

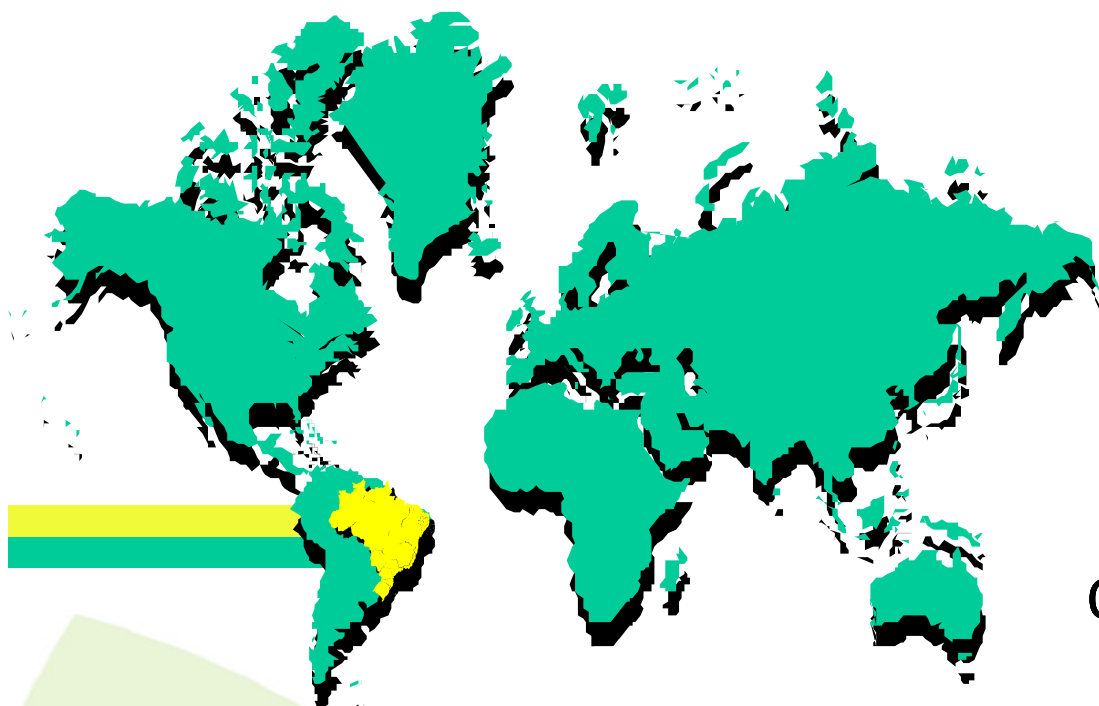
The Labex Experience



Ministry of Agriculture,
Livestock and Food Supply



The Labex Experience



Brazil & Embrapa

The Labex Concept

Starting Labex Korea

Opportunities and Challenges

Path to the Future...



