

Reduction of GHG emissions and research in vulnerabilities, mitigation and adaption of agriculture in Brazil: update of activities

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Brasília- July 11, 2015



Ministério da
Agricultura, Pecuária
e Abastecimento

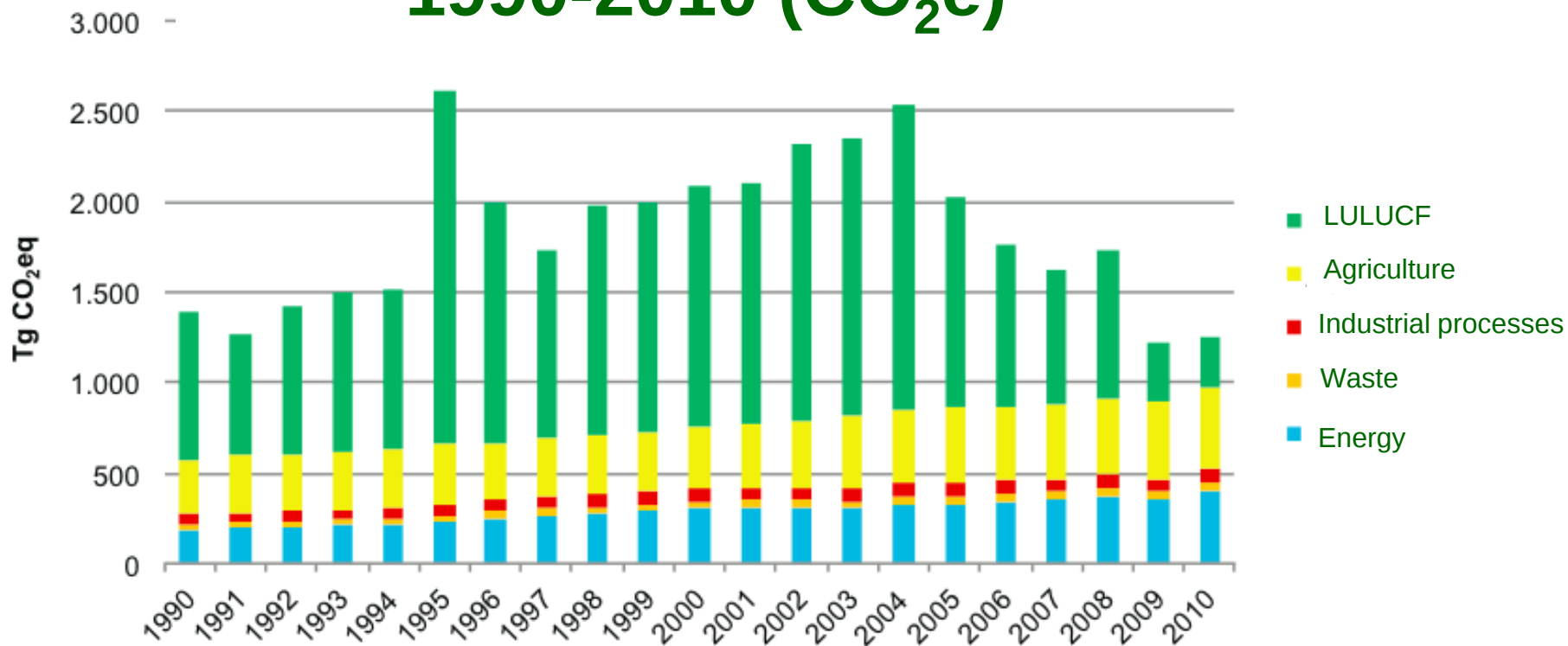


Content

- **Brazil- voluntary commitments to reduce GHG emissions (around 40%)**
- **Low Carbon Agriculture Plan**
- **Some relevant research projects and opportunities to cooperation**



