



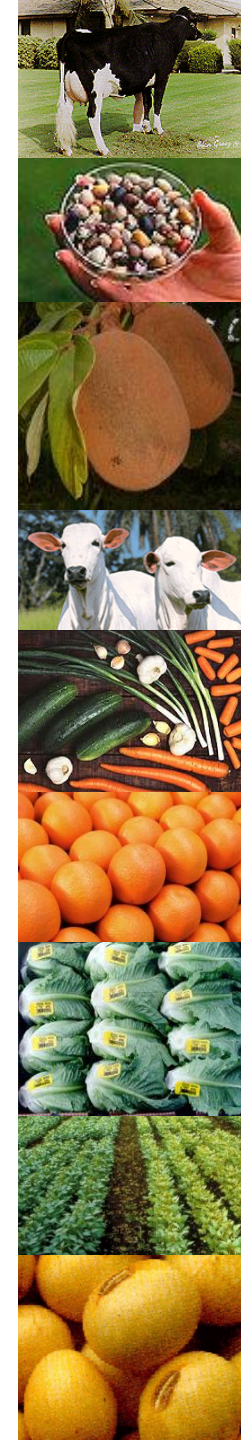
Agricultural Innovation and Challenges for Promotion of Knowledge and Information Flows in Agrifood Systems in Brazil

Maurício Antônio Lopes, PhD
Executive Director – Research and Development
Brazilian Agricultural Research Corporation – Embrapa
Brasília, DF, Brazil

OECD Conference on Agricultural Knowledge Systems (AKS):
Responding to Global Food Security and Climate Change Challenges
OECD Conference Centre, Paris, 15-17 June 2011



Ministry of
Agriculture, Livestock
and Food Supply



Objectives

Purpose of the Conference:

“Explore how to foster the development and adoption of innovation at national and global levels in order to meet global food security and climate change challenges.”

Session 3.D.

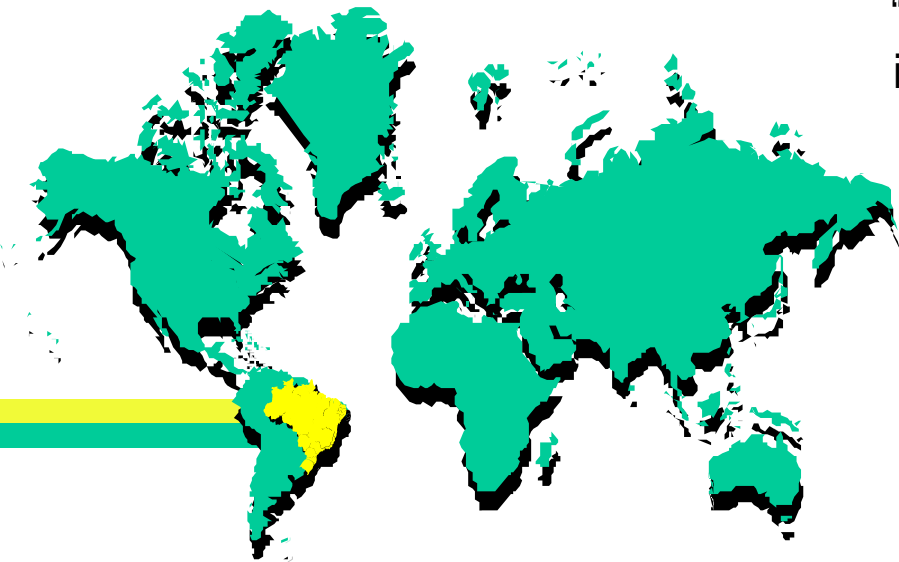
“Facilitating adoption of innovations and technology transfer ”

Questions:

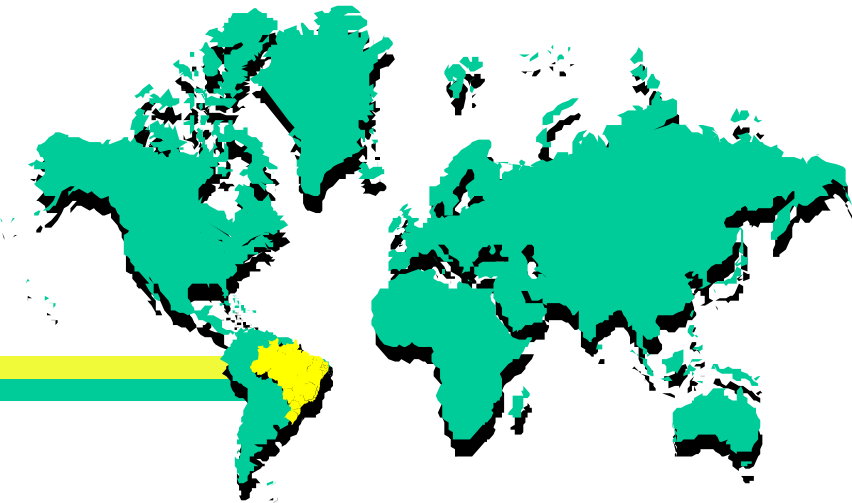
How to encourage innovations that are needed?

How to facilitate adaptation and adoption?

How to reduce the gap between demand and needs?



Summary



About Brazil

Agriculture in Brazil

Drivers – Advanced Tropical Agriculture

Agricultural Innovation System in Brazil

Continuum R&D - TT - Communication

Final Messages

About Brazil



The largest economy in South America;

GDP: US\$ 2,09 trillion (7th biggest economy);

Area: 8,514,000 km² (5th largest);

Population: 191.3 million (5th biggest population);

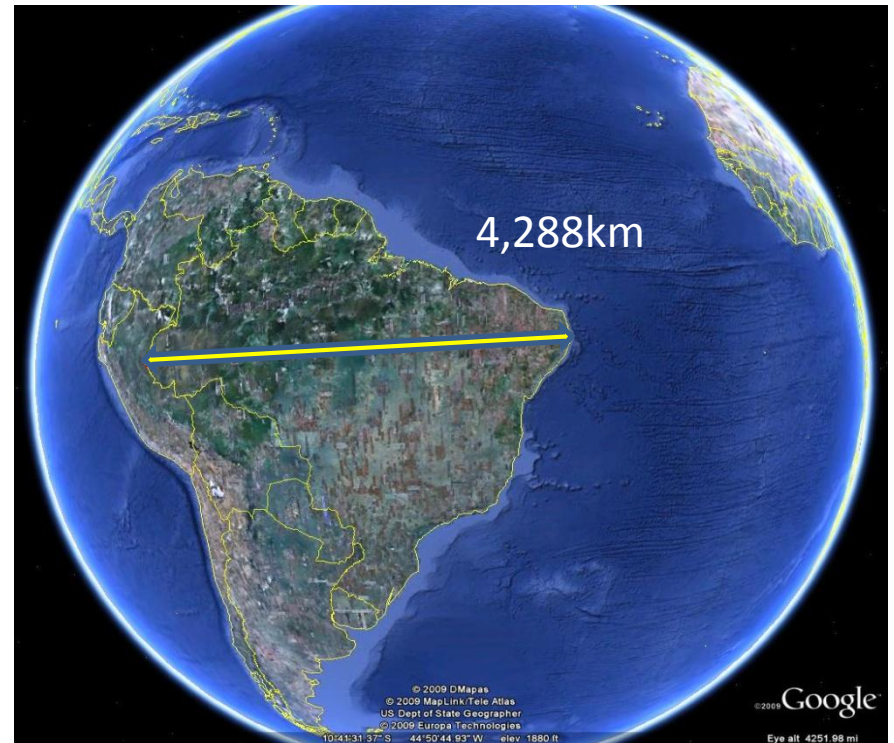
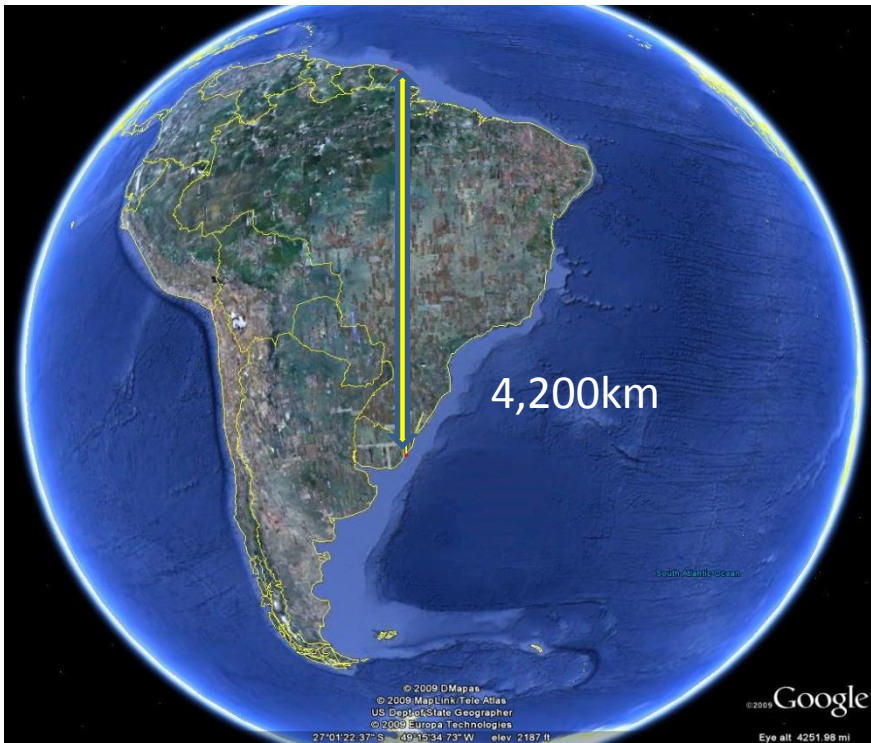
Brazil has since 1985 a stable democratic government;

10,000 Ph.D. graduate every year;

Rank 13th in scientific publications...

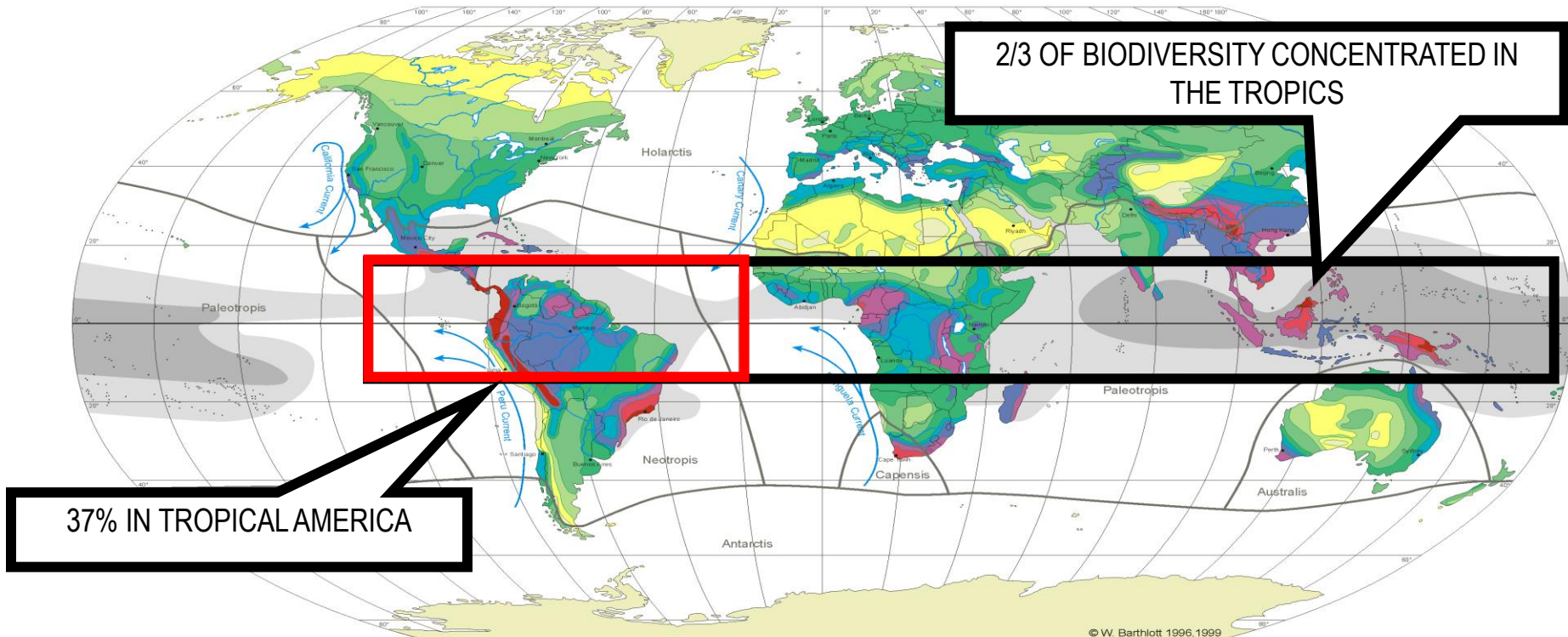
About Brazil

Great Environmental Diversity



About Brazil

A Mega-diverse Country



Robinson Projection
Standard Parallels 38°N und 38°S

Diversity Zones (DZ): Number of species per 10 000km²

DZ 1 (<100)	DZ 5 (1000 - 1500)	DZ 9 (4000 - 5000)
DZ 2 (100 - 200)	DZ 6 (1500 - 2000)	DZ 10 (≥ 5000)
DZ 3 (200 - 500)	DZ 7 (2000 - 3000)	
DZ 4 (500 - 1000)	DZ 8 (3000 - 4000)	

