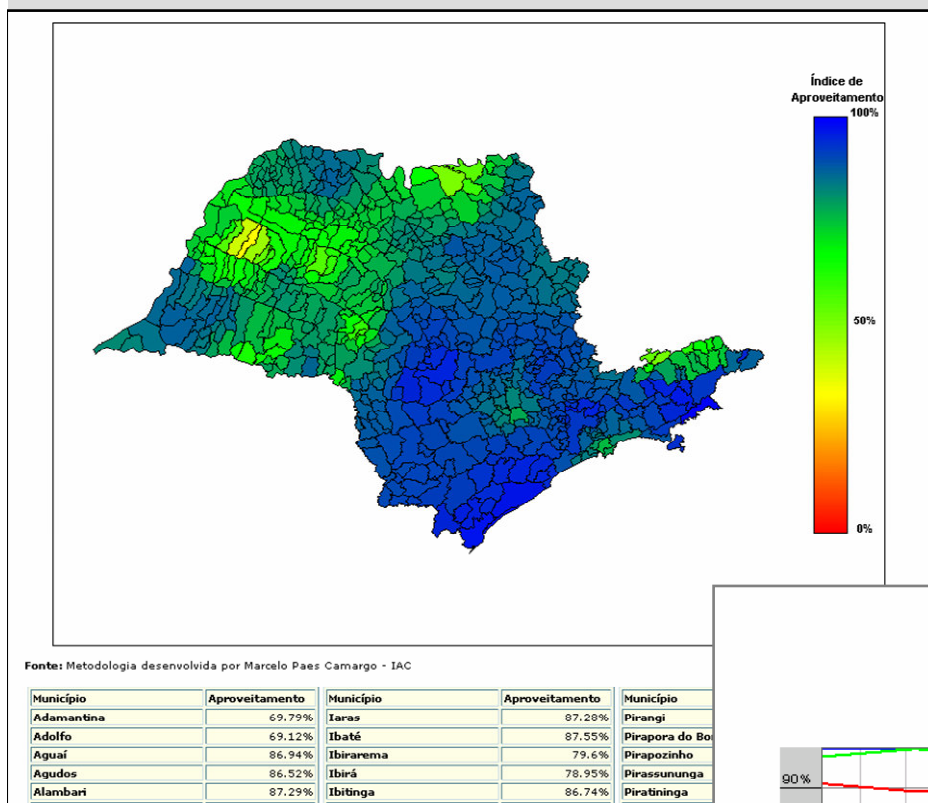
Agritempo System - Output



Agritempo System - Output

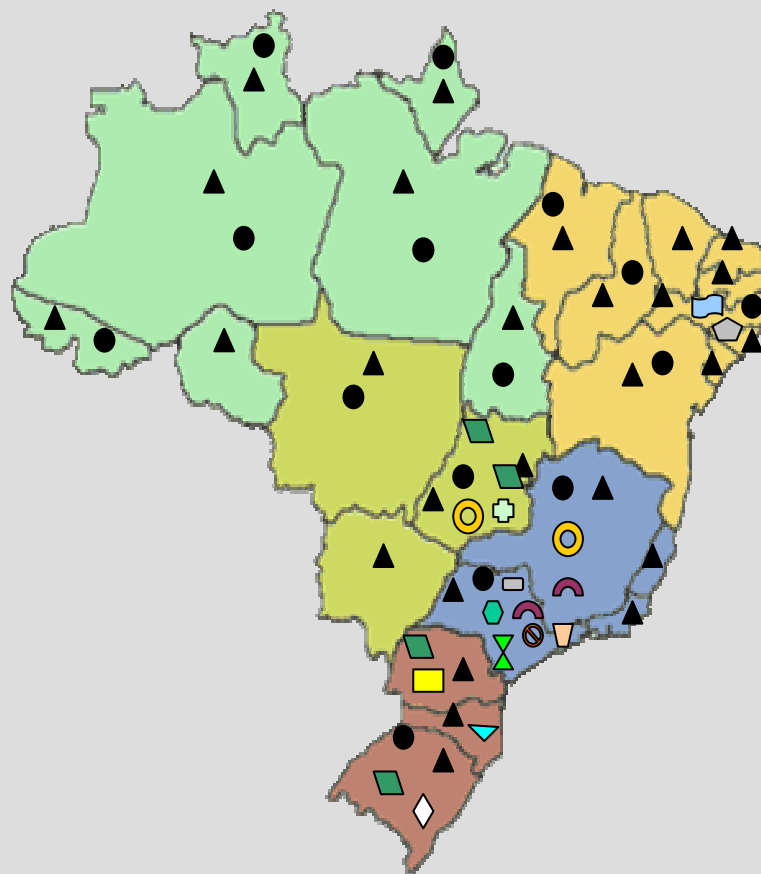


Crop Yield Forecasting - Agrometeorological Method - Coffee - 2001 - State of São Paulo