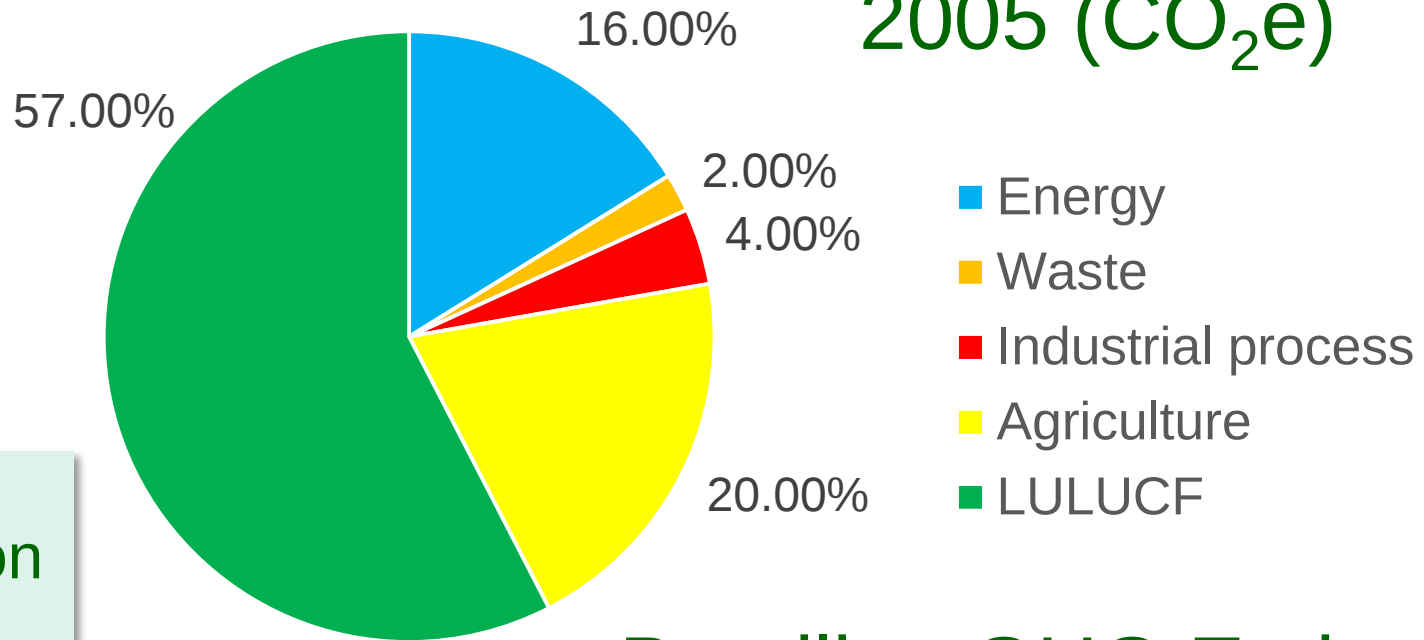
Brazilian GHG Emissions 1990-2010 (CO₂e)



Source: Brazilian Forum of Climate Change- 2013



Brazilian GHG Emissions 2005 (CO₂e)



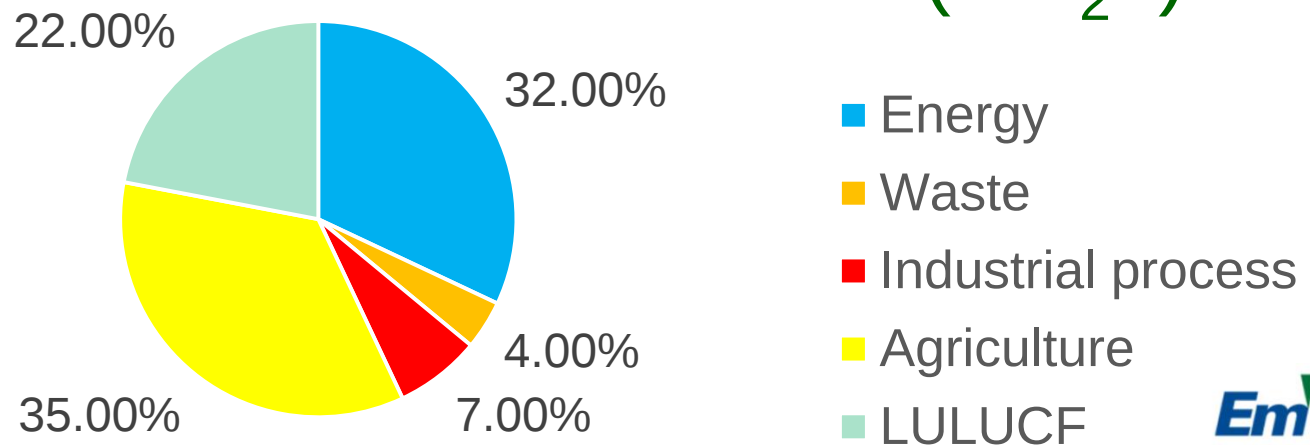
2005
2.03 Gton



2010
1.24 Gton

-38.7%

Brazilian GHG Emissions 2010 (CO₂e)



Strategies to develop a Low Carbon Agriculture in Brazil



The ABC Plan is a set of actions that reduce or avoid emissions of GHG and contributes to the adaptation to climate change.

The Plan includes capacity building, funding for research and monitoring activities.



The ABC program is a set of actions and funding rules, which follow the guidelines and subprograms of the ABC Plan - which, for operational reasons, was merged with several other programs that existed in the Ministry of Agriculture.

Main objective:

- ☐ Guarantee continuous improvement of sustainable agricultural systems and practices promoting low GHG emissions and increasing C fixation in soils.