There is a Brazil that most people know

Amazon forest



Soccer



Carnival



Coffee



It keeps being successful, but there is still more to know

The Brazil you must know



Technology, Innovation, Competitiveness

A strong academic base

10,000 doctorates every year

> 16,000 scientific papers

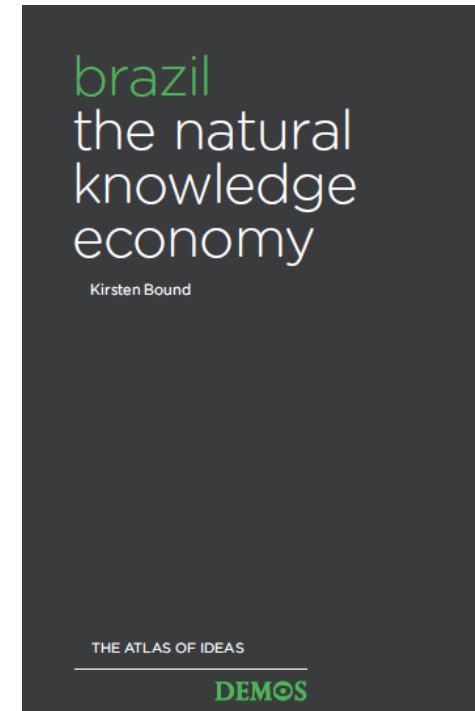
A growing intensity of industry R&D

The Brazil you must know



The Economist - Nov. 14-20, 2009

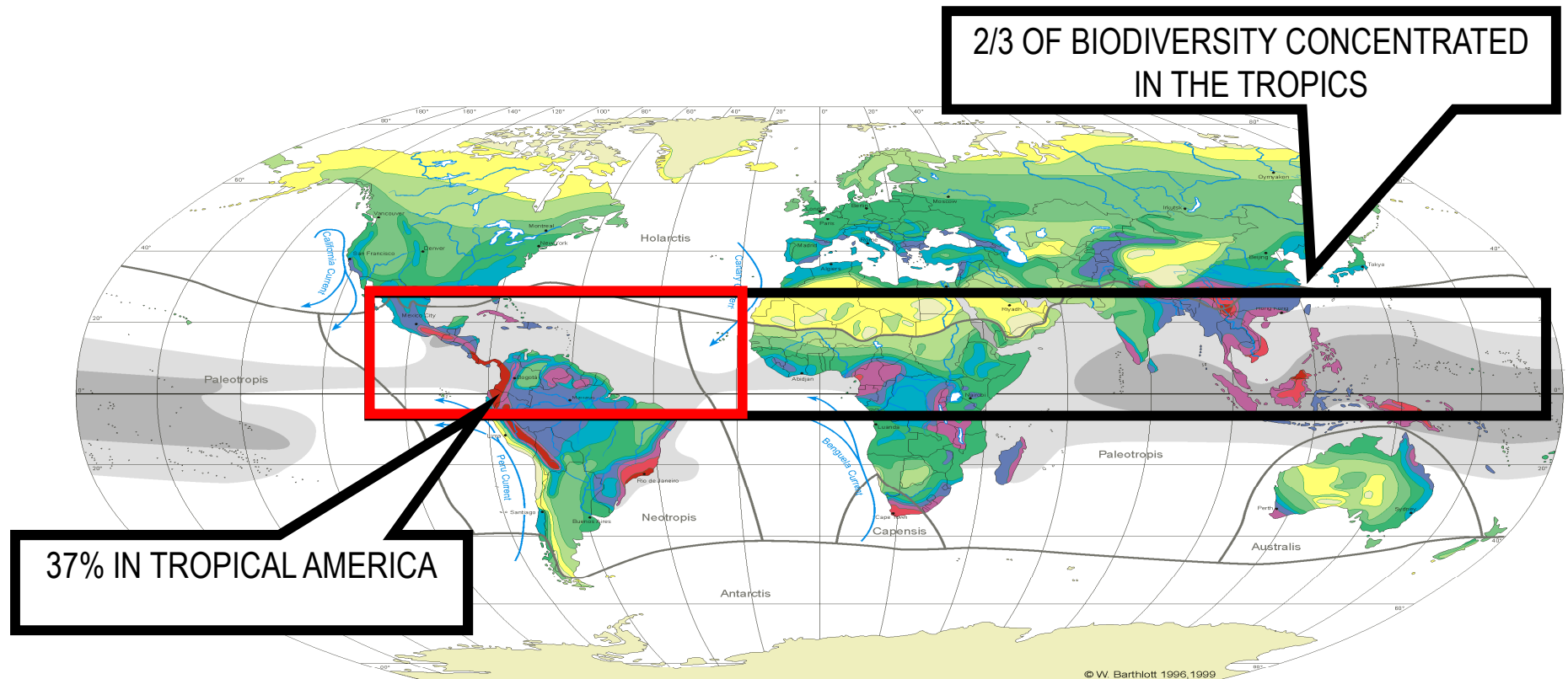
“A country with the world’s largest freshwater supplies, the largest tropical forests, fertile land that in some places allows up to three harvests a year, and huge mineral and hydrocarbon wealth.”



The Atlas of Ideas – Demos Institute, 2008

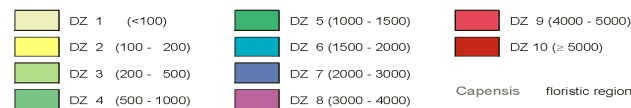
“It is helpful to think of Brazil as a ‘natural knowledge-economy’... its innovation system is in large part built upon its natural and environmental resources, endowments and assets.”

“Brazil: the natural knowledge economy”