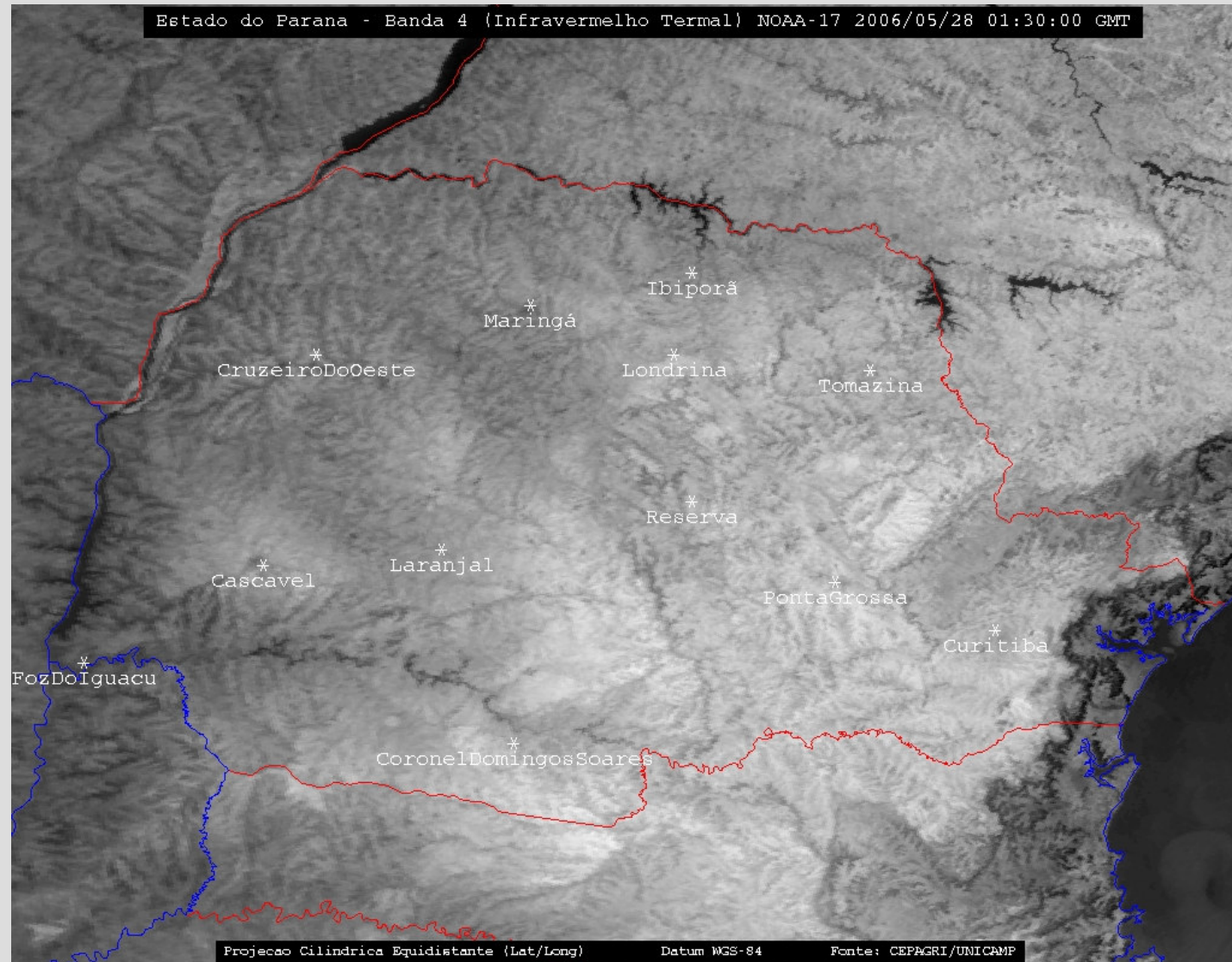
Agritempo System - Partners

Input: Daily Data of Temperature (Minimum and Maximum) and Rainfall from more than 1,000 Ground Stations by Phone, Fax, Email and FTP