Capensis floristic regions

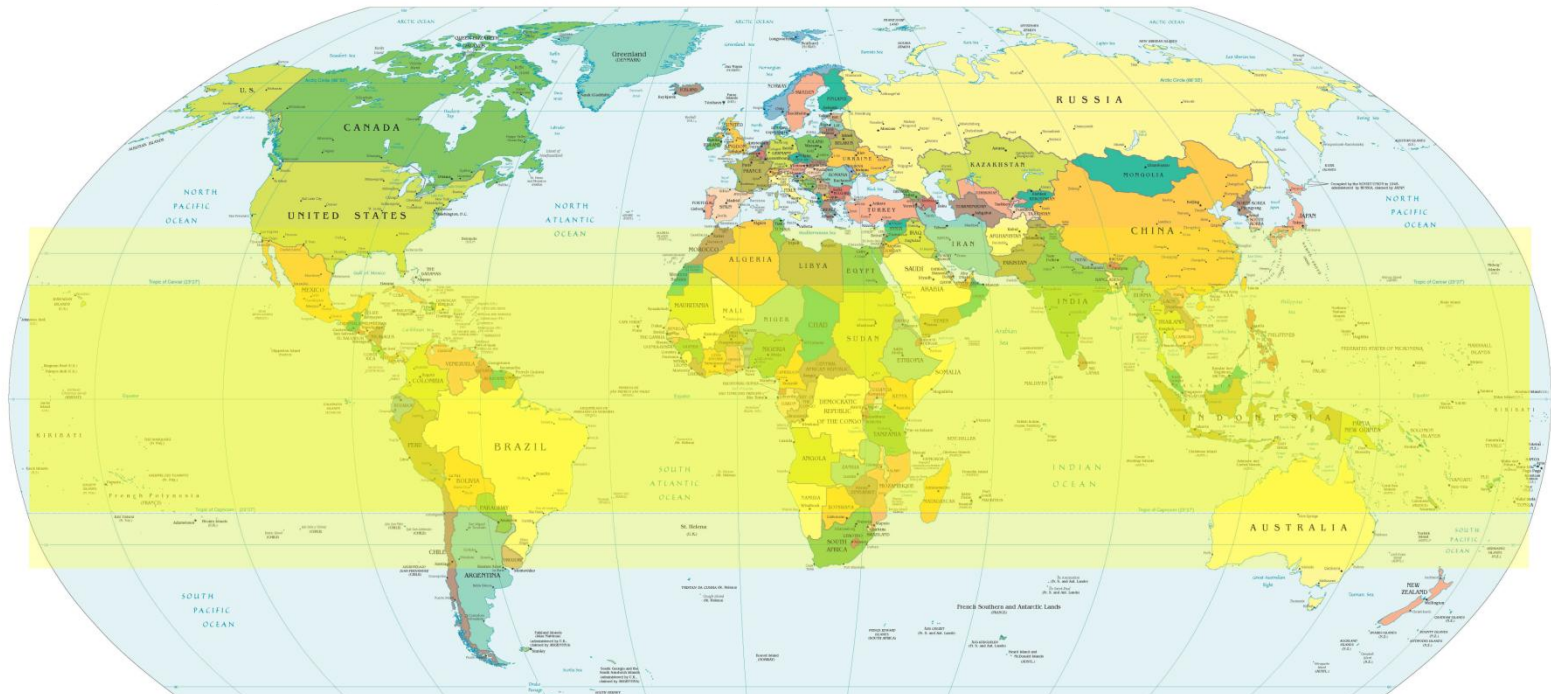
sea surface temperature

- >29°C
- >27°C

cold currents

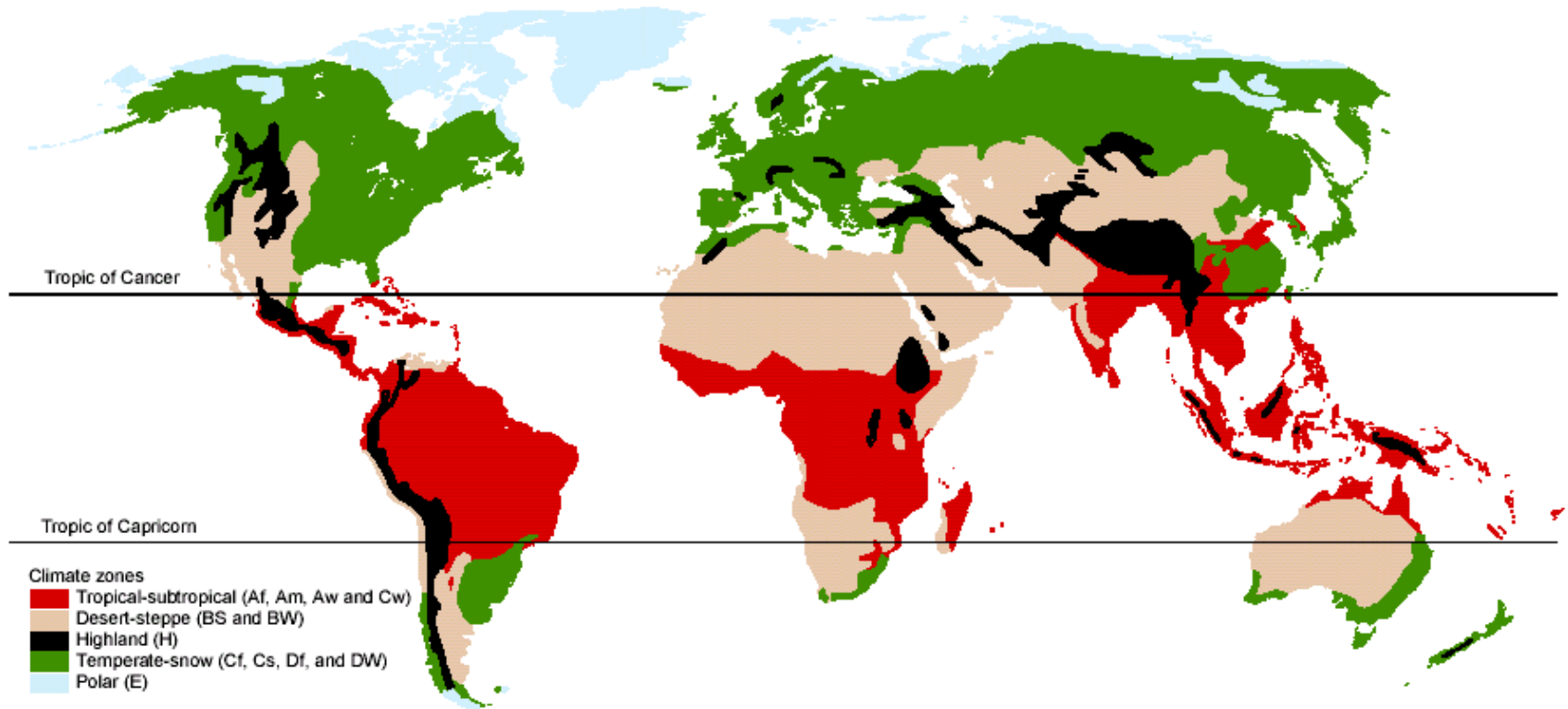
W. Barthlott, N. Biedinger, G. Braun, F. Feig, G. Kier, W. Lauer & J. Mutke 1999
modified after
W. Barthlott, W. Lauer & A. Placke 1996
Department of Botany and Geography
University of Bonn
German Aerospace Research Establishment, Cologne
Cartography: M. Gref
Department of Geography University of Bonn

About Brazil



Most of the Brazilian Territory is Located in the Tropical Belt of the World

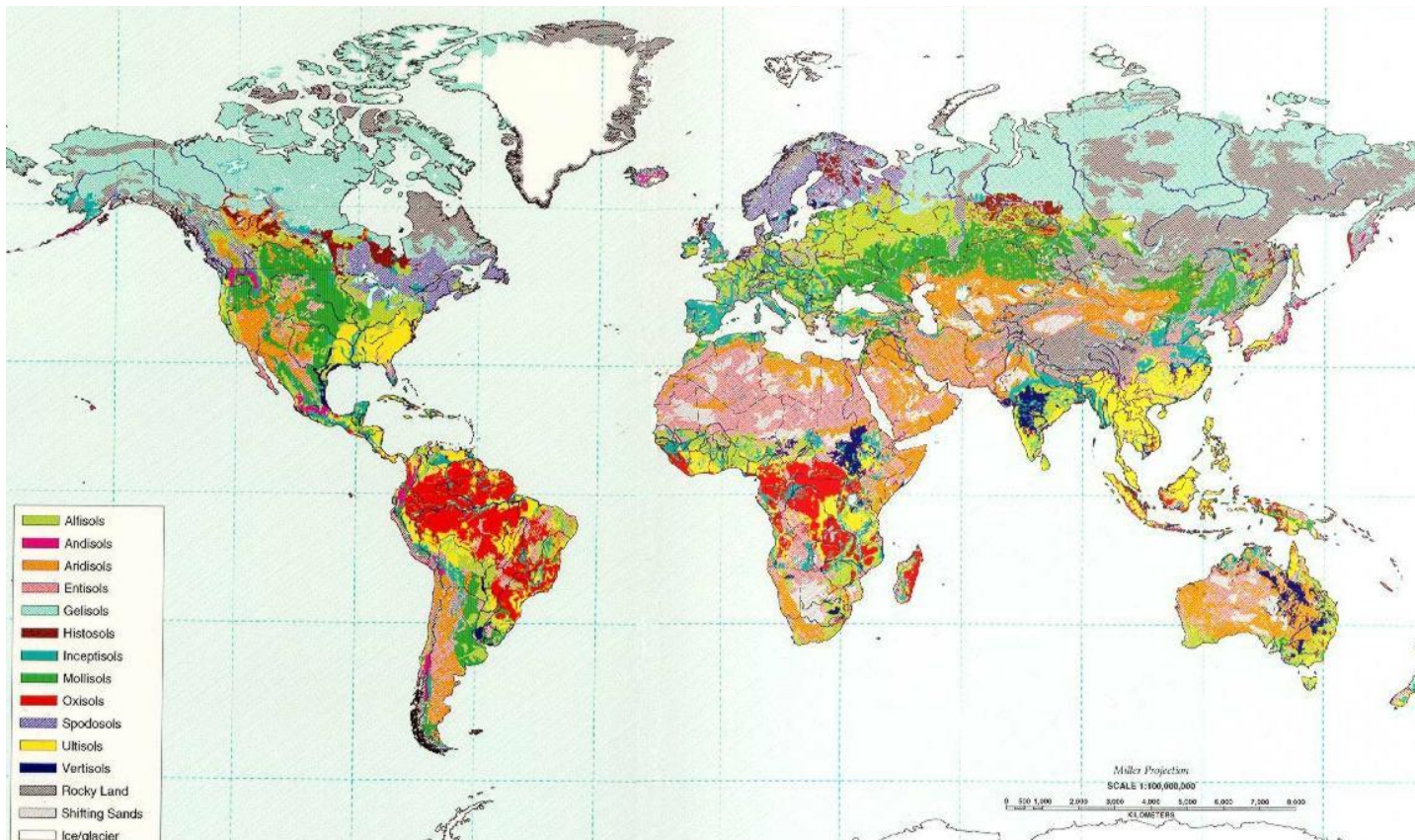
About Brazil



**- Tropical zones are the most challenging to agriculture -
Intense biotic (pests) and abiotic (drought, soil acidity, low nutrients, etc) stresses.
All these challenges will be intensified with the global climatic changes.**

About Brazil

World Distribution of Soils



Tropical Soils

Acid – 84%

Saline – 2%

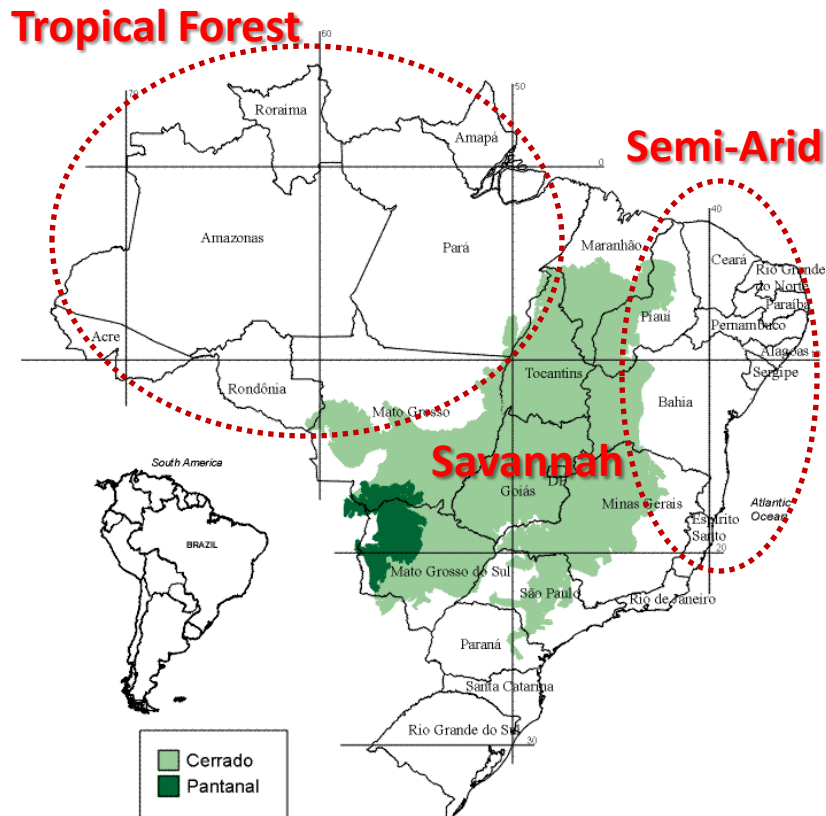
Shallow – 7%

Flooded – 16%

No problem – 9%

Concentration of acidic and nutrient-poor soils in the tropics

Agriculture in Brazil before the 1970's



Brazil was not a food secure country

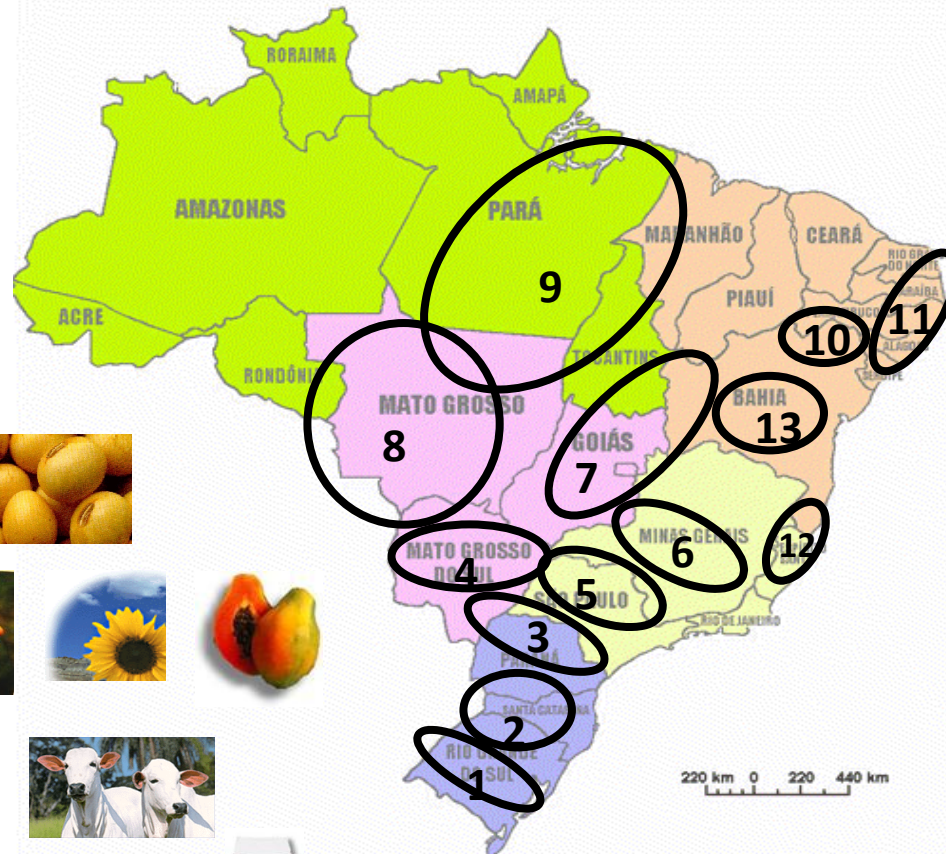
- Low agricultural production and low yields;
- Production concentrated in the South and Southeast Regions;
- Constant food supply crisis and rural poverty;
- Lack of specific knowledge in Tropical Agriculture;
- Lack of adequate agricultural development policies.
- Brazil known as coffee and sugar producer.