Some specific objectives:

- ☐ Assist in the accomplishment of Brazil's NAMAs (COP 15);
- ☐ Assist in decreasing deforestation rates;
- ☐ Promote production arrangements that contribute to reduce GHG emissions and increase farmers' income.

ABC Plan targets



Technology Process	Increase in area/use	Mitigation Potential (million Mg CO ₂ e)
Restoration of grazing land ¹	15 million ha	83 a 104
Integrated crop-livestock-forestry systems ²	4 million ha	18 a 22
No-till farming	8 million ha	16 a 20
Biological N ₂ Fixation	5.5 million ha	10
Planted forests ³	3 million ha	-
Treatment of Animal Waste	4.4 million m ³	6.9
Total		133.9 a 162.9

¹ By proper management and fertilization.

² Including Agroforestry systems (SAFs).

³ Is not computed the Brazilian commitment regarding the steel industry, and the potential mitigation of GHG emissions was not accounted.

Agriculture and Livestock Plan 2012/2013 (ABC Program)

- Available resources: 1.7 billion dollars;
- Limit of 0.5 million dollars per farmer;
- Grace period of up to 8 years; maximum payback period of up to 15 years;
- Interest rate of 5% per year.

Forest Code

Permanent Preservation Areas (PPAs)

These are areas in rural or urban private property vulnerable to landslides, erosions or floods. It is the case of the banks of rivers and reservoirs, hilltops, slopes or downhill forests located in river beds and springs

Hilltops

They are considered PPAs all with height greater than 100 meters and with higher average slope 25 degrees

↑ 100m 25°

Slopes

the hillsides with a slope exceeding 45 degrees are considered APPs

45°

Legal Reserve

Area to be preserved on the property

AMAZONIA

80%

CERRADO

35%

OTHERS

20%

EXCEPTIONS

50% IF THE STATE HAS 65% OF PROTECTED AREA AND INDIGENOUS LAND
50% IF THE STATE HAS 50% OF PROTECTED AREA AND INDIGENOUS LAND

2

mangroves

They are considered PPAs

Exceptions:

Apicuns - shrimp farming area

SALT - salt extraction area

FALLOW SOIL

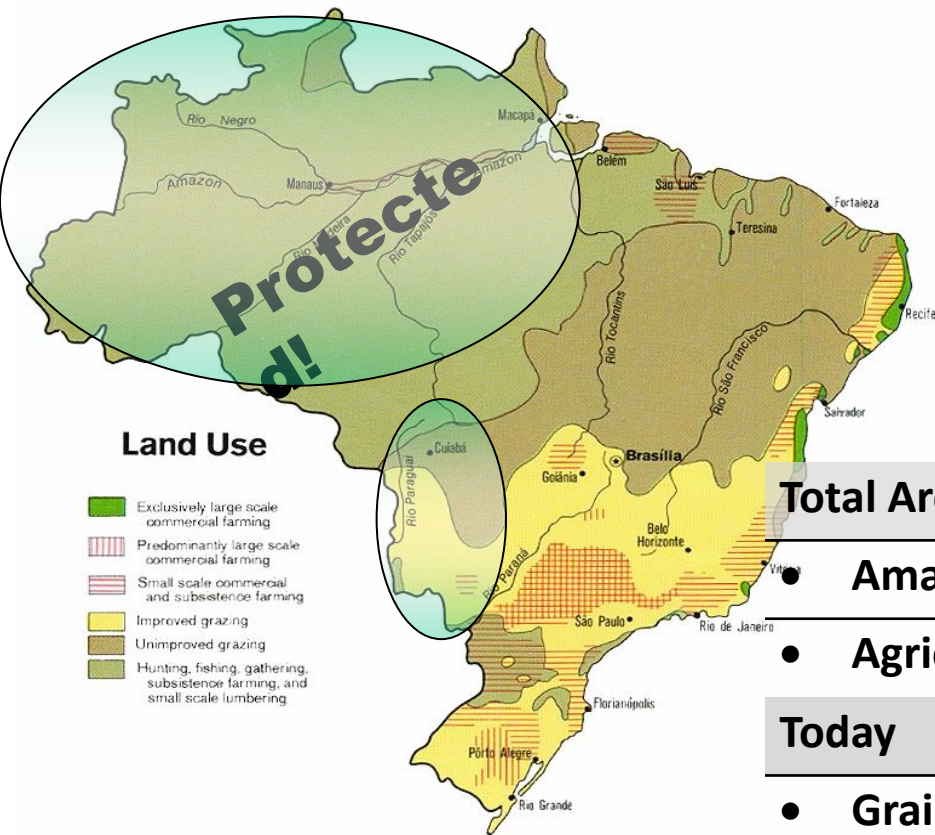
It is provided to the rest arable land interrupting the cultures to make the soil more fertile

LIMIT FOR LAND REST:

25% of the productive area within 5 years

5

Land Use - Brazil



Total Area	850 M ha
• Amazonia, Pantanal and others	470 M ha
• Agriculture Potential	380 M ha
Today	
• Grains e Permanent Crops	60 M ha
(sugar-cane 9 M ha; comercial forest- 6 M ha)	
• Pastureland	190 M ha
(opportunity to conversion to crops and commercial forest)	

world congress on integrated **crop-livestock-forest systems**

3rd International Symposium on Integrated Crop-Livestock Systems
towards sustainable intensification • brasilia • brazil • 2015

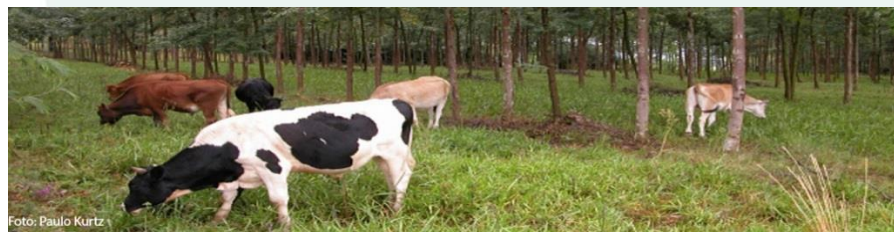


Foto: Paulo Kurtz



Imagens: Embrapa

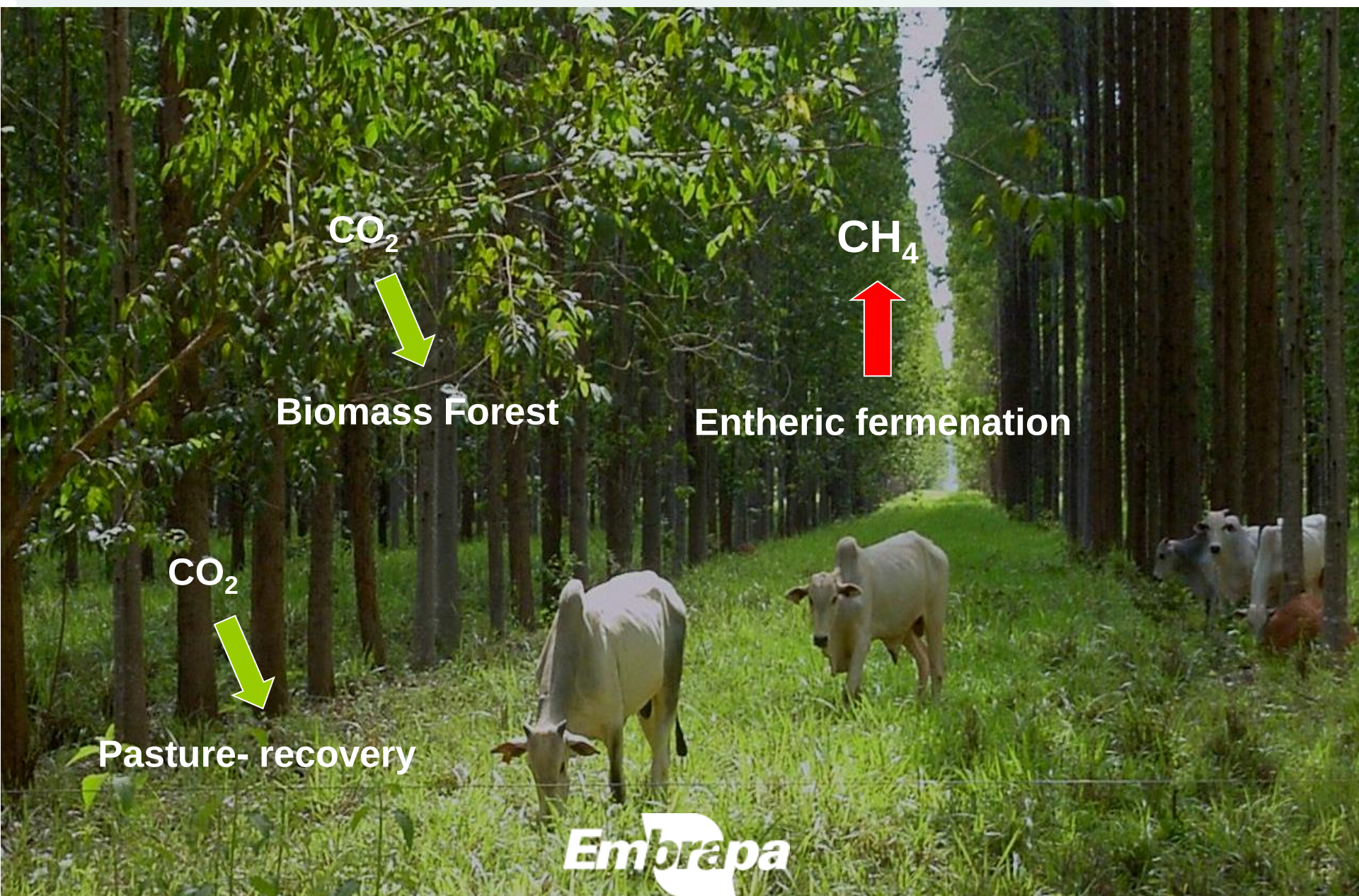


Foto: Maurel Behling



Imagens: Embrapa