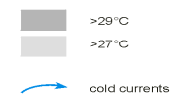


Robinson Projection
Standard Parallels 38°N und 38°S

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



sea surface temperature

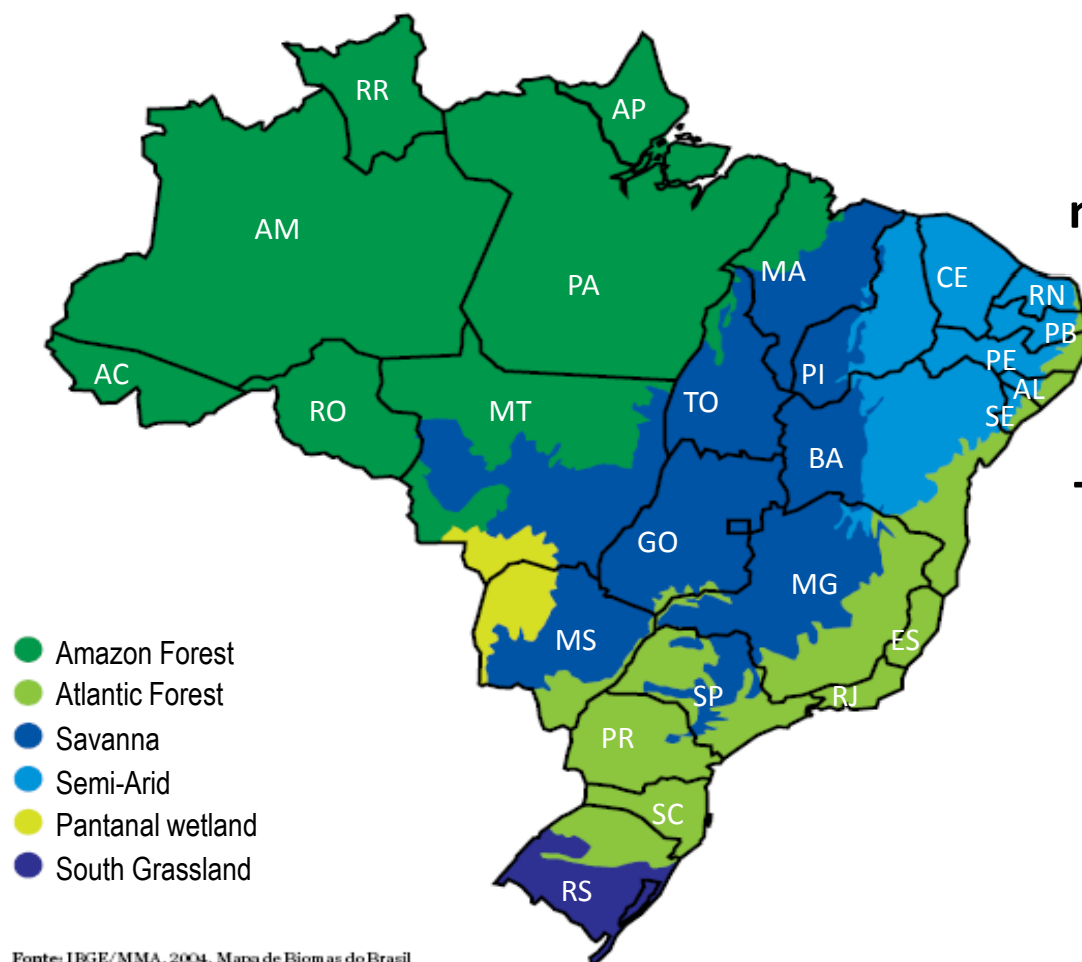


W. Barthlott, N. Biedinger, G. Braun, F. Feig, G. Kier, W. Lauer & J. Mutke 1999
modified after
W. Barthlott, W. Lauer & A. Placke 1996
Department of Botany and Geography
University of Bonn
German Aerospace Research Establishment, Cologne
Cartography: M. Gref
Department of Geography University of Bonn

“Brazil: the natural knowledge economy”



Brazilian Biomes: a rich natural resource base



Brazil has a total area of 850 million ha, most of it dedicated to conservation

The country has 388 million ha of highly productive arable land, 90 million of which have yet to be farmed

“Brazil: the natural knowledge economy”



Agribusiness in Brazil is driven by innovation

The Brazilian Agricultural Research Organization



Embrapa Network for R,D&I

- ✓ 41 Research Centres and Services Units
- ✓ 3 Virtual Laboratories Abroad (Labex)
- ✓ Offices for Technology Transfer:
14 in Brazil and 2 abroad (Africa and Venezuela)

North

- Embrapa Acre
- Embrapa Amapa
- Embrapa Western Amazon
- Embrapa Eastern Amazon
- Embrapa Rondonia
- Embrapa Roraima

Northeast

- Embrapa Mid-North
- Embrapa Tropical Semi-Arid
- Embrapa Coastal Tablelands
- Embrapa Goat and Sheep
- Embrapa Cassava & Tropical Fruits
- Embrapa Cotton
- Embrapa Tropical Agroindustry

Mid-West

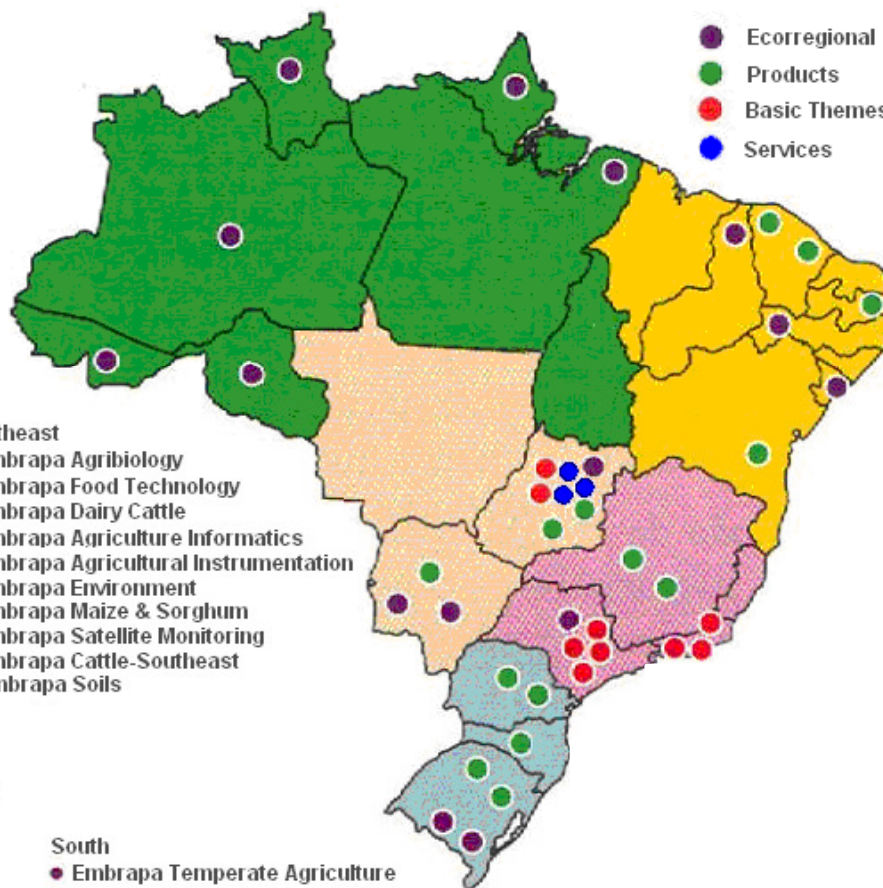
- Embrapa Agrienergy
- Embrapa Western Region Agriculture and Livestock
- Embrapa Rice & Beans
- Embrapa Coffee
- Embrapa Cerrados
- Embrapa Beef Cattle
- Embrapa Vegetables
- Embrapa Technological Information
- Embrapa Pantanal
- Embrapa Genetic Resources & Biotechnology
- Embrapa Technology Transfer