**In 40 Years Brazil Developed an Advanced
Tropical Agriculture Complex**

Agriculture in Brazil Today

Brazil became one of the largest agricultural producers in the world



AREA/ MAIN CROPS	MM HA
1- FLOODED RICE	0.95
2- SOYBEAN CORN WHEAT	3.30 1.30 0.60
3- SOYBEAN CORN WHEAT	3.20 2.40 0.90
4- SOYBEAN PASTURE	1.20 11.00
5- SUGARCANE COFFEE CITRUS	2.50 0.30 0.70
6- COFFEE	1.00
7- SOYBEAN CORN COTTON DRYBEANS PASTURE	1.80 0.80 0.10 0.20 9.00
8- SOYBEAN COTTON CORN PASTURE	3.30 0.50 0.40 12.00
9- PASTURE	10.00
10- TROPICAL FRUITS	0.07
11- SUGARCANE	0.90
12- COFFEE	0.60
13- DRYBEANS SOYBEAN	0.70 0.90

Brazil Became an Important Food Exporter

2009 ranking: Brazilian Production and Exports

Main Products	Production	Exports	Number of Markets	Exports US\$ Billion
Sugar	1 st	1 st	124	8.378
Coffee	1 st	1 st	81	3.762
Orange Juice	1 st	1 st	75	1.619
Soybean	2 nd	2 nd	46	11.413
Beef	2 nd	1 st	142	4.118
Tobacco	2 nd	1 st	100	2.992
Ethanol	2 nd	1 st	48	1.338
Broiler	3 rd	1 st	146	5.307
Corn	4 th	3 rd	49	1.259
Pork	4 th	4 th	81	1.225

Sources: USDA, Ministry of Agriculture

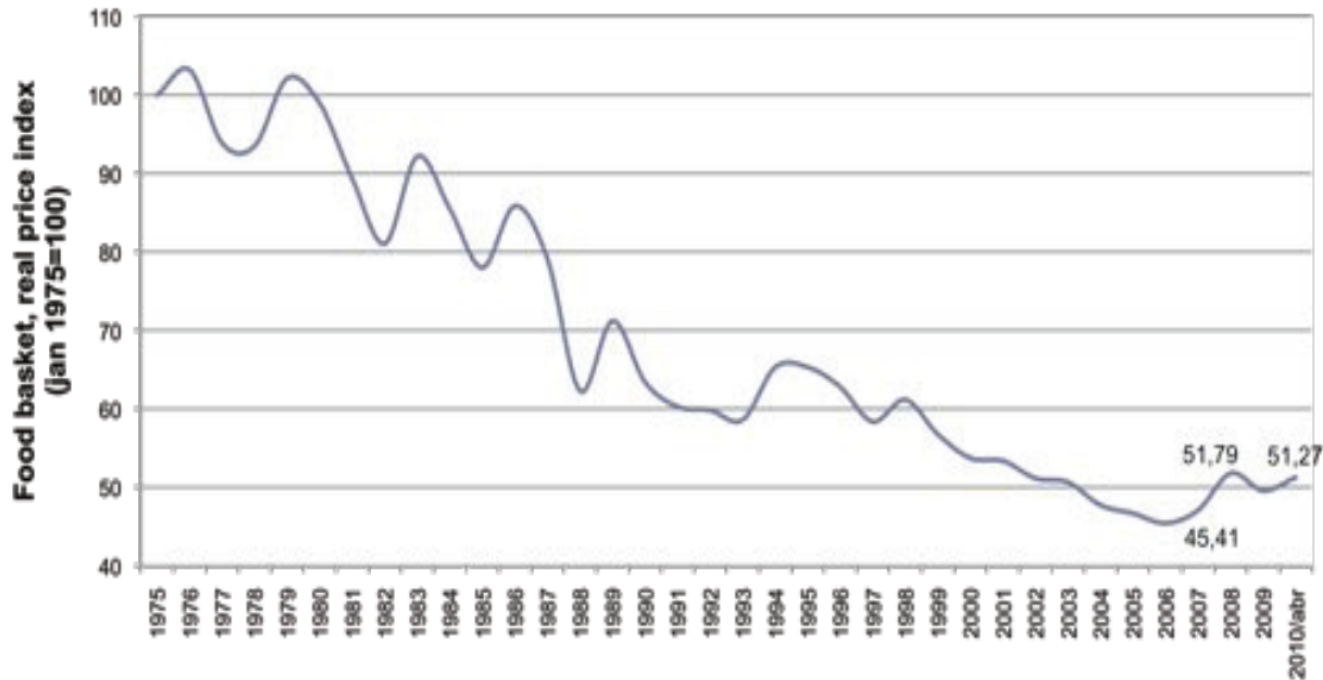
Around 79% of the Brazilian food production is consumed domestically and 21% is shipped to over 180 foreign markets

Brazil Became a Food Secure Country

Brazil Became Food Secure Country in a Short Period of Time

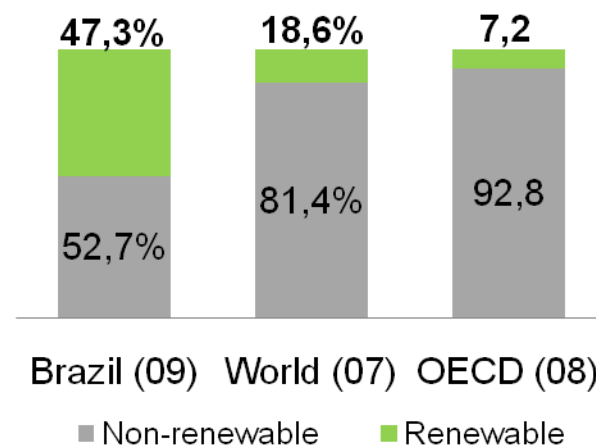
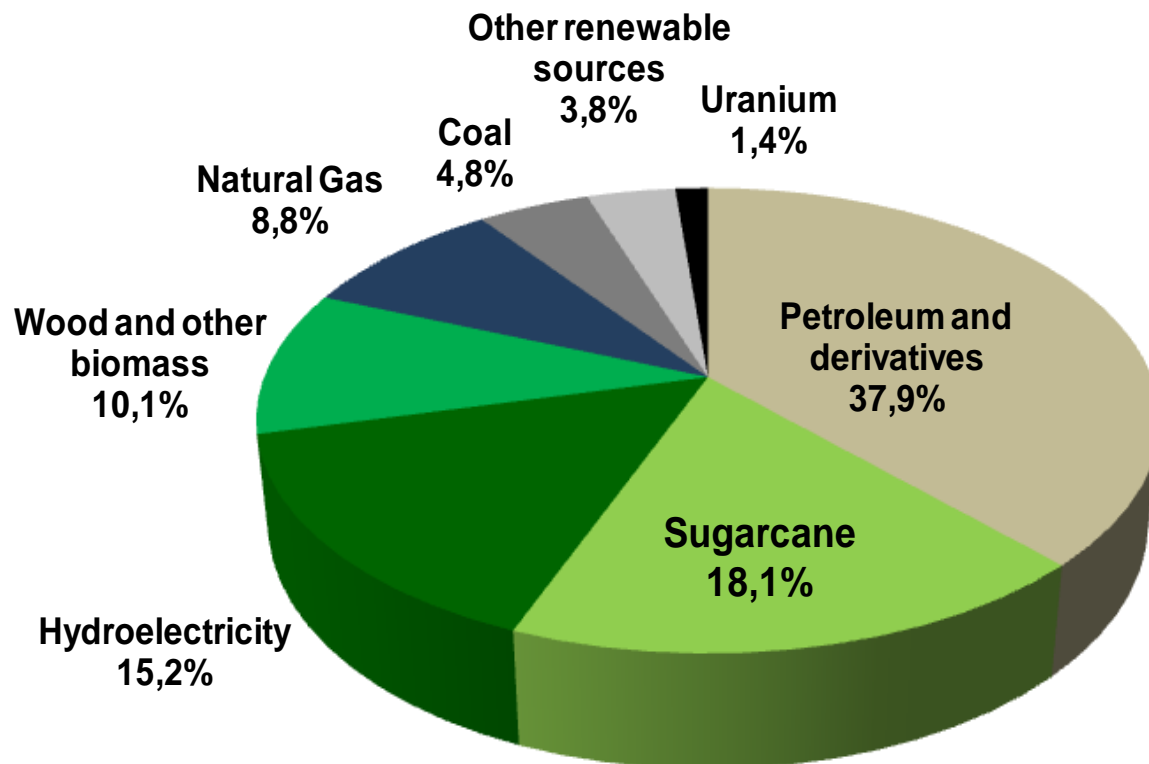


Food Basket: Real Prices, Jan/1975 – Apr/2010



Brazilian Agriculture: Food, Feed, Fiber and Fuel

Brazil Developed a Clean Energy Matrix

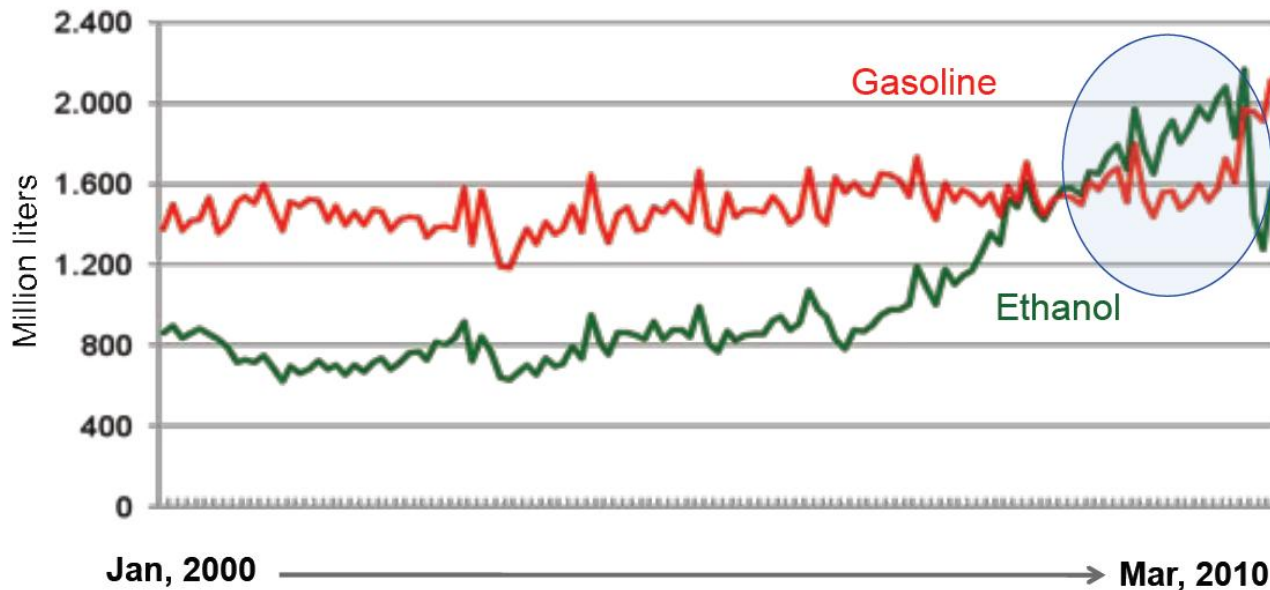


Brazilian Agriculture: Food, Feed, Fiber and Fuel

'In Brazil, Gasoline is Becoming the Alternative Fuel'

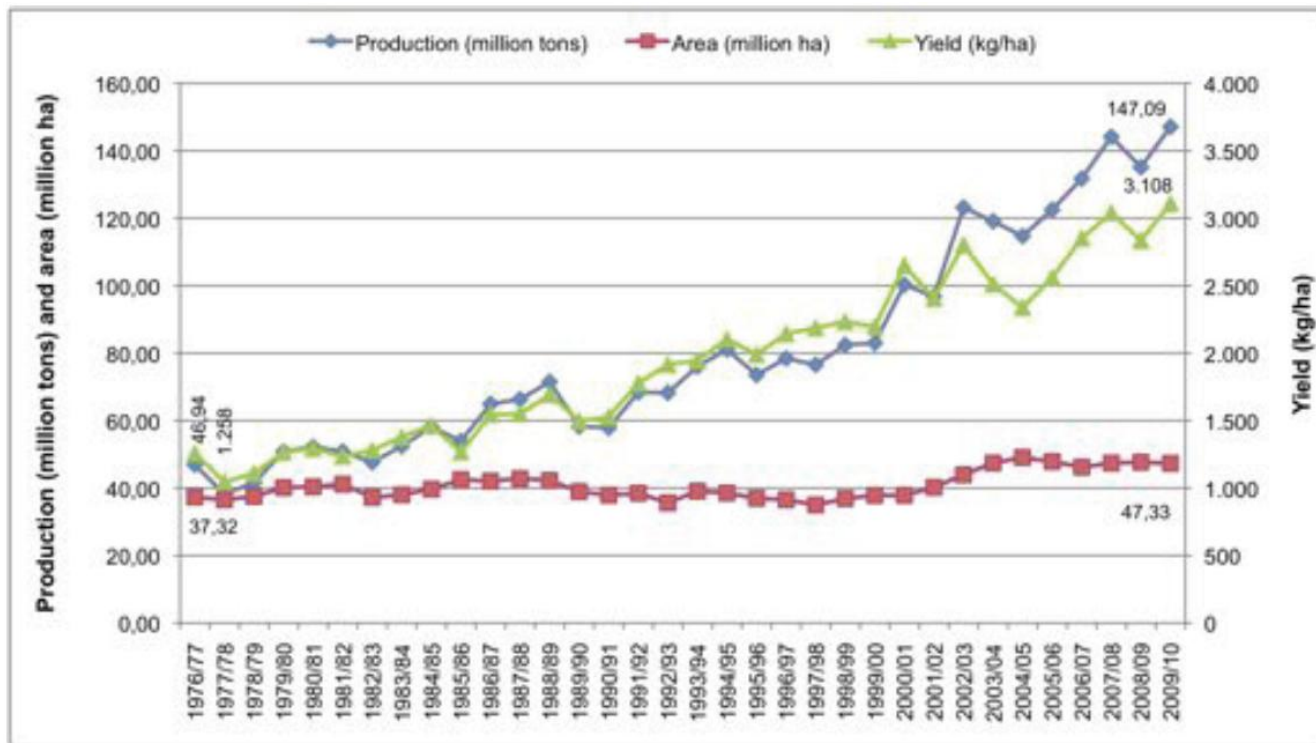
Embrapa
Estudos Estratégicos
e Capacitação

Consumption of Gasoline and Ethanol in Brazil



Agricultural Intensification x Agricultural Expansion

Evolution of grains and oilseeds production (million metric tons), yields (Kg/ha) and area (million hectares) in Brazil from 1975 to 2010.