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RELEVANT RESEARCH NETWORK PROJECTS DEVELOPED WITH COORDINATION OR PARTICIPATION OF EMBRAPA





Emission of Greenhouse Gases and Carbon
Balance in Grain Production Systems in Brazil
Leader: Beata Madari- Embrapa Rice and Beans



Greenhouse Gases (GHG) dynamics in Brazilian Livestock Production Systems (Pecus)

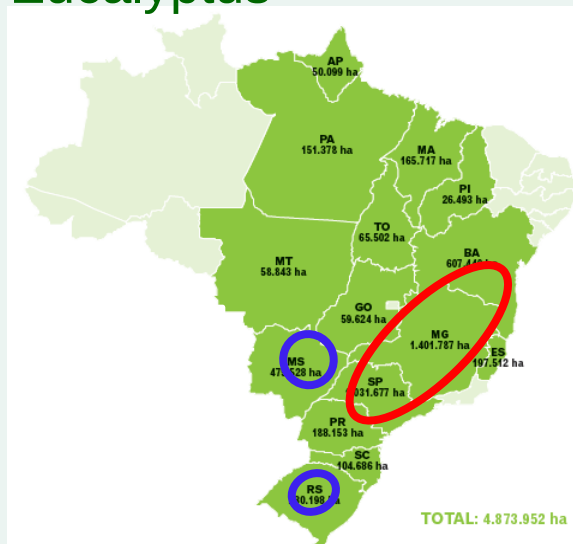
Patricia Anchão
Embrapa Southeast



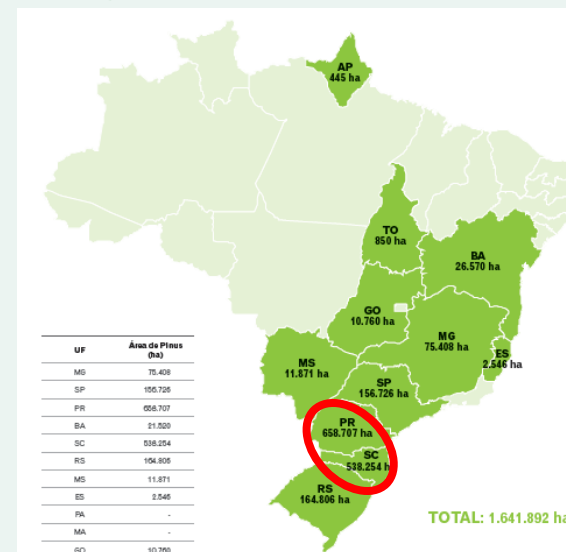
SALTUS Project:

Estimate greenhouse gases (GHG) soil emission and carbon stocks in natural and planted forests; to improve the understanding of processes of emission / absorption in the soil-plant atmosphere interface