Southeast

- Embrapa Agribiology
- Embrapa Food Technology
- Embrapa Dairy Cattle
- Embrapa Agriculture Informatics
- Embrapa Agricultural Instrumentation
- Embrapa Environment
- Embrapa Maize & Sorghum
- Embrapa Satellite Monitoring
- Embrapa Cattle-Southeast
- Embrapa Soils

South

- Embrapa Temperate Agriculture
- Embrapa Forestry
- Embrapa South Animal Husbandry & Sheep
- Embrapa Soybean
- Embrapa Swine and Poultry
- Embrapa Wheat
- Embrapa Grape & Wine



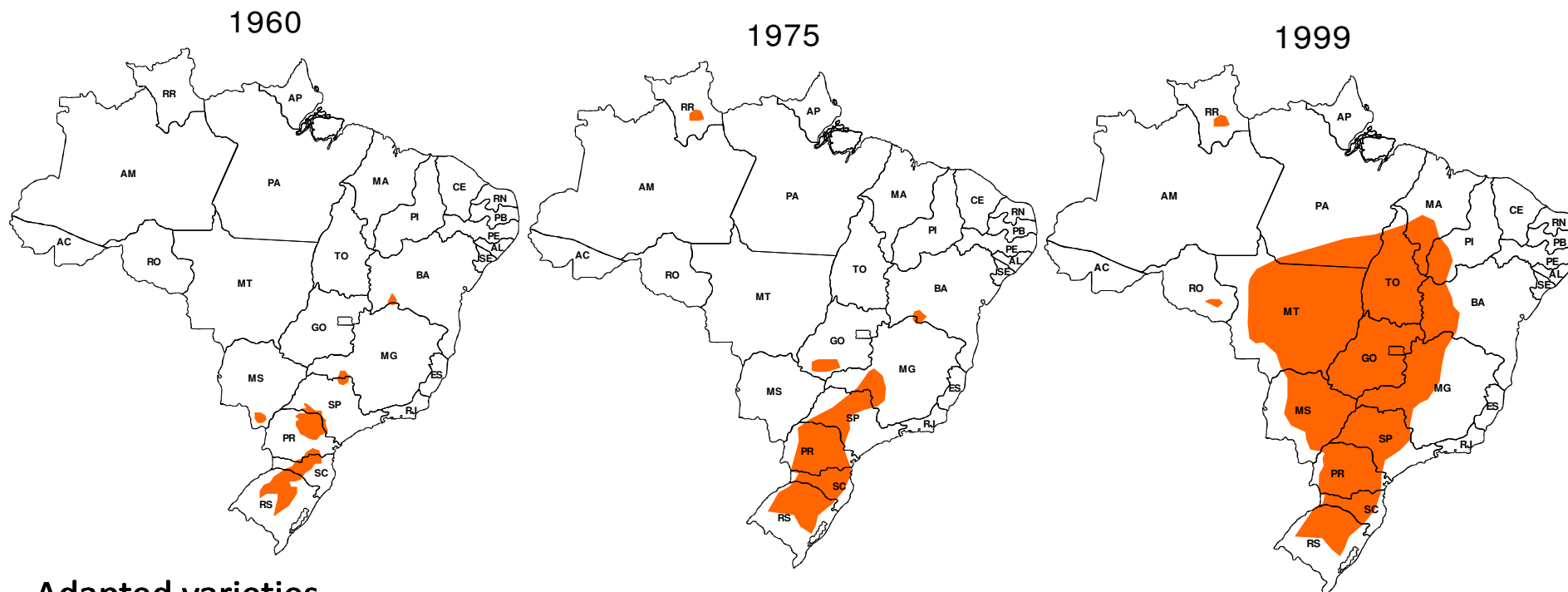
- Ecorregional
- Products
- Basic Themes
- Services