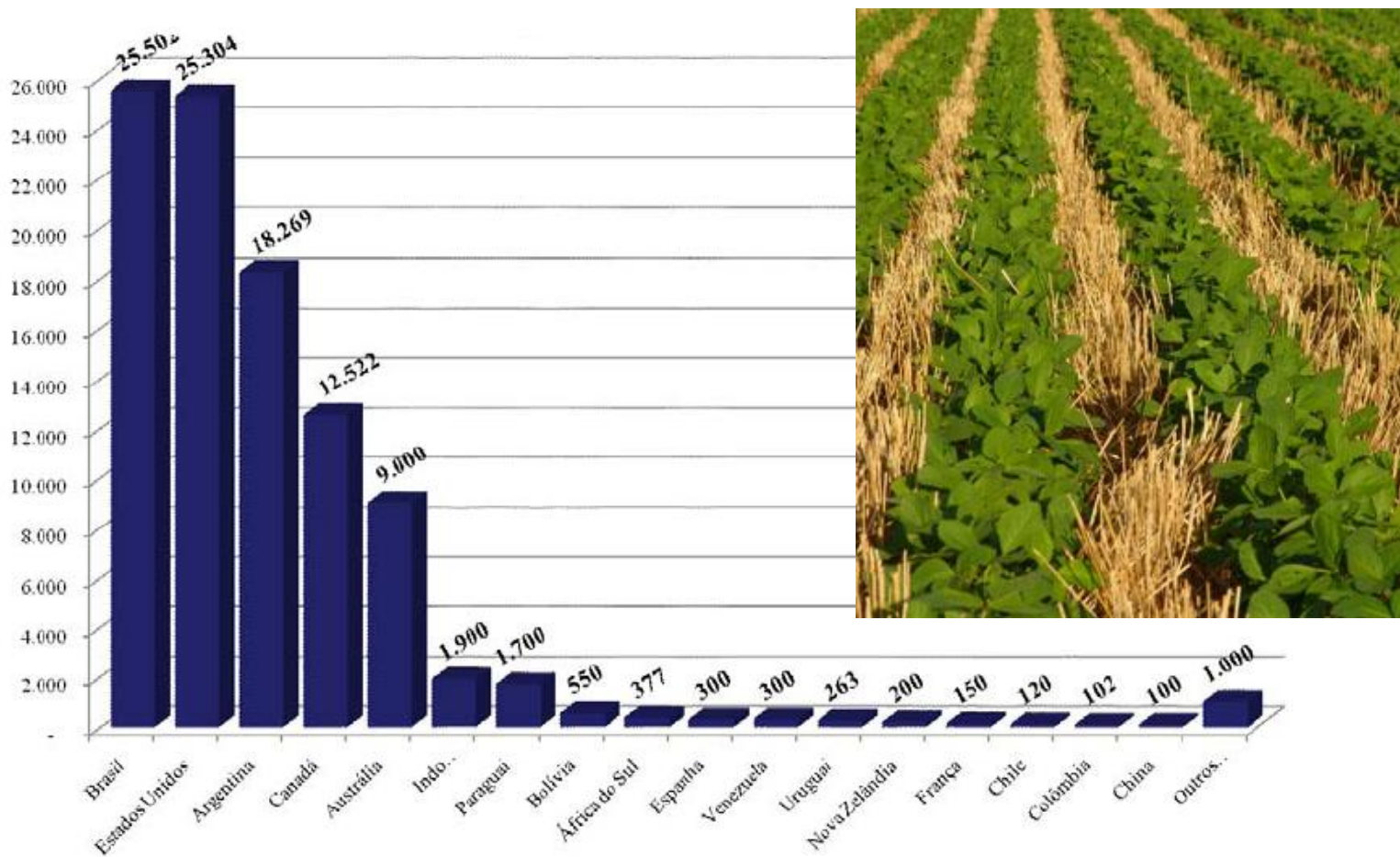
Conservation Agriculture in Brazil

Drastic reduction in soil erosion – improved chemical, physical and biological properties
Reduction in energy use - Agriculture is becoming a major “producer” of clean water



Conservation Agriculture in Brazil

Cultivated area under no-tillage systems around the world (1000 ha)



Biological Nitrogen Fixation

Brazil has become the world leader in replacing N fertilizers by biological N₂ fixation (BNF).

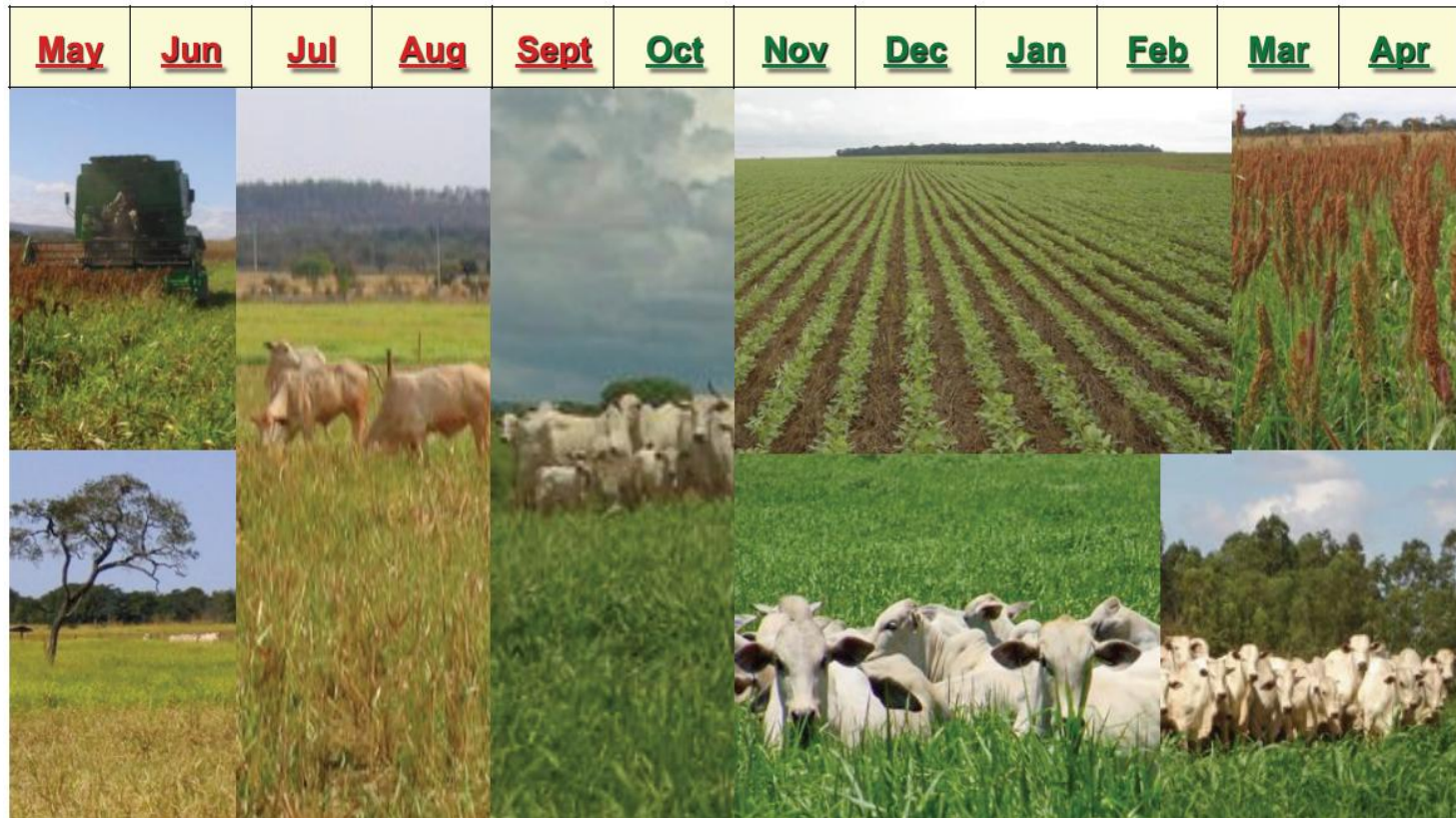


Nitrogen fixation occurs in nodules on legume roots (Source: FAO, Rome)



Agricultural Intensification x Agricultural Expansion

Integrated Crop-Livestock Systems



Agricultural Intensification x Agricultural Expansion

Intensification of land use with integrated crop-livestock-forest systems
Large Scale Operations



Agricultural Intensification x Agricultural Expansion

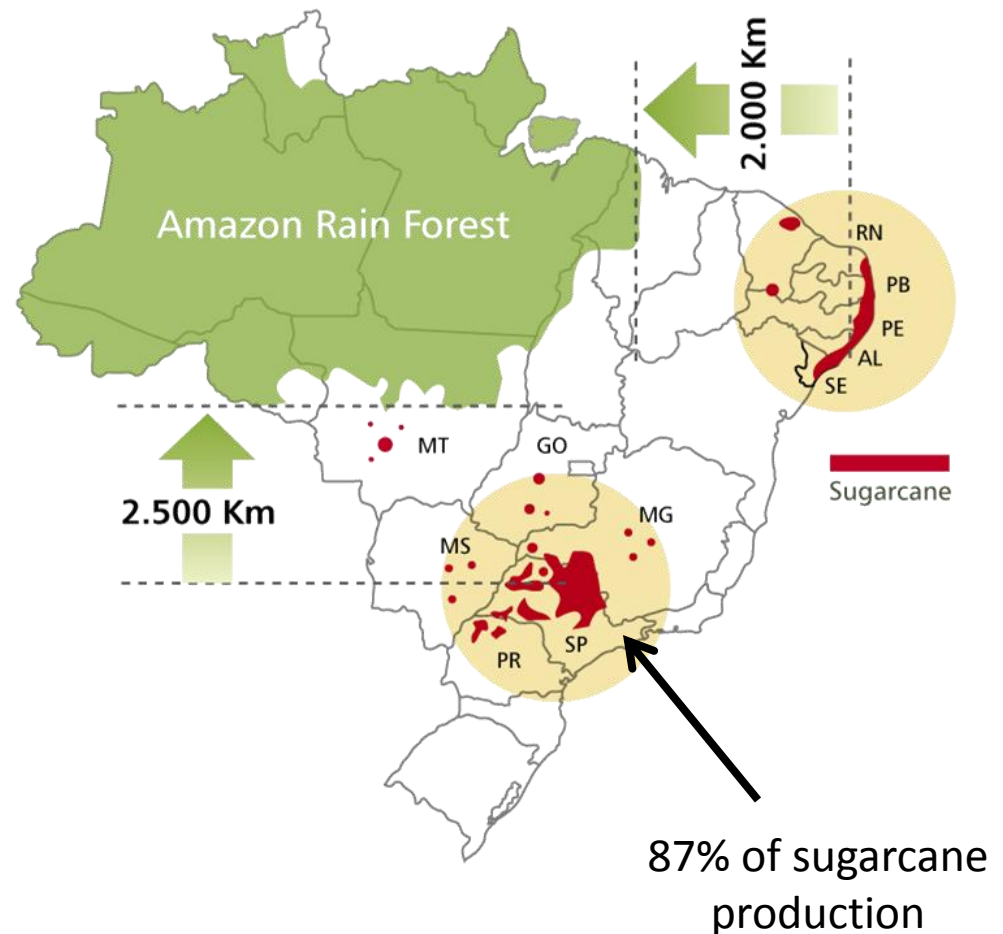
Intensification of land use with integrated crop-livestock-forest systems
Technologies Adapted to Small Scale Farming Systems



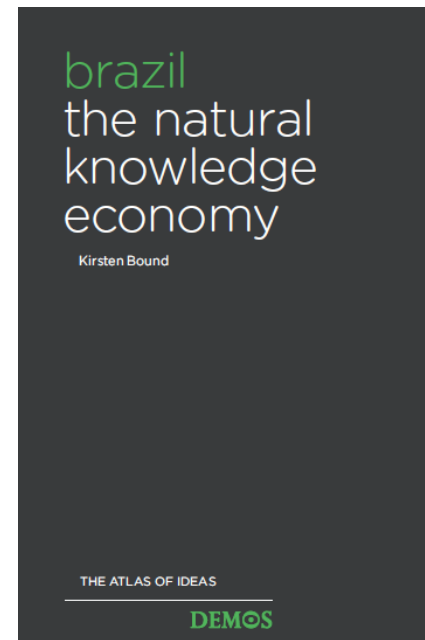
Agroecological Zoning Plan for Sugarcane Expansion

Brazil is using Zoning Technology to Manage Sugarcane Expansion

Sugarcane for ethanol production occupies 1.5% of Brazil's arable land



Always Moving Towards Sustainability



The Atlas of Ideas – Demos Institute, 2008

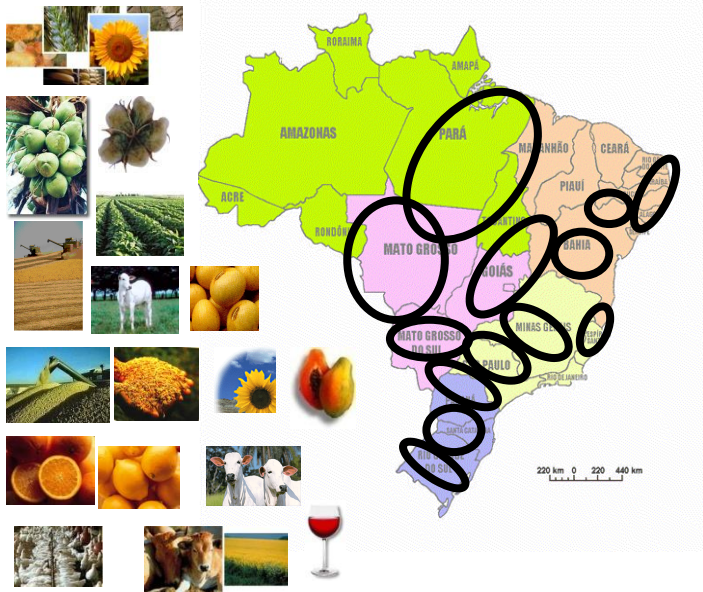
“It is helpful to think of Brazil as a ‘natural knowledge-economy’... its innovation system is in large part built upon its natural and environmental resources, endowments and assets.”

Source: MMA/Brazil

Always Moving Towards Sustainability



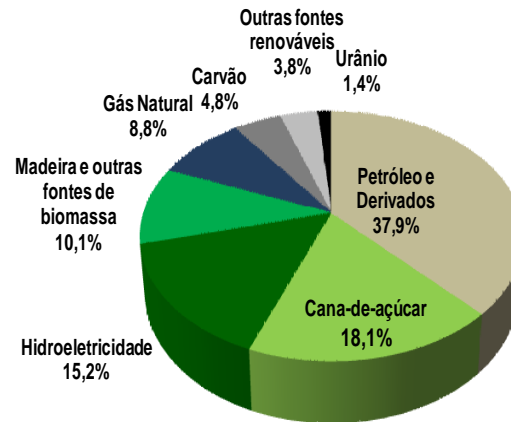
Brazil – Agriculture



Brazil – Environment



Brazil – Sustainable Energy





Key Drivers for Development of Advanced Tropical Agriculture in Brazil

Development of Tropical Agriculture in Brazil

Key drivers of Agricultural Development in Brazil

Government commitment and public policies

Development of science-based tropical agriculture

Availability of basic infrastructure

Large extension of arable land and adequate climatic conditions

Landscape suitable for mechanization

Good physical characteristics of the soils

Availability of mineral resources (limestone and phosphate)

Entrepreneurship of farmers



Development of Tropical Agriculture in Brazil

Key drivers of Agricultural Development in Brazil

Government commitment and public policies

AG Research, Technology Transfer and Education

Credit:

Technology (seeds, fertilizers, agrochemicals, machinery, equipments)

Market Development:

Minimum prices

Food regulatory stocks

Risk Insurance

Infra-structure: roads, storage facilities, etc.