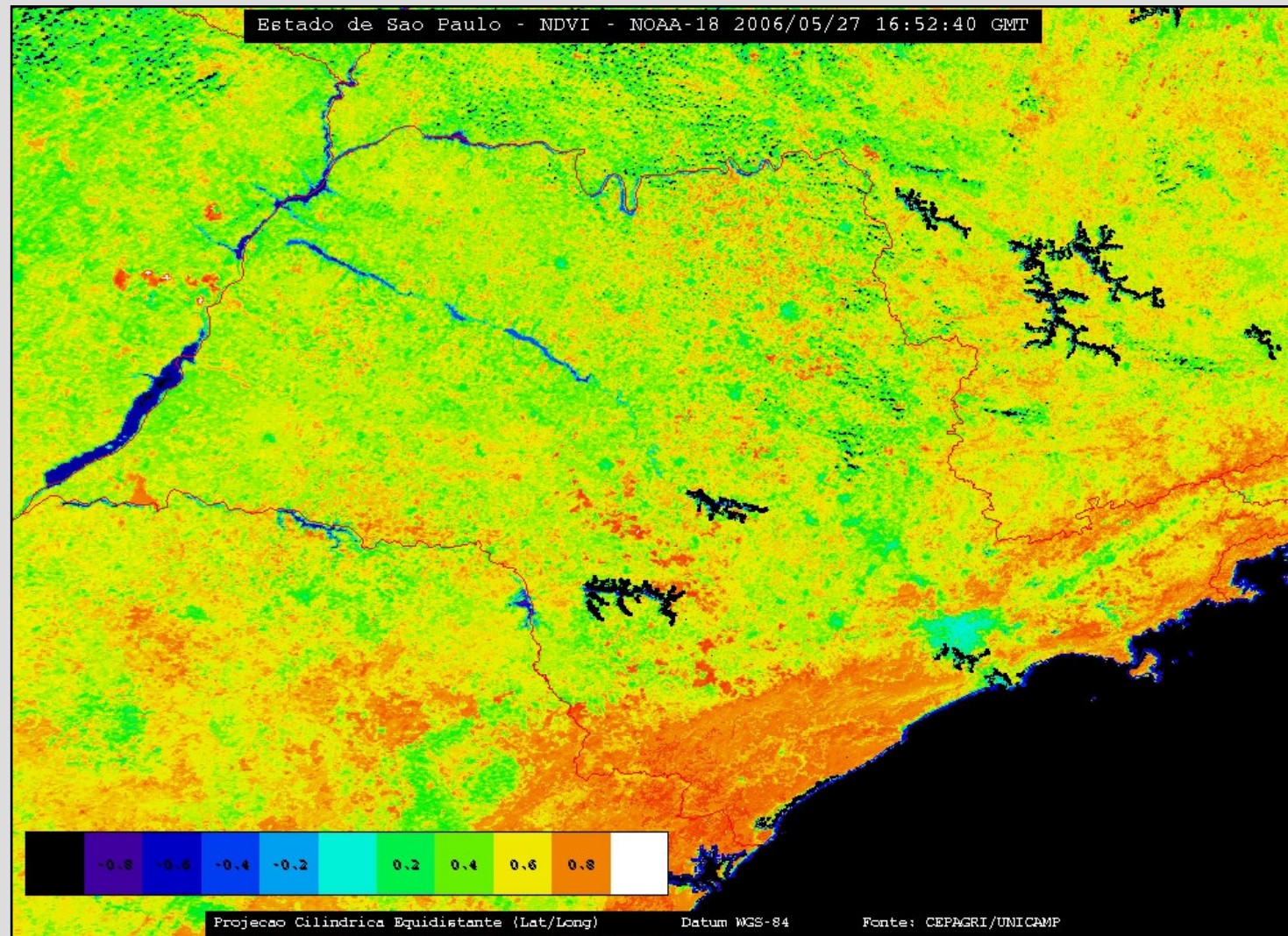
Data: More than 40 million records and historical data from 4,000 ground stations