The Brazilian Agricultural Research Organization



Tropical soybeans

Technological evolution and crop expansion in Brazil



Adapted varieties

Biological fixation of nitrogen

Minimum tillage - mechanization

The Brazilian Agricultural Research Organization



- Varieties
- Hybrids
- Animal clones
- Germplasm
- Bioinsecticides
- GMOs
- Agricultural Machinery
- Equipaments
- Kits for diagnostics
- Vaccines

Products

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

Information

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

Processes

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

Services

R&D is the main driver of the Brazilian Agribusiness

Exports

In 2008 Brazil exported more than 1500 types of agricultural products to foreign markets

Commercial partners

Around 79% of the Brazilian food production is consumed domestically and 21% is shipped to over 212 foreign markets

<u>Product</u>	<u>Production</u>	<u>Exports</u>
Sugar	1st	1st
Orange juice	1st	1st
Coffee	1st	1st
Beef	2nd	1st
Soybean	2nd	1st
Tobacco	3rd	1st
Broiler	3rd	2nd
Corn	3rd	4th

Source: SPA/MAPA (Agricultura Brasileira em Números)



International Cooperation is Key to Embrapa



Our Belief

As the world becomes more interconnected and challenges become more complex, it will be increasingly necessary to work through intense cooperation.

President Lula: “The Internationalization of Embrapa is a State Policy”

September 11, 2009 · Leave a Comment



Source: Embrapa

The Brazilian President Luiz Inácio Lula da Silva welcomed the new President of Embrapa during the inauguration ceremony, last July. He said that “the mark of Embrapa has always to be the technical expertise, no other” and that “Brazil is a plural country and Embrapa has to be plural and capable to attend many, as well as to increase its

contribution to the world.” President Lula spoke about the expectations for the new management and one of his most emphatic remarks was that “the internationalization of Embrapa is not only a desire for the government, but a state policy, which will be a constant in the future.” Read more (in Portuguese) [here](#).

<http://labexkorea.wordpress.com/>

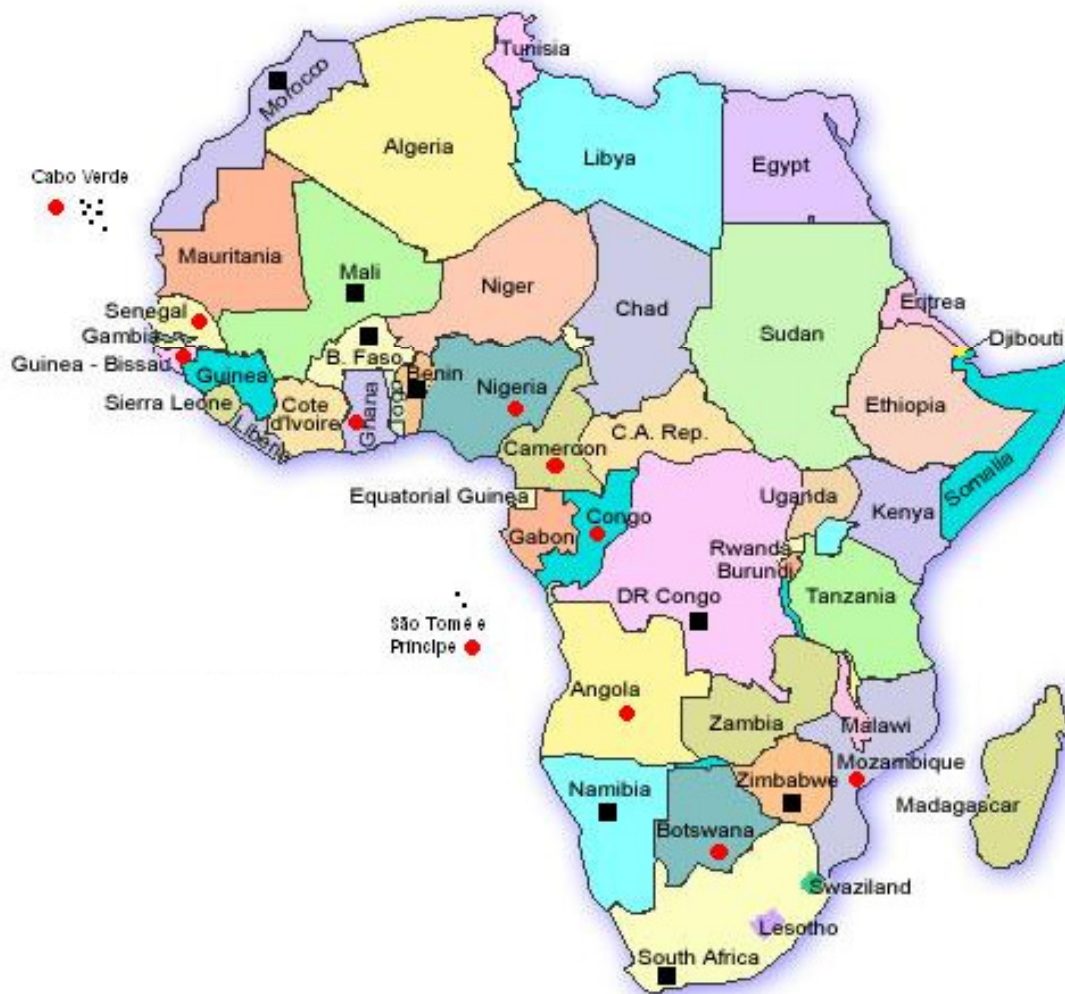
International Cooperation is Key to Embrapa