Institutional Building and Strengthening

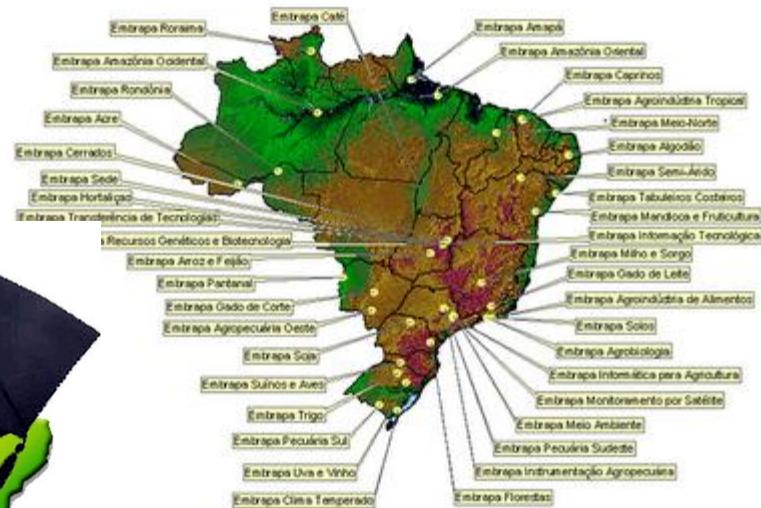
Creation of a Comprehensive Agricultural Research & TT System

17 State Research Networks OEPAS



CONSEPA
Conselho Nacional dos Sistemas Estaduais de Pesquisa Agropecuária

The Brazilian Agricultural Research Corporation 47 Embrapa Centers



70 Agricultural
Universities

Private Sector

Brazil has also an active and growing private sector, which supplies technologies and technical assistance mainly in farm inputs and food processing

The Brazilian Agricultural Research Organization

Creation of the Largest Agricultural R&D Organization in Latin America



Embrapa is the largest component of the Brazilian Agricultural Research System and...

The largest agricultural R&D agency in Latin America in terms of both staff numbers and expenditure.

Embrapa is headquartered in the capital Brasilia and operates 47 research centers throughout the country.

The Brazilian Agricultural Research Organization

Creation of the Largest Agricultural R&D Organization in Latin America

Established in 1973
Employees: 9,284
Budget: Over US\$ 1 billion

47 Centers and Services

15 National Thematic Centers

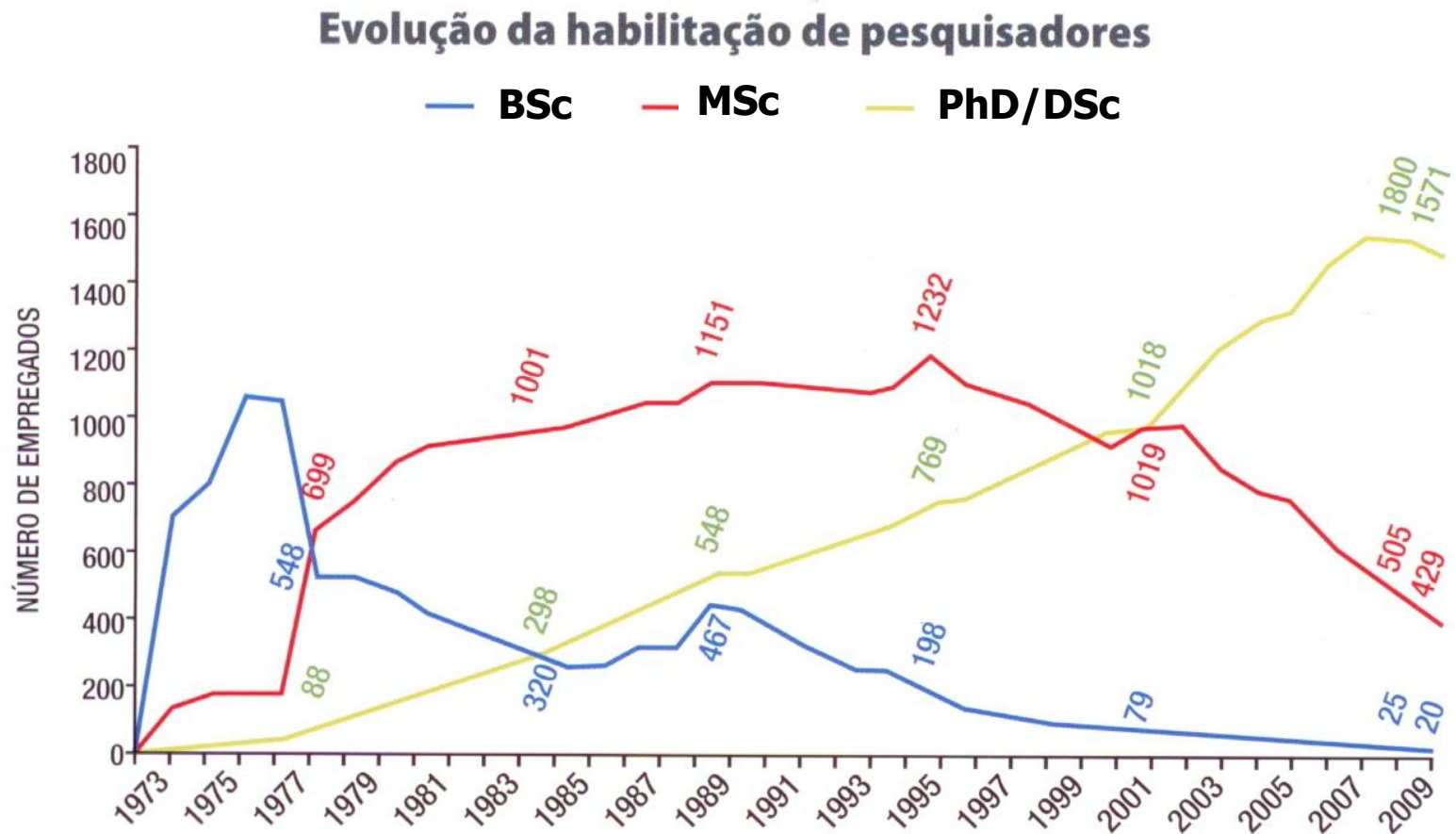
16 National Product Centers

16 Ecorregional/Agroforestry Centers



The Brazilian Agricultural Research Organization

Long Term Commitment to Capacity Building and Human Development



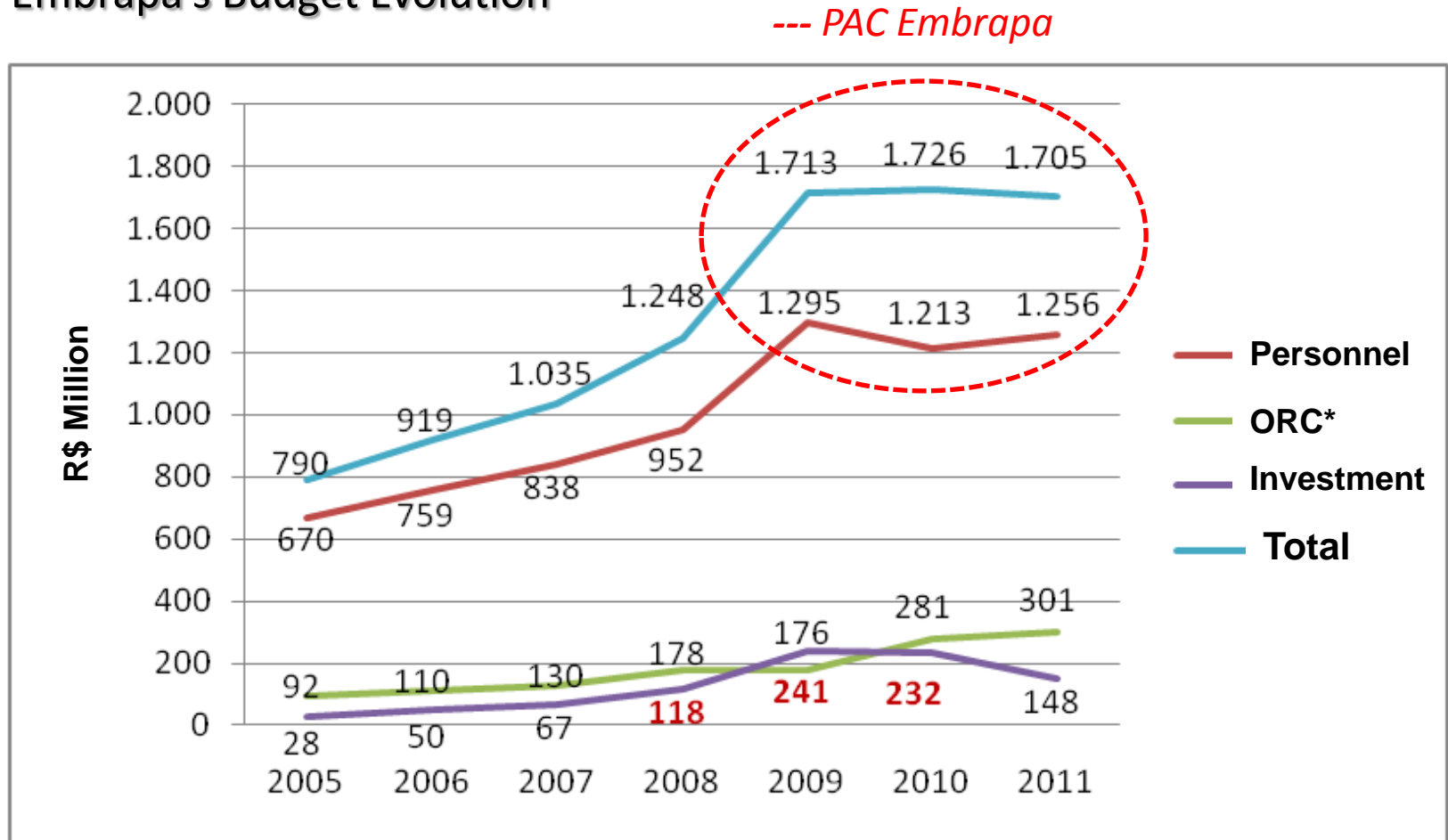
Fonte: Embrapa/DGP

Source: Embrapa, DGP

The Brazilian Agricultural Research Organization

Continuous Government Support – Budget Allocations

Embrapa's Budget Evolution



*ORC – Other Recurrent Costs

The Brazilian Agricultural Research Organization

Continuous Improvement of Infrastructure



Embrapa Soybean

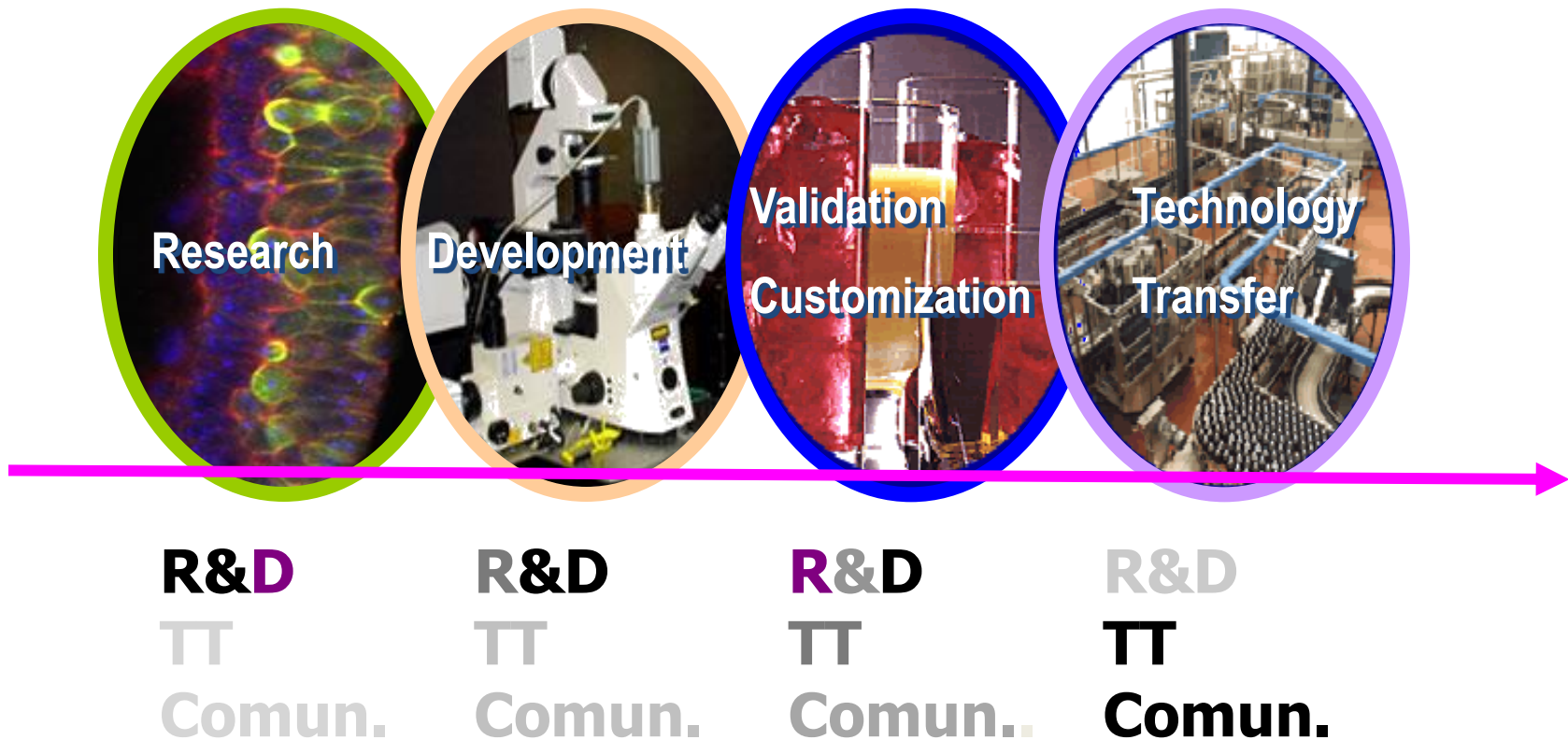




R&D and Technology Transfer Strategy

From Problems/Opportunities to Solutions

Embrapa's Management Strategy



Embrapa Innovation – A Comprehensive Portfolio

Products

- Inbred Lines
- Varieties
- Hybrids
- Germplasm
- Bioinsecticides
- OGMs
- Agricultural Machinery
- Equipaments
- Kits for diagnostics
- Vaccines

- Crop Management Systems
- Crop Adaptation Processes
- Food Processing Methodology
- Plant & Animal Transformation
- Gene Prospection Methodology
- Integrated Pest Management
- Fingerprinting
- Agroecological Zoning
- Traceability & Certification

- Cultivar Evaluation Networks
- Traceability and Certification
- Forecasting and Future Analysis
- Biological Security Networks
- Gene and Biological Function
- System's Automation
- Monitoring – IPM
- Monitoring – Environmental Quality
- Monitoring – Food Chains
- OGMs & Biosafety

Processes

Information

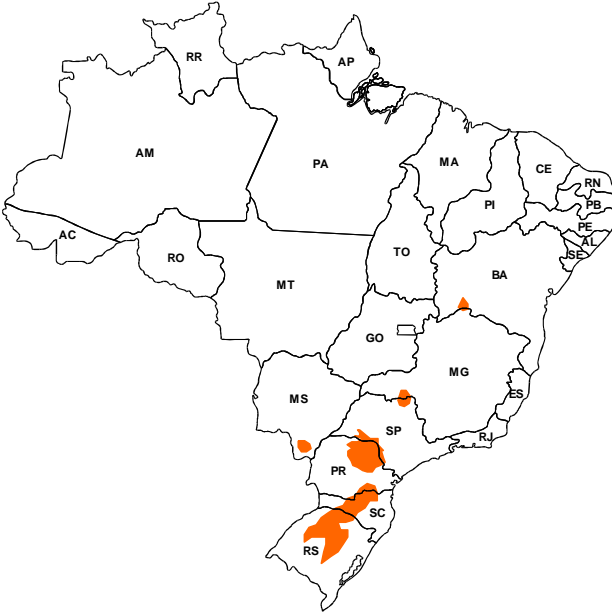
- Germplasm Exchange
- Quarentine Analysis
- Information Networks
- Franchising
- Quality Control
- Consultancy
- Training
- Business Incubation