Remote Sensing Data - Surface Temperature - Paraná



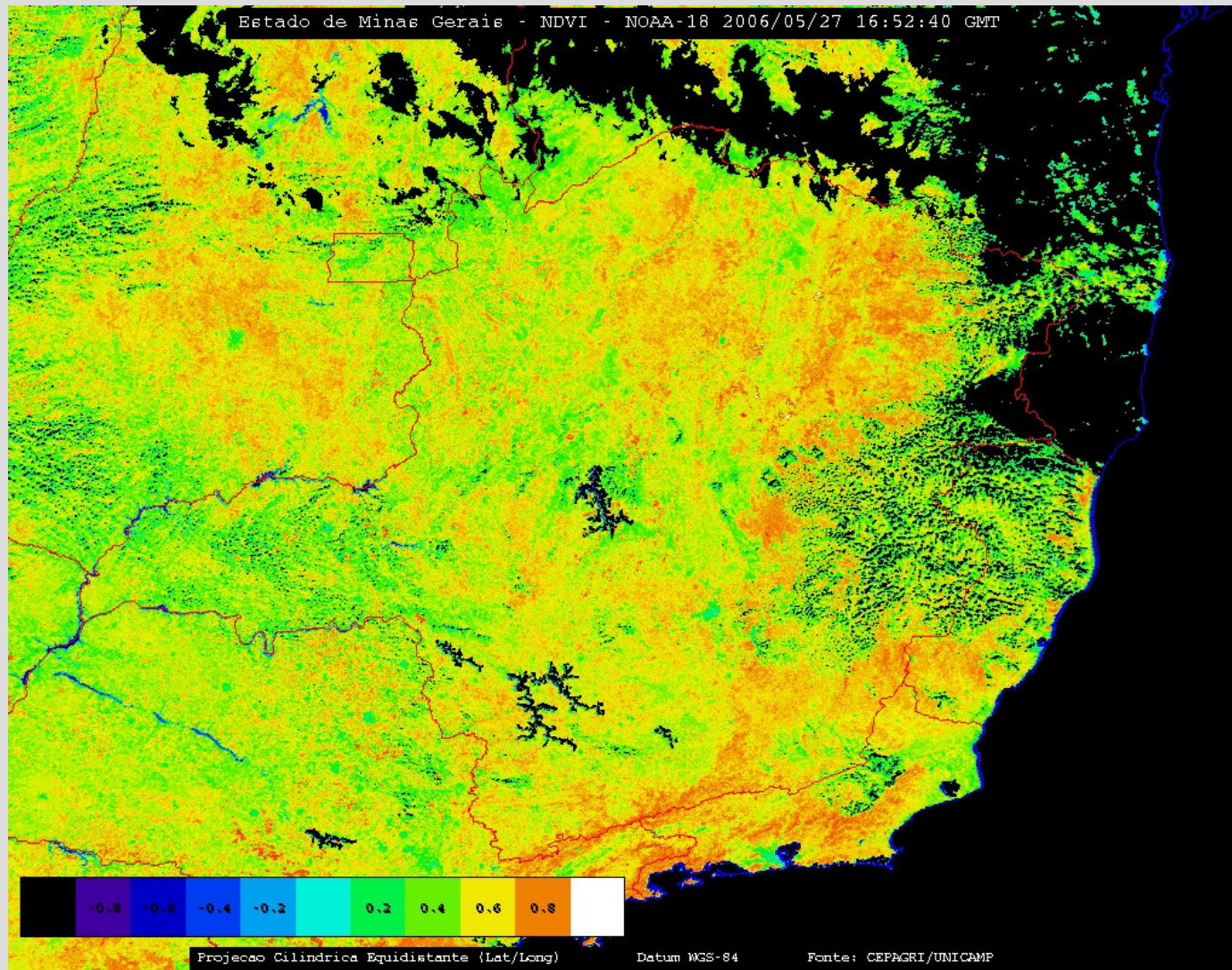
Application: Estimation of Surface Temperature in Operational Warning Systems