Eucalyptus



Pine

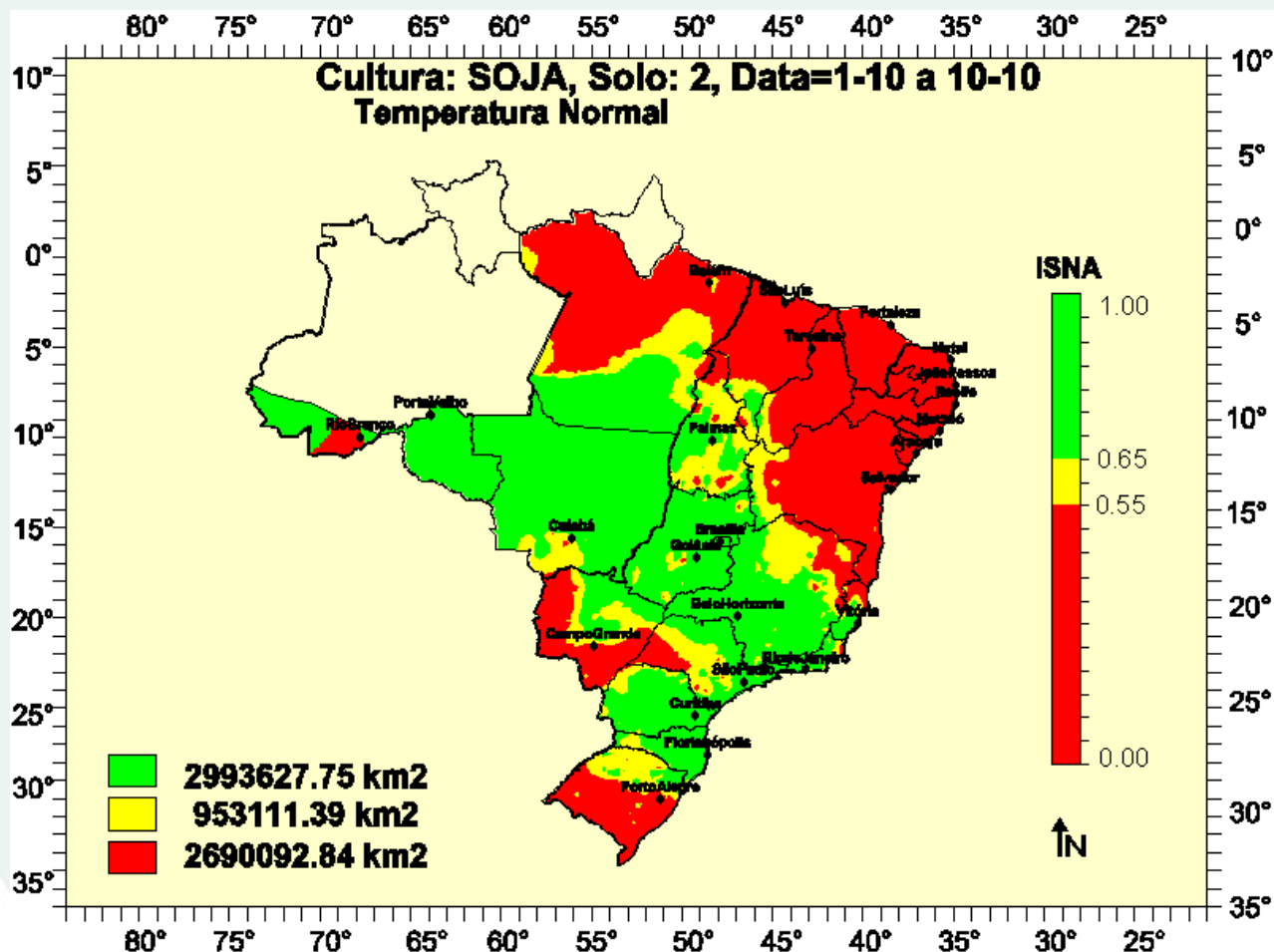


ABRAF, 2012.