Services

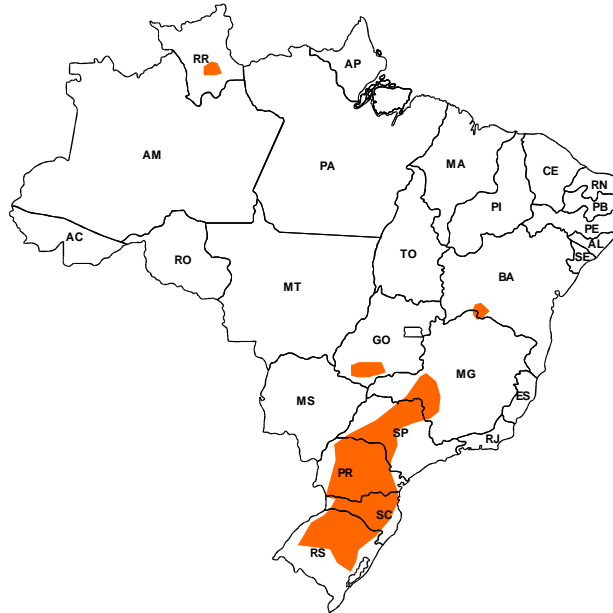
Development of Tropical Agriculture in Brazil

Brazilian Scientists had to “Tropicalize” soybeans

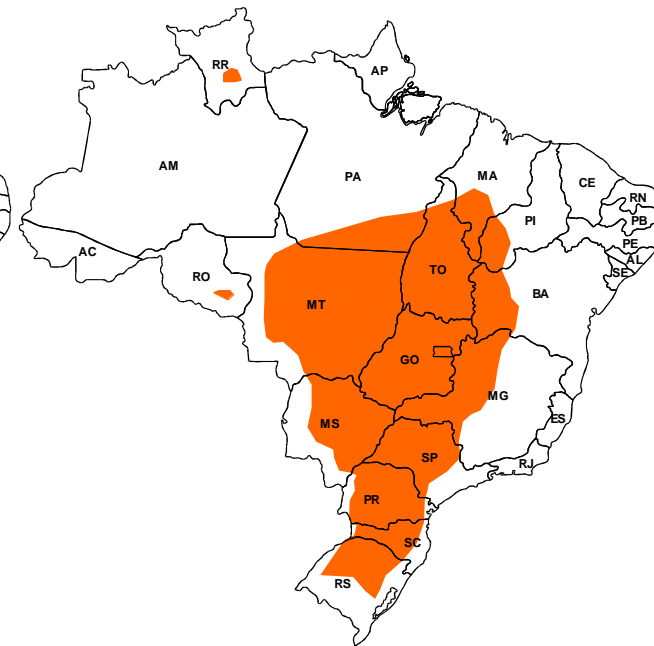
1960



1975



1999



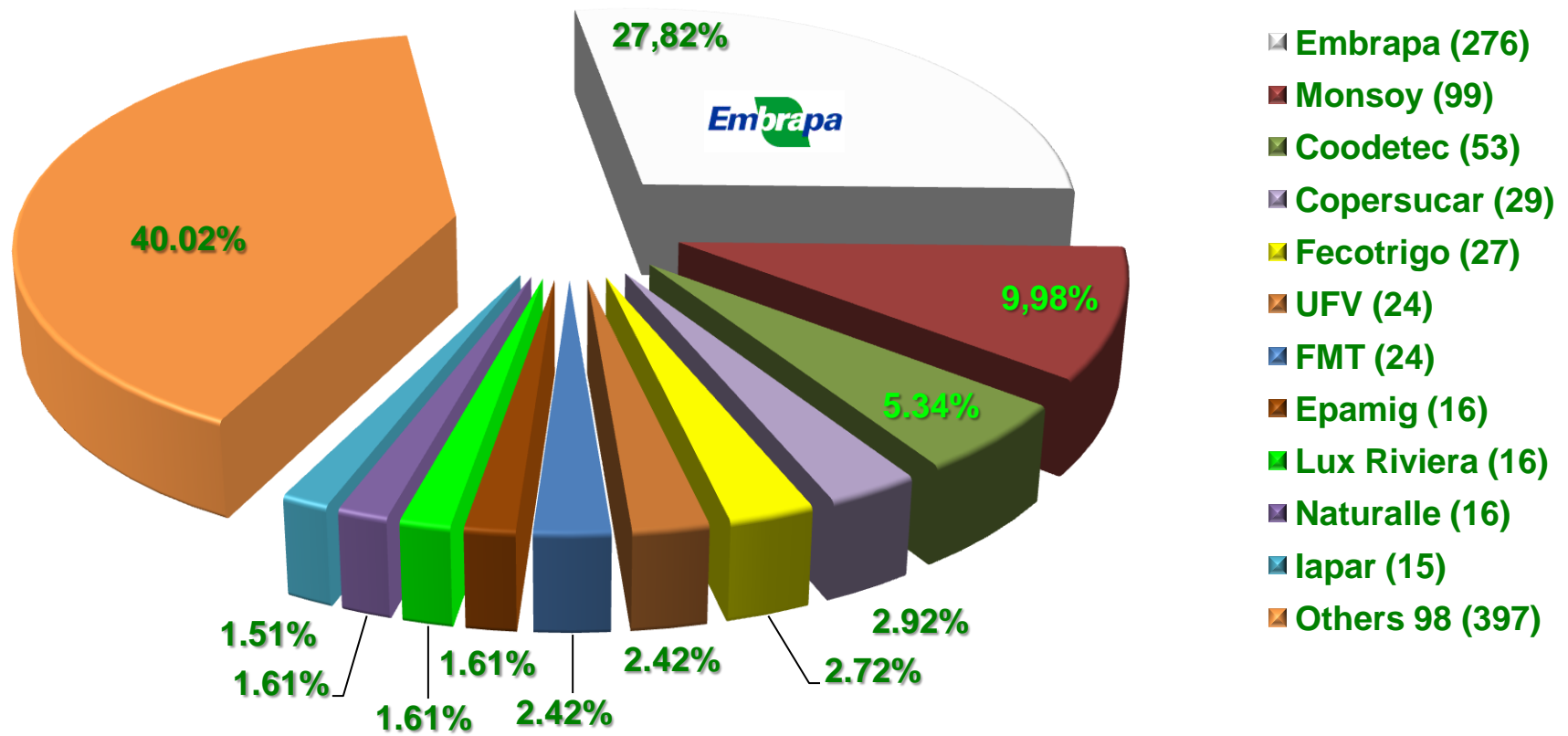
Adapted varieties – genetics and breeding

Biological nitrogen fixation

Minimum tillage - mechanization

Technology Transfer and Innovation Flows

Protected varieties: 992 (2010)



Technology Transfer and Innovation Flows

Technology Transfer Centers

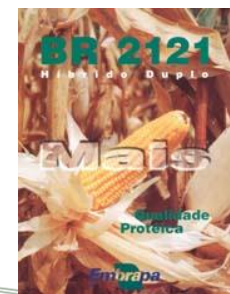
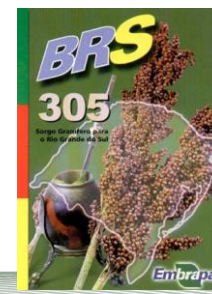
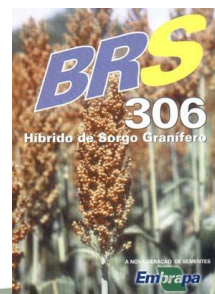


Embrapa Technology Transfer Centers

- EN da Amazônia
- EN de Campina Grande
- EN de Campinas
- EN de Canoinhas
- EN do Capão do Leão
- EN de Dourados
- EN de Goiânia
- EN de Imperatriz
- EN de Londrina
- EN de Passo Fundo
- EN de Petrolina
- EN de Ponta Grossa
- EN de Sete Lagoas
- EN do Triângulo Mineiro

Technology Transfer and Innovation Flows

UNIMILHO – Franchising in Genetics



Developing New, Cutting-Edge Technologies - PPPs

BASF and Embrapa's Cultivance® soybeans receive approval for commercial cultivation in Brazil

2010-02-05
P-10-148

- First genetically modified crop developed in Brazil to reach commercialization stage
- Market launch to take place after regulatory approval in key export markets



BASF and Embrapa's Cultivance® soybeans receive approval for commercial cultivation in Brazil

Cultivance® is the first genetically modified crop developed in Brazil, from laboratory to commercialization. The approval is the result of more than 10 years of successful cooperation between Embrapa and BASF, a global leader in providing agricultural solutions. The Cultivance® Production System combines herbicide-tolerant soybean varieties with BASF's broad spectrum imidazolinone class of herbicides, tailored to regional conditions. Photo: BASF - The Chemical Company, 2010



Information and Communication Tools Knowledge and Information Flows

Knowledge and Information Flows

Internet Portals

The image displays three overlapping screenshots of the Embrapa website, illustrating its structure and content. The top-left screenshot shows the main navigation menu with categories like Agricultura, Agroenergia, and Biotecnologia. The middle screenshot features a news article titled "Chefe-Geral da Embrapa Algodão Brasileiro de Palmeira de Babaçu" with a sub-header "A Unidade" and a list of services. The bottom-right screenshot shows the "Embrapa Suínos e Aves" portal, which includes a search bar, a list of news items, and social media links for Twitter and Skype.

Ministério da Agricultura, Pecuária e Abastecimento

Embrapa

Agricultura

- Agroenergia
- Agroindústria e Tecnologia de Alimentos
- Biotecnologia e Nanotecnologia
- Floresta e Silvicultura
- Geoprocessamento e Sensoriamento Remoto
- Informação e Comunicação
- Meio Ambiente, Recursos Genéticos e Recursos Naturais
- Produção Animal
- Transferência de Tecnologia e Desenvolvimento Social

Acesso também

- Agência de Informação Embrapa
- Catálogo de Produtos e Serviços
- Agritempo
- Sistemas de Produção
- Proeta
- Infoteca

Governo F

expansão

Inclusão social, renda, plantio e ordenamento territorial, produtividade e competitividade sustentável, biodiversidade e aliado ao desenvolvimento sustentável.

A Unidade

- Histórico
- Finalidades
- Instalações
- Organograma
- Equipe
- Localização
- Dados Cadastrais
- Licitações

Produtos

- Algodão
- Amendoim
- Gergelim
- Mamona
- Pinhão Manso
- Sisal

Serviços

- Produção Científica
- Livraria Virtual
- Área Restrita

Acesso também

- Algodão Cor Natural Embrapa
- Revista Brasileira de Oleaginosas e Fibras

Ministério da Agricultura, Pecuária e Abastecimento

Embrapa

Embrapa Suínos e Aves

Embrapa Suínos e Aves

Produtos e Serviços

Pesquisa & Desenvolvimento

Informações Técnico-Científicas

Centro de Diagnóstico

Acesso Também

- Catálogo de Produtos e Serviços
- Incubação de agronegócios
- Memória da Embrapa
- Agência de Informação
- PAC Embrapa

Notícias Anteriores

- Inclusão Social será tema do Congresso de M
- Mestrado em Ciências Agrárias: uma parceria
- Gestão da Embrapa Algodão será avaliada em
- Embrapa Algodão participa de 1 Convenção d
- Eventos impulsionam a produção de biodies

NOTÍCIAS

[05/05/2010 - Embrapa Suínos e Aves conhece o Projeto Biomás] Um projeto que pretende aliar a produção agropecuária e a preservação do meio ambiente foi apresentado na manhã desta quarta-feira, dia 05 de maio, na Embrapa Suínos e Aves. O Projeto Biomás, parceria entre a Empresa Brasileira de Pesquisa Agropecuária (Embrapa) e a Confederação da Agricultura e Pecuária do Brasil (CNA), quer nos próximos nove anos mapear de que forma a agricultura e o meio ambiente podem se relacionar de forma sustentável em todas as regiões do Brasil. [ler mais]

[03/05/2010 - Lula recomenda "filé suíno"] Um dos momentos apreciados pelo Presidente Luiz Inácio Lula da Silva durante a visita à Embrapa, no Clência para a Vida, em Brasília/DF, na semana passada, foi a degustação de um filé suíno. Ele comeu e recomendou: "Gente, vocês precisam comer filé suíno – é muito bom!". O filé foi preparado e servido no estande da DF-SUIN, afiliada da Associação Brasileira de Criadores de Suínos (ABCS). [ler mais]

DESTAQUES

- [29/04/2010] Embrapa e Itaipu assinam projeto de cooperação para biogás
- [28/04/2010] Software para controle de dejetos permite tomada de decisões com mais eficiência
- [27/04/2010] Cartilhas e livros são lançamentos da Embrapa Suínos e Aves no Clência para a Vida
- [26/04/2010] Embrapa Suínos e Aves apresenta cisterna no Agrishow Ribeirão 2010
- [26/04/2010] Embrapa registra chuva de 90,1 milímetros


[ver todos]

A Embrapa Suínos e Aves está no twitter. Siga-nos!

skype Falar com a Embrapa ficou mais fácil. Clique e saiba mais!

Knowledge and Information Flows

Social Nets




Gado de Leite



REPILeite

Rede de Pesquisa e Inovação em Leite




Principal Minha página Membros Conteúdo interativo Sobre o RepiLeite

Quem somos

A Rede de Pesquisa e Inovação em Leite - REPILeite, é uma Rede Social temática que visa o debate de idéias sobre o setor leiteiro. O objetivo é que aqui sejam apresentados conteúdos relevantes deste setor tão importante para o País. Tudo isso com a interatividade que a Web 2.0 proporciona. Sejam todos bem vindos!

Vídeos



Prof. Marcos Marcondes fala sobre exigências nutricionais em gado de leite

Adicionado por Mariana Magalhães Campos



Fórum

Seleção em gado de leite 15 respostas
É de conhecimento geral a importância da escolha das características a serem selecionadas em programas de melhoramento genético. No entanto, a seleção em gado de leite no Brasil tem o foco em produção enquanto diversos países têm incluído outras car...
Iniciado por Glaucyana Gouvêa dos Santos. Última resposta de Bruno Dourado Valente 1 dia atrás.

Melhoria da Qualidade do Leite Brasileiro - Uma reflexão 9 respostas
De 21 a 24 de setembro de 2010, acontecerá em Florianópolis, Santa Catarina, o IV Congresso Brasileiro de Qualidade do Leite. Um dos importantes tópicos a serem discutidos será: "Instrução Normativa 51 - passado, presente e futuro: o que falta e o q...
Tag: 51, IN, qualidade
Iniciado por Leticia Caldas Mendonça. Última resposta de Leticia Caldas Mendonça 1. Dez, 2010.

Adiar ou não a última etapa da IN 51/2002? 5 respostas
A partir de julho deste ano, a Instrução Normativa 51/2002, do Ministério da Agricultura, Pecuária e Abastecimento, estabelecerá novos parâmetros para a qualidade do leite produzido no Brasil. Será a última etapa de implantação do processo, que se i...
Tag: 51, IN, leite, do, qualidade
Iniciado por Leticia Caldas Mendonça. Última resposta de Fernanda Carolina Ferreira 1 dia atrás.