Embrapa Africa

Technology transfer office in Accra, Ghana since November 2006

- 11 agreements and ongoing projects in several African Countries
- 8 agreements and projects being negotiated



International Cooperation is Key to Embrapa



Embrapa Latin America

Technology transfer office in
Caracas, Venezuela, since May
2008

- 11 Agreements and ongoing projects in Latin American countries

Embrapa Americas will be soon
opened in Central America -
Panama

Labex – cooperation in cutting-edge agricultural R&D



Embrapa has developed more than a decade ago the concept of “Virtual Laboratories Abroad” – Labex, as means of increasing its scientific and technological ties with advanced research organizations around the world.

Embrapa Network for R,D&I

- ✓ 41 Research Centres and Services Units
- ✓ 3 Virtual Laboratories Abroad (Labex)
- ✓ Offices for Technology Transfer: 14 in Brazil and 2 abroad (Africa and Venezuela)

North

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- Embrapa Amapa
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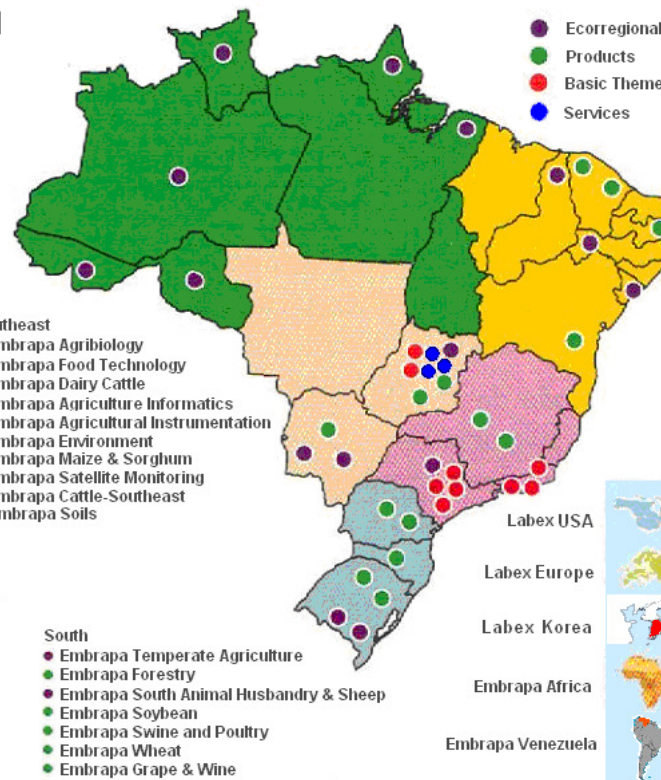
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- Embrapa Swine and Poultry
- Embrapa Wheat
- Embrapa Grape & Wine

- Ecorregional
- Products
- Basic Themes
- Services



Labex USA
1998

Labex Europe
2002

Labex Korea
2009

The Embrapa Labex Program



“Labex Role”