Remote Sensing Data - NDVI - São Paulo



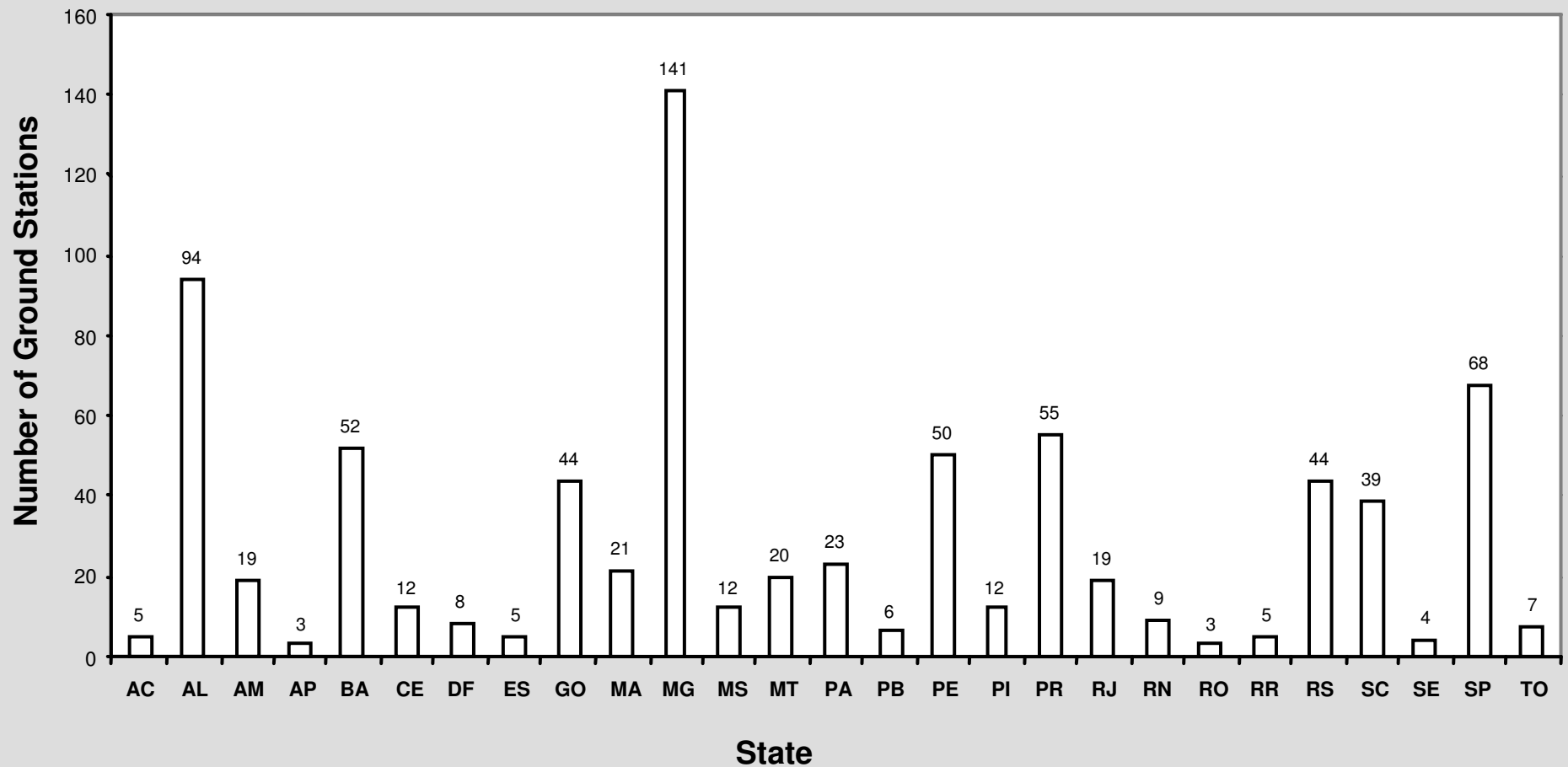
Application: Forecast of Planted Area, Yield and Production

Remote Sensing Data - NDVI - Minas Gerais



Project: Improvement of the National System of Crop Yield Forecasting
Coordination: Ministry of Agriculture (since 2004)

Problem : Insufficient Number of Surface Stations in Some Regions



Conclusions

- ✓ **Important Projects (Climate Risk Reduction, Weather and Climate Monitoring, Climate Change) based on “simple” and organized data**
- ✓ **Multi-disciplinary and Multi-institutional Activities**
- ✓ **More historical data for the Project of Climate Risk Reduction**
- ✓ **More surface data for monitoring – Remote Sensing**
- ✓ **Importance of Climate and Weather Forecast**

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