 consolidated areas
 expansion areas

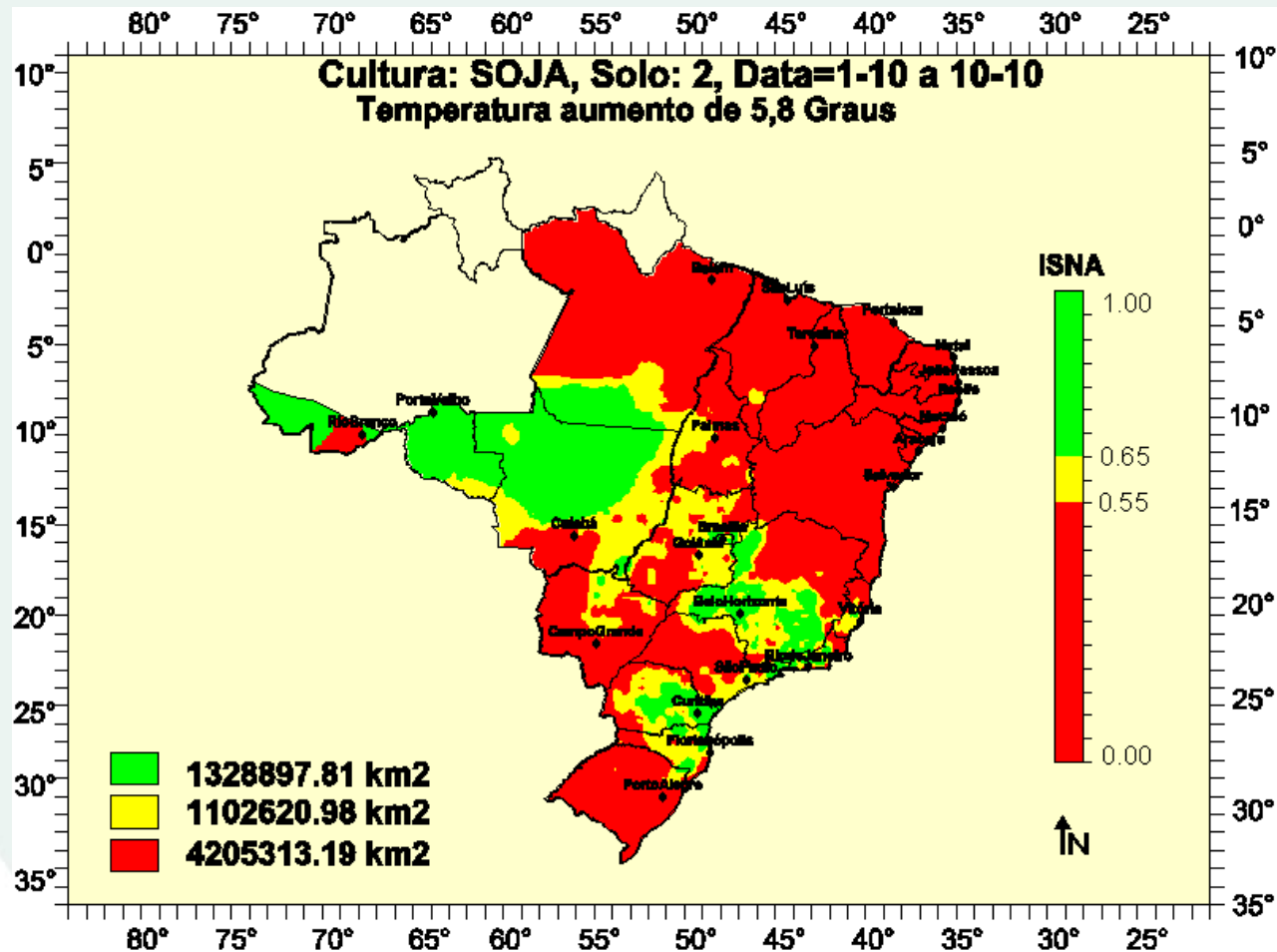
Global Climate Changes- Scenarios

Soybean Cultivation- Normal Temperature



Global Climate Changes -

Scenarios Soybean Cultivation- + 5.8 C





Rede Clima

Mudanças Ambientais
Globais no Brasil

Brazilian Research Network on Global Climate Change



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**Ciência, Tecnologia
e Inovação**





Thematic areas

Currently, Rede CLIMA is organized in fifteen thematic areas which primarily cover the scientific areas of impacts, adaptation and vulnerability:

Agriculture	Oceans
Biodiversity and Ecosystems	Water Resources
Cities and Urbanization	Health
Natural Disasters	Ecosystems Services
Regional Development	Coastal Zones
Economy	Land Use
Renewable Energies	Communication
Climate Modeling	

Multi-institutional Lab for Low Carbon Agriculture (ABC) Plan Monitoring

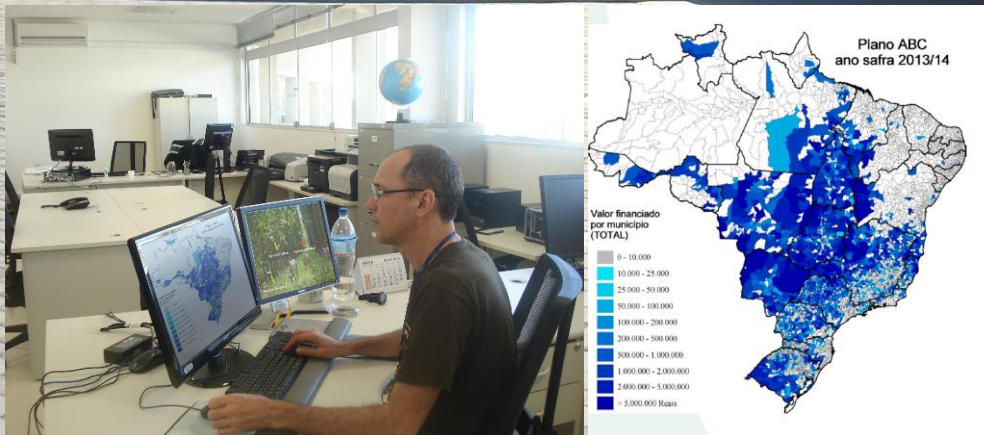
Location: Embrapa Environment- Jaguariúna-SP