Pecuária e Emissões de Gases de Efeito Estufa - Mitos e Realidades 4 respostas
O crescimento da população mundial e do seu poder aquisitivo tem promovido aumento acentuado da demanda por alimentos de origem animal. A produção mundial de carne está projetada para aumentar de 229 milhões de toneladas em 1999-2001 para 465 milhõe...
Tag: efeito, pecuária, gado, sustentabilidade, gás

Bem-vindo a Rede de Pesquisa e Inovação em Leite

Registre-se ou acesse

Google translator

Select Language

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Membros



Knowledge and Information Flows

Digital Libraries



Embrapa
Agroindústria Tropical

Acervo Digital das Publicações Editadas pela Embrapa Agroindústria Tropical

- **Sumário**
 - . Apresentação
 - . Linhas editoriais
 - . Créditos
- **Buscas**
 - . Por assunto
 - . Por autor
 - . Por série / tipo
 - . Por ano / título
 - . Por palavra-chave

A Embrapa Agroindústria Tropical iniciou suas atividades editoriais em 1988, um ano após sua criação, quando se denominava Centro Nacional de Pesquisa de Caju - CNPCa. Desde então, e até março de 2009, foram publicados 500 títulos nas séries da Embrapa (nas atuais e nas que foram descontinuadas), em folhetos e livros.

Para celebrar esse feito, todo o acervo, exceto livros, foi digitalizado e está disponível nesta ferramenta, cujos objetivos principais são ampliar a visibilidade dos documentos técnicos produzidos e reuni-los em uma mesma mídia, contribuindo, ainda, para resgatar a memória editorial da Unidade.

Em junho de 2011, a base de dados foi atualizada, com a adição de 53 títulos correspondentes às publicações editadas em 2009 (a partir de março) e 2010.

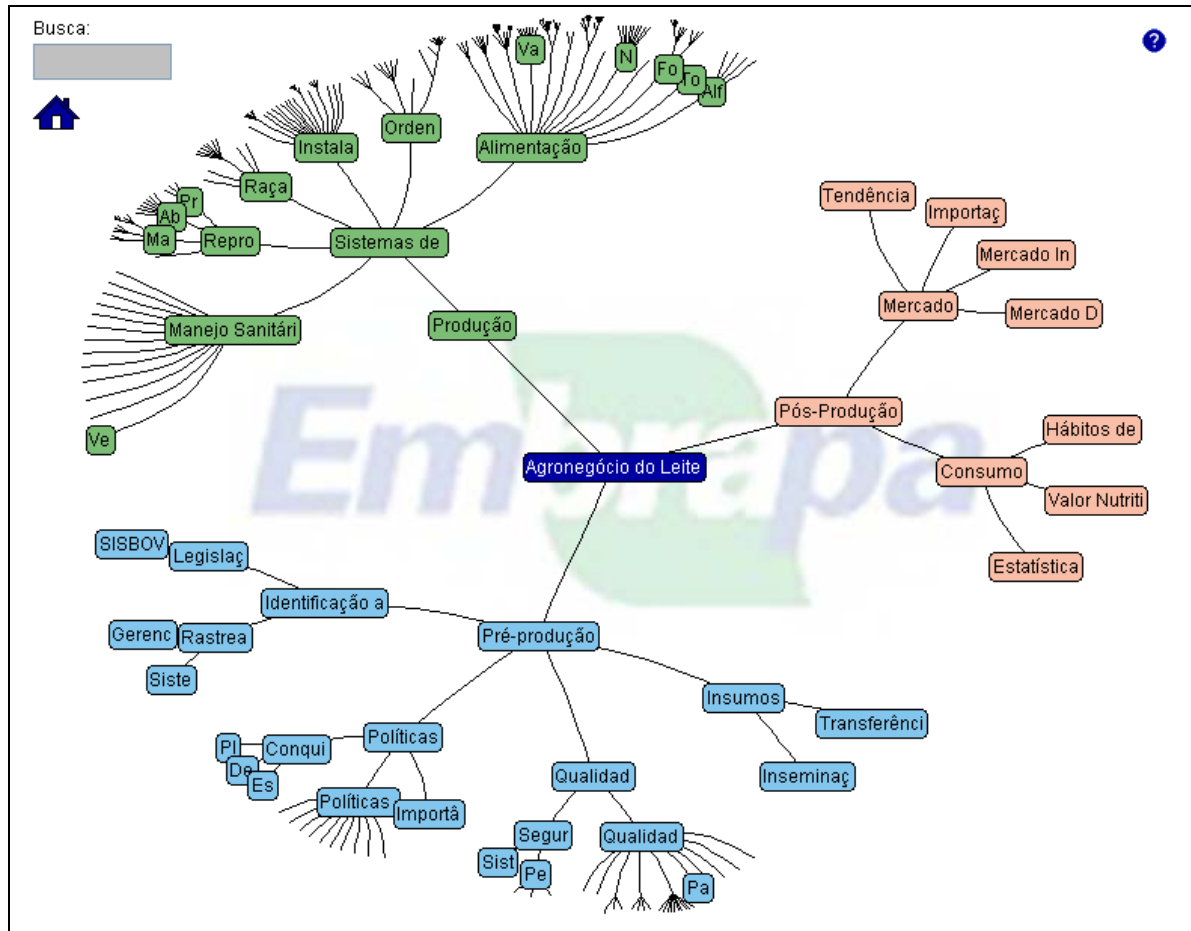
Para o usuário, a tarefa de recuperar a informação demandada é facilitada pela inclusão de cinco opções de busca. Todos os documentos disponibilizados estão no formato PDF (Portable Document Format). Para utilizar esta ferramenta, é necessário apenas que se disponha de um navegador web com JavaScript habilitado e um programa capaz de ler o formato PDF.

Sair do Acervo Digital

<http://www.cnpat.embrapa.br/cnpat/cd/Menu.html>

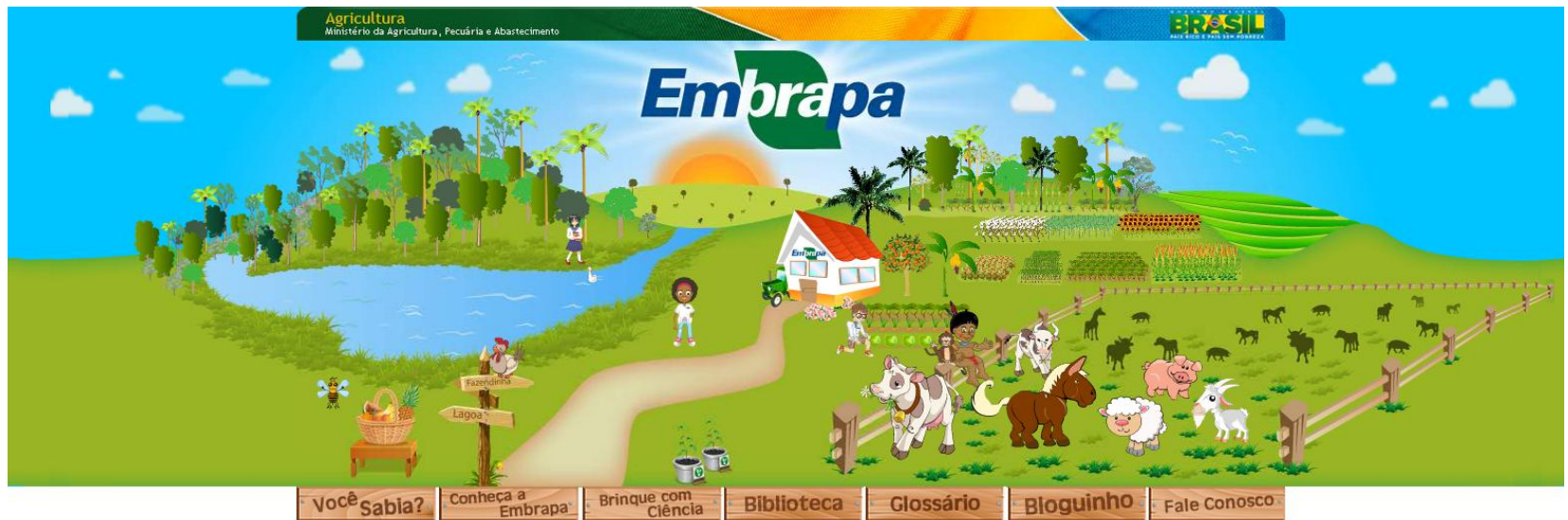
Knowledge and Information Flows

Digital Libraries



Knowledge and Information Flows

Educational Platforms



<http://ccw.sct.embrapa.br/>

Knowledge and Information Flows

Multimidia

The screenshot shows the website for the Ministry of Agriculture, Livestock and Food Supply (Ministério da Agricultura, Pecuária e Abastecimento). The main banner features the Embrapa logo and the slogan "Transferência de Tecnologia". Below the banner, there is a navigation menu with options: "Página Inicial", "Eventos", "Licitação", "Multimídia", "Produtos", and "Embrapa Institucional". A search bar is also present. The "Multimídia" section is highlighted, showing sub-links for "Vídeos", "Áudios", "Embrapa na Mídia", and "Contato". The main content area displays a large graphic with the text "NOSSAS VOZES" and a list of audio recordings:

- 7ª - Edição - março/2010**
- O programa entrevista a doutora em economia e professora da Universidade Federal Fluminense Hildete Pereira de Melo.
- 6ª - Edição - dezembro/2009**
- Aniversário com filósofo Leonardo Boff
- 5ª - Edição - setembro/2009**
- O programa entrevista Oswaldo Nascimento - Diretor de Recursos Humanos da IBM do Brasil.

On the left side, there is a sidebar with various links under the heading "Acesse também":

- Catálogo de Produtos e Serviços
- Agenda de Transferência de Tecnologia
- Conheça o SNT
- Vitrine de Tecnologias
- Cadastro do Produtor
- Proeta
- Institucional
- Nossas Vozes
- Prosa Rural

Knowledge and Information Flows

TV – Field Days Training Centers



The screenshot shows the website for the 'Dia de Campo na TV' program. The header includes the logo of the Ministério da Agricultura, Pecuária e Abastecimento and the Embrapa logo. The main banner features a camera on a tripod in a field, with the text 'Dia de Campo na TV' and '10 anos'. A navigation menu on the left lists various sections like 'Objetivo', 'Histórico', and 'Galeria de fotos'. The main content area includes the text 'O seu programa de informação tecnológica' and 'Confira aqui o tema do próximo programa'. Below this is a paragraph describing the program and a photograph of a television studio set.

Ministério da Agricultura, Pecuária e Abastecimento

Destaque do Governo

Mapa do Site Acessibilidade Contato

Embrapa

Dia de Campo na TV

Página Inicial Portal Embrapa Embrapa Informação Tecnológica

Você está aqui: Página Inicial Acessar

Navegação

- Objetivo
- Histórico
- Galeria de fotos
- Programação DCTV
- Videoteca Digital Embrapa
- Próximo programa
- Como participar
- Como sintonizar
- Prêmios
- Notícias
- Equipe
- Contato

Banners

 **Próximo DCTV**
Confira o próximo tema

 **Sistema Embrapa de Bibliotecas**

O seu programa de informação tecnológica

Dia de Campo na TV
10 anos

[Confira aqui o tema do próximo programa](#)

O Dia de Campo na TV, programa da Empresa Brasileira de Pesquisa Agropecuária (Embrapa), vinculada ao [Ministério da Agricultura, Pecuária e Abastecimento](#), é produzido pela Embrapa Informação Tecnológica, com sede em Brasília - DF, em parceria com as Unidades de pesquisa da Empresa e organizações estaduais de pesquisa.



Knowledge and Information Flows

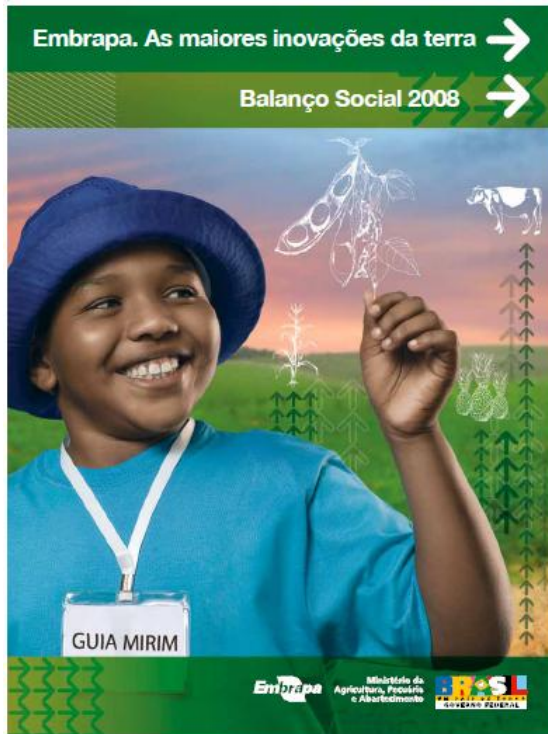


Fairs and Expos



Communication with Society

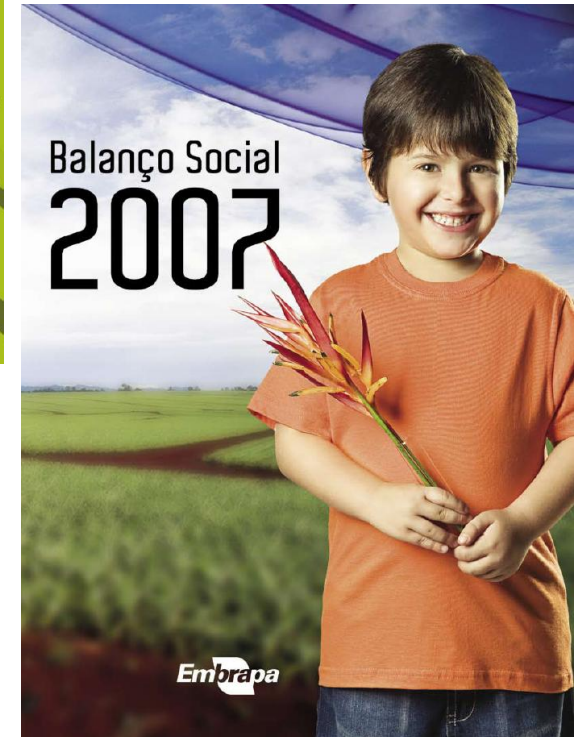
Stakeholders are members of “External Advisory Boards”, for all 47 EMBRAPA’s Research Centres



Embrapa publishes regularly its social balance

Every Brazilian Real (R\$) invested in Embrapa returns between R\$ 12 and R\$14 to the Brazilian society (US\$ 1.00 = R\$ 1.77).