To bring the international dimension to the innovation process

Monitoring trends in S&T and opportunities of cooperation

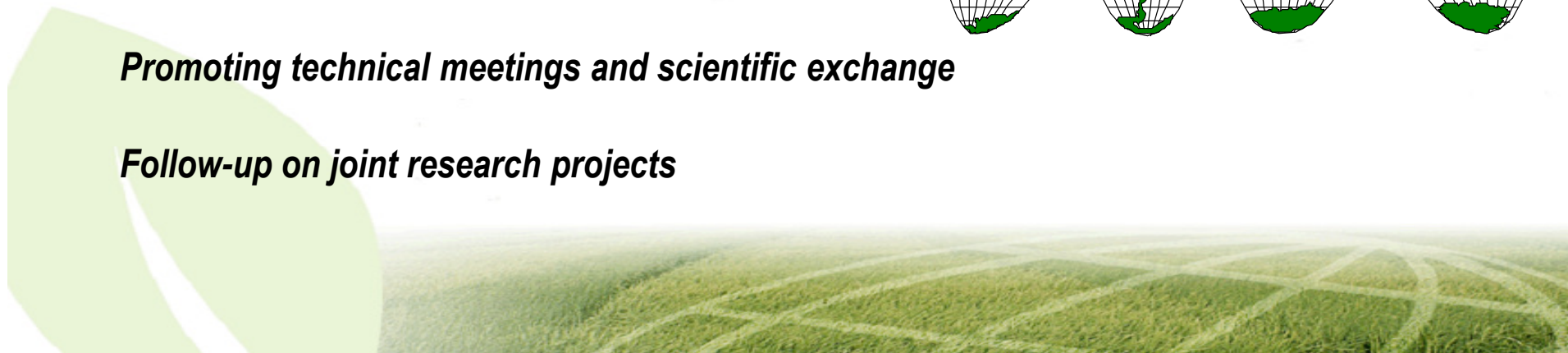
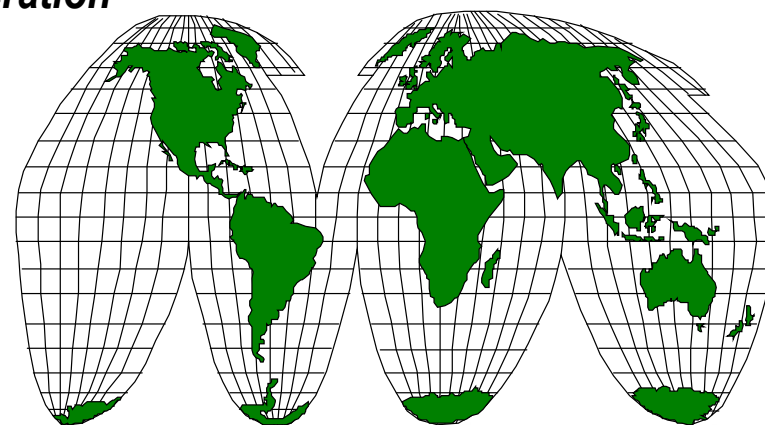
Promoting collaborative projects in strategic areas

Facilitating exchanges of scientists

Identifying training opportunities

Promoting technical meetings and scientific exchange

Follow-up on joint research projects



The Embrapa Labex Program



“The Labex Impact”

International networking - cutting-edge research - capacity building - access knowledge
access new funds and tools - increased visibility - dialogue in international fora, etc,etc...

“Advanced Biology”

“Applied Nanotechnology”

“Food Safety”

“Genetic Resources”

“Agro-energy”

“Animal Health”

“Climate Change”

“Precision Agriculture”

“Food Processing”

“Forestry”

“Natural Resource Management”

“Functional Foods”

“Intellectual Property”

The Embrapa Labex Program



“Why expand the Labex Program to Asia?”



Expanding the Labex Program to Asia



It makes sense!



The Economist - Nov. 14-20, 2009



The Economist - Aug. 17, 2009

Expanding the Labex Program to Asia



We have convergent and synergistic objectives!



“Brazil”

Economy intensive in knowledge, natural resources and “drive” towards a better future

“Asia”

Economies intensive in knowledge, capital and “drive” towards a better future



Expanding the Labex Program to Korea



South Korea has a wealth of knowledge and experience!

Korea (5000 Years)

www.korean-arts.com/timeline



Brazil (500 Years)



Expanding the Labex Program to Korea



South Korea has a strong R&D capacity...

A screenshot of the Rural Development Administration (RDA) website. The header features the RDA logo and the text 'RURAL DEVELOPMENT ADMINISTRATION'. A navigation menu on the left lists: Administrator's Message, Successive Chief, Agenda, Responsibility, Organization, Personnel, Introduction, Research Highlight, Location, and Link Site. The main banner image shows a traditional Korean tiled roof with the text 'Development of Science and Technology for the Korean Agriculture and Beyond' overlaid. A small green plant icon is visible in the bottom left corner of the website screenshot.

... and a pragmatic view on cooperation

<http://www.rda.go.kr>



Expanding the Labex Program to Korea



RDA has a strong emphasis in international cooperation!

A two-way collaboration

Last March, Dr. Boh-Suk Yang, a scientist in animal reproduction from RDA arrived in Brazil to install the RDA-Abroad Virtual Laboratory (RAVL) at Embrapa's headquarter, in Brasilia;

He is working in partnership with our Genetic Resources and Biotechnology Center, also in Brasilia.

A screenshot of the Embrapa website showing a news article. The page header includes the Ministry of Agriculture, Livestock and Food (Ministério da Agricultura, Pecuária e Abastecimento) and the Embrapa logo. The article title is "Coréia inicia a implantação de laboratório virtual na Embrapa" (Korea begins the implementation of a virtual laboratory in Embrapa), dated 24/03/2009. The text describes the arrival of Dr. Boh Suk Yang from RDA to establish the RAVL (RDA-Abroad Virtual Laboratory) at Embrapa's headquarters in Brasília. It mentions that RAVL is similar to the Labex program and is a result of an agreement between Embrapa and RDA. The article also includes a photo of Claudio Bezerra and a search bar on the right side of the page.