Ministry of
Environment

Ministry of Agrarian
Development

Ministry of Science &
Technology

Ministry of Agriculture,
Livestock and Food Supply



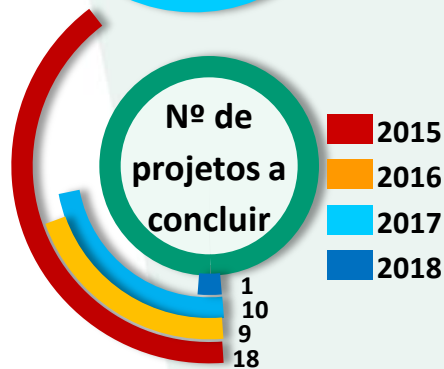
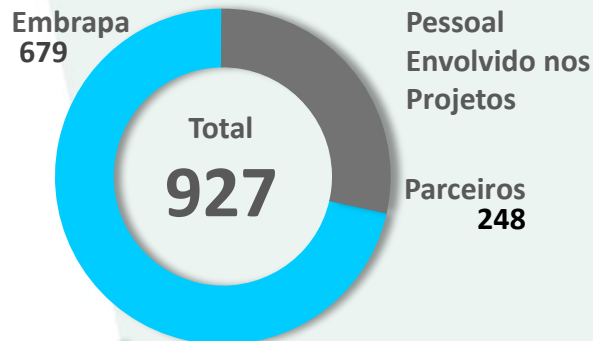


Portfólio: Mudanças Climáticas

Comitê Gestor do Portfólio : Presidente: Giampaolo Queiroz Pellegrino (CNPTIA);
Secretário Executivo: Renato de Aragão R. Rodrigues (CPAMT). Beata Eموke Madari (CNPAF), Bruno José Rodrigues Alves (CNPAB), Dario Grattapaglia (CENARGEN), Lineu Neiva Rodrigues (CPAC), Patrícia Perondi Anchão Oliveira (CPPSE)
Raquel Ghini (CNPMA) e Rosana Clara Victoria Higa (CNPFI).
BCA Nº 21, 21.05.2012 – 2 anos em Junho de 2014. **Embrapa**
Número de Projetos em Execução: 38

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AGRICULTURA

GOVERNO FEDERAL
BRASIL
PÁTRIA EDUCADORA



Orçamento Ano 2014, Milhões de R\$

	SEG	Outras fontes	Contrapartida
Total	5,7	0,1	1,4
Custeio	5,3	0,1	0,8
Investimento	0,4	0	0,6

Orçamento Total dos Projetos em Execução em Milhões de R\$

	SEG	Outras fontes	Contrapartida
Custeio	20,1	1,2	2,4
Investimento	1,1	2,0	0,7
TOTAL	20,2	3,2	3,1

Instituição	Projetos que Lidera	Instituição	Projetos que Lidera	Instituição	Projetos que Lidera	Instituição	Projetos que Lidera	Instituição	Projetos que Lidera
CNPAF	9	CNPUV	1	CPAP	1	CECAT	1	CNPASA	1
CNPGL	1	CPPSUL	1	CNPAB	3	SGI	2		
CNPMF	2	CNPAT	2	CPAMN	1	UFV	1		
CNPMS	3	CENARGEN	1	CPPSE	3	IAPAR	1		
CNPPO	2	CPAC	3	CNPDIÁ	1	UNICAMP	1		
CNPMA	5	CPATSA	6	CNPPTIA	4	CNPAE	1		
CNPFI	6	CPATU	1	CNPSS	4	CPAMT	2		

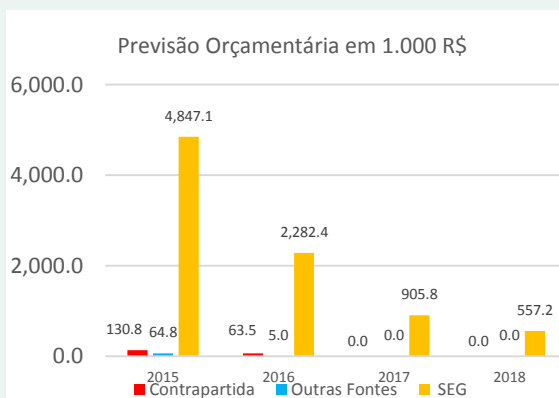
Inclui projetos concluídos e em execução

STATUS DO RESULTADO

QUANTITATIVO DE RESULTADOS POR ANO DE PREVISÃO DE ALCANCE

	2014	2015	2016	2017	2018
TOTAL	39	37	43	34	23
Alcançado Parcialmente		1	1		
Alcançado Totalmente	2				
Não Alcançado	2		2		
Previsto	35	36	40	34	23

* Ano não informado



TIPO DE RESULTADO Nº

Arranjo institucional	2
Avanço do conhecimento	234
Capacitação interna em áreas estratégicas	3
Cultivar / linhagem	49
Estudo de avaliação de impactos	37
Estudo prospectivo	7
Formação de agentes multiplicadores	2
Imagem corporativa	46
Insumo agropecuário	30
Metodologia Técnico Científica em P&D, TT ou Comunicação	32
Negócio Tecnológico	34
Novo processo técnico, organizacional ou gerencial	7
Produto Pré-Tecnológico	7
Protótipo de máquinas, equipamentos e implementos	4
Prática/processo agroindustrial	3
Prática/processo agropecuário	14
Sistema de informação	183
Software Corporativo ou Específico	5

Thank you for attention!

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