The Social balance of Embrapa in the past 10 years amounts to US\$ 49.7 billion





International Cooperation



International Cooperation



- * Scientific Cooperation
- * Technical Cooperation
- * Technology Transfer

International Cooperation

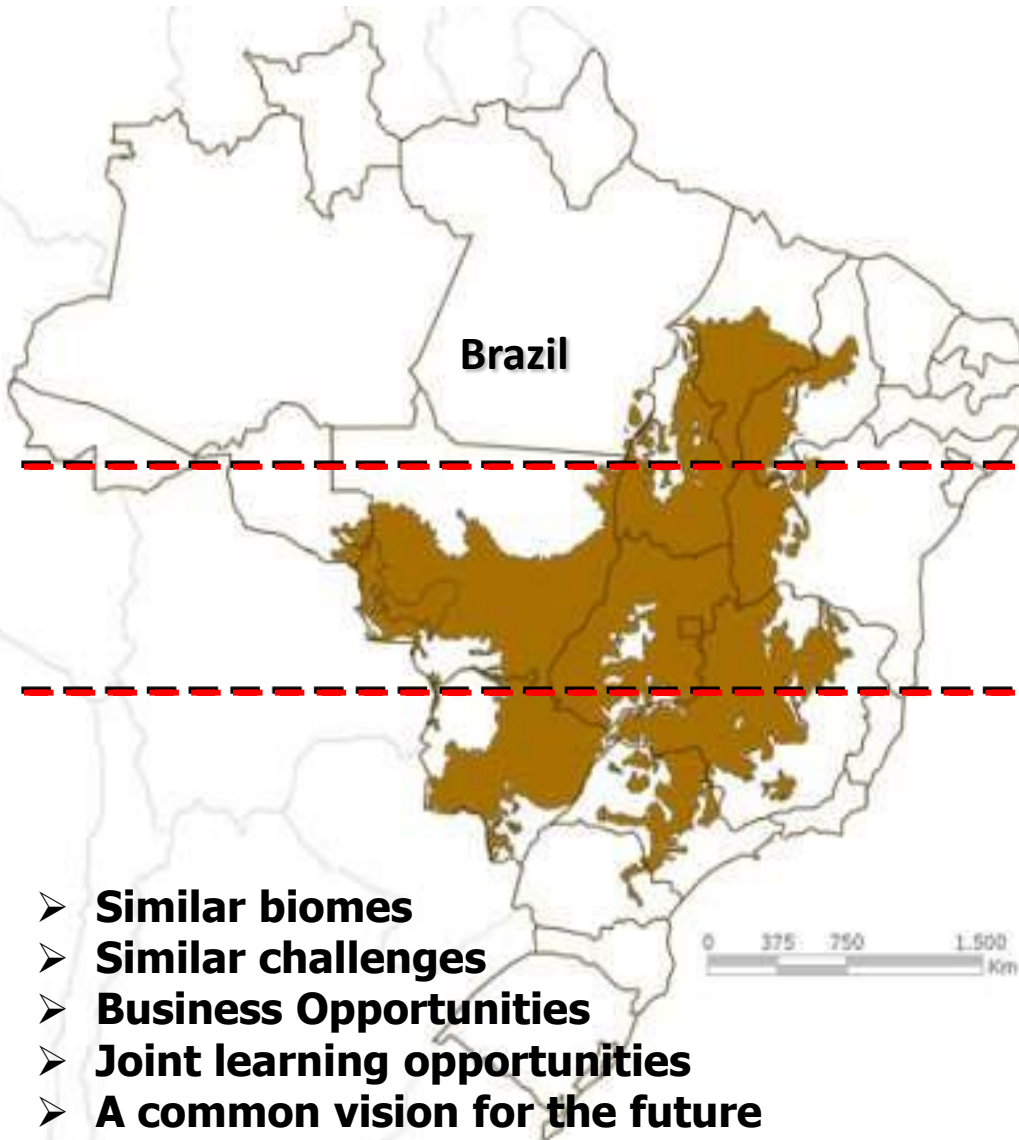


-  *Virtual laboratories*
-  *Projects abroad*

Structuring Projects in Africa

PRO SAVANNAH PROJECT - MOZAMBIQUE

Why NACALA Corridor?



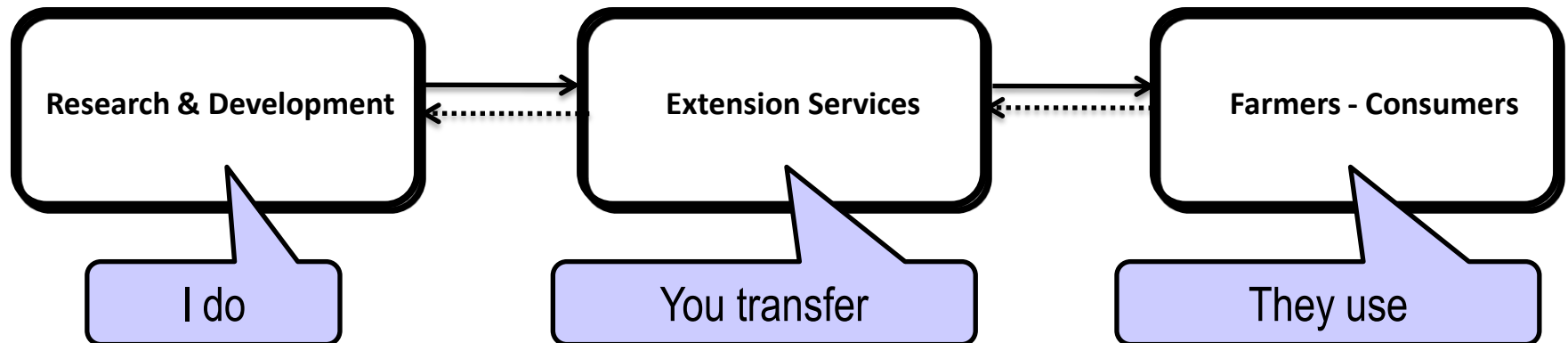
- **Similar biomes**
- **Similar challenges**
- **Business Opportunities**
- **Joint learning opportunities**
- **A common vision for the future**



Final Message

Final Messages

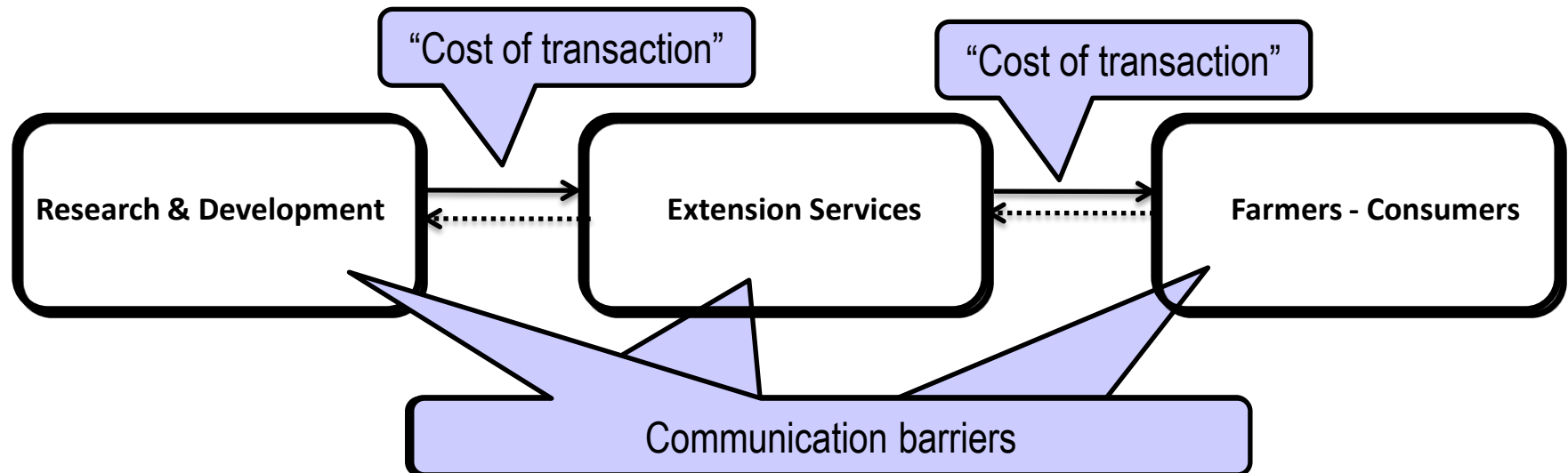
A linear, sequential strategy of agricultural R&D and extension services still dominate the configuration of most agricultural innovation systems around the world...



Final Messages

These linear, sequential models must evolve into more creative and interactive strategies. Agricultural innovation has to be understood as a continuum, from problem to solution...

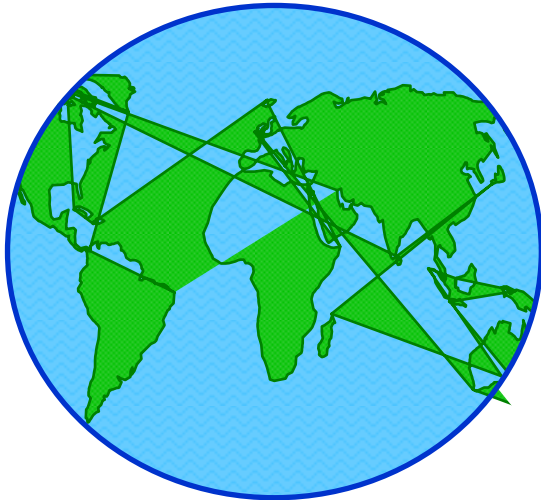
Complementarities, mix of capabilities and experiences, together with effective approaches to cooperation and networking must be viewed as key ingredients in developing this process.



Final Messages

Institutional Timing x Speed of Changes

Global Order?



Strategic Intelligence
& continuous foresight

Informed &
Demanding Society

Social nets



“Languages” & methods
Communication

Trans boundary
Challenges

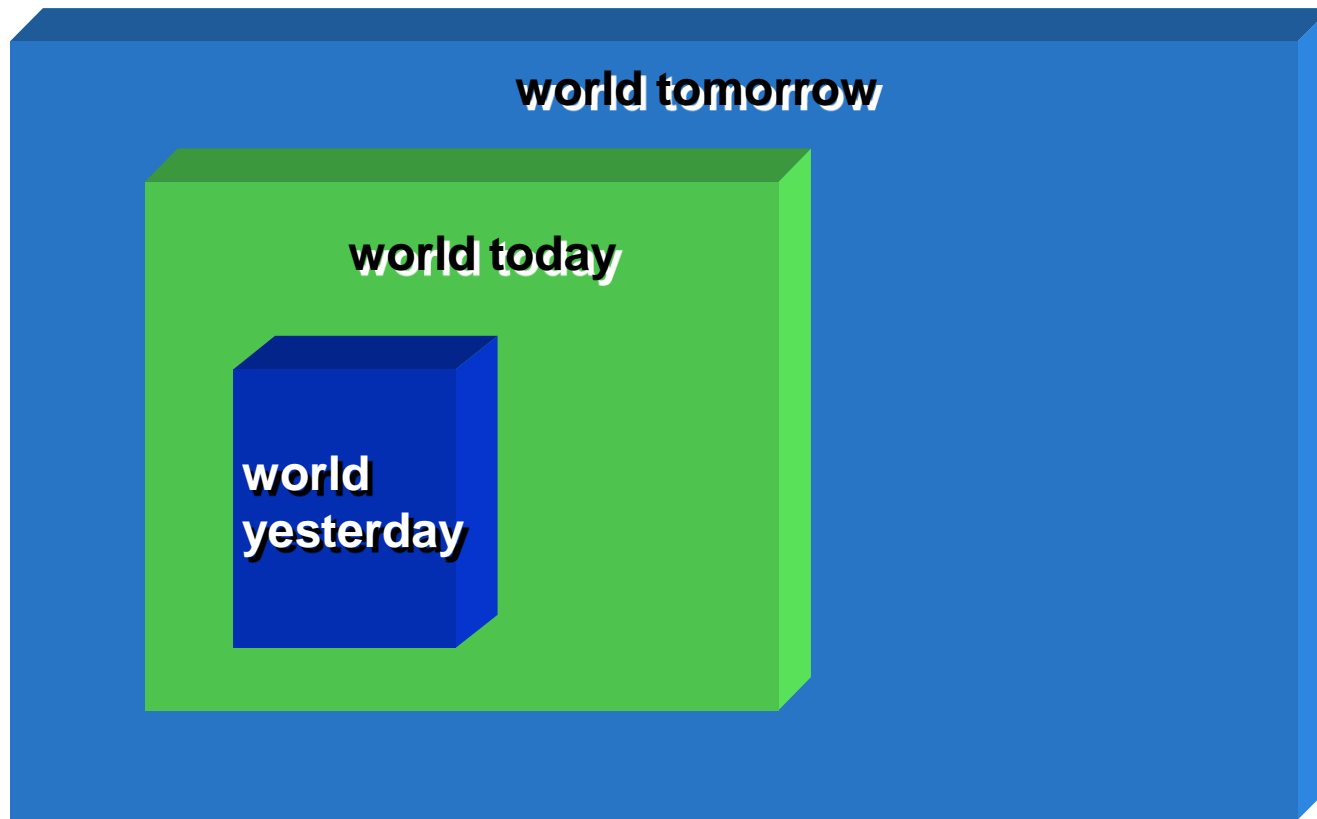


<http://www.gcric.org/USGCRP/forum/gifs/wheel55.gif>

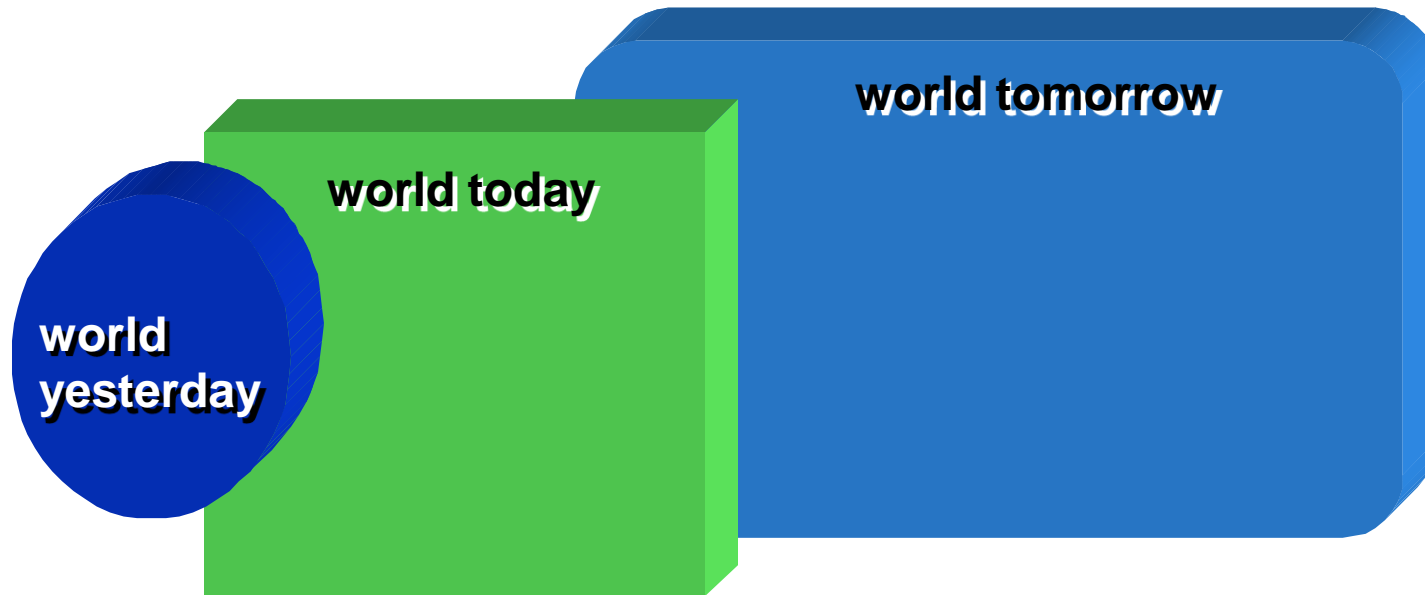
Effective approaches
to networking

Being Prepared for Change

Moving out of the gradual view of change...



Being Prepared for Change



**Success only to those able
to learn and innovate in a continuous manner.**

Mauricio Antonio Lopes, PhD
Brazilian Agricultural Research Organization
Executive Director – R&D
mauricio.lopes@embrapa.br
de.pd@embrapa.br

**Thank
You!**

Embrapa