Ministério da Agricultura, Pecuária e Abastecimento Destaque do Governo

Empresa Brasileira de Pesquisa Agropecuária

A Embrapa no Brasil e no Exterior

Página Inicial | Mapa do Portal | English | Español

A Embrapa Imprensa Publicações Bibliotecas

Você está aqui: Página Inicial → Imprensa → Notícias → 2009 → Março → 4ª semana → Coréia inicia a implantação de laboratório virtual na Embrapa

Coréia inicia a implantação de laboratório virtual na Embrapa (24/03/2009)

O pesquisador coreano, Boh Suk Yang, da RDA - Agência de Desenvolvimento Rural da Coréia, já está em Brasília, onde vai trabalhar na criação do **RAVL** - laboratório virtual da RDA dentro da Embrapa - Empresa Brasileira de Pesquisa Agropecuária.

O **RAVL** é similar ao Labex, laboratório que a Embrapa mantém no exterior (Europa - Holanda, França e Reino Unido - e EUA) para desenvolver pesquisas em parceria com esses países em diversas áreas relacionadas à agropecuária.

A criação do laboratório virtual coreano é resultado de um acordo

Claudio Bezerra

Enquete

Você já comprou algum produto na Livraria Embrapa? <www.sct.embrapa.br/liv>

Sim, já adquiri produtos no site.

Já acessei, mas nunca comprei.

Nunca visitei o site.

Vote Mais enquetes...

<http://www.embrapa.br/imprensa/noticias/2009/marco/4a-semana/coreia-inicia-a-implantacao-de-laboratorio-virtual-na-embrapa/?searchterm=ravl>

Expanding the Labex Program to Korea



RDA has strong emphasis in international cooperation!



Labex Korea - Vision

“Our vision of future impact of Labex - RAVL”

International networking - cutting-edge research - capacity building - access knowledge
increased funding - increased visibility - dialogue in international fora, etc,etc...

“Agroecology”

“Animal Science”

“Genetic Resources”

“Agro-energy”

“Advanced Biology”

“Applied Nanotechnology”

“Climate Change”

“Environmental Sciences”

“Animal Health”

“Botanic”

“Food Health”

“Engineering / automation”

“Food Processing”

“Functional Foods”



Labex Korea - Opportunities



“The Labex Portfolio”



- Cooperation between the Genetic Resources and Biotechnology Center of Embrapa and the **National Institute of Horticultural and Herbal Sciences – Mushroom Research Division** – Support from the Kopia Program
- Cooperation between the Agronomic Institute of Campinas - Brazil and the **Chungcheongnam-do Agricultural Research and Extension Service** in Biofuel Crops – Dr. Seo, Jeonghak
- Possibility of training graduate students in South Korea with support from CNPq **The National Council for Scientific and Technological Development**, an agency linked to the Ministry of Science and Technology (MCT).
- Dialogue with **KAIST** – the **Korea Advanced Institute of Science and Technology** and other agencies for advanced training in Korea
- Dialogue with **KIER** – the **Korea Institute of Energy Research** towards cooperation in agroenergy research
- Dialogue with **KRIBB** – The **Korea Research Institute of Bioscience and Biotechnology** on biodiversity research



Labex Experience - Challenges



- Personal characteristics and habilities
- Cultural and institutional diversity
- Time to build trust between partners
- Delays in institutional reactions
- Continuity of relations after researcher is changed
- ...

“Communication” is a major challenge in cooperation programs like Labex




Labex Korea – New Tools of Communication



FRONT PAGE [ABOUT LABEX](#) ADDRESS PARTNERS EDITOR


Embrapa Labex Korea Brazil-Asia Cooperation in Agricultural Research

About Labex

 The Labex program is unique in several important aspects. From its inception it has been designed as a two-way collaboration, with both countries benefitting from the cooperation. Labex-USA was the first to be established by Embrapa, in 1998, with the US Department of Agriculture's (USDA) Agricultural Research Service (ARS). The second Labex opened in 2002 at Agropolis International in Montpellier, France and later expanded to Netherlands and UK, becoming Labex Europe. After more than a decade, the Labex Program has produced impressive outputs. The scientists of Labex have helped develop several new collaborative projects with American, French and other European labs. The networking, visibility and attractiveness of Labex have also allowed exchange of many Brazilian and foreign scientists, with substantial increase in the dynamics of exchange, short and long term training and interactions between Brazilian and partner countries teams and labs. The participation of Embrapa and its partner organizations in international programs has been strengthened through the Labex Program, as has the production of publications and organization of international events and meetings.

How it works

EMBRAPA LABEX

 The concept of Virtual Laboratory – or Labex, was created by the Brazilian Agricultural Research Organization, Embrapa, as means of increasing its scientific and technological ties with advanced research organizations around the world. Instead of building its own platform abroad, Embrapa uses the concept of virtual lab, or lab without walls, to negotiate access to its partner organizations' existing facilities. The concept, which has been tested and validated in the United States and in Europe, is now being extended to Asia, in partnership with the Rural Development Administration – RDA, of South Korea. More [here](#).

PARTNERS

[Rural Development Administration](#)
[Brazilian Agricultural Research Corporation](#)

The weblog of Labex

Improve communication with our partners here at RDA, in South Korea and in other Asian countries

Disseminate information about the Labex Program and increase the level of mutual knowledge Embrapa-RDA

Reach out to a larger audience – communication based on face-to-face and one-to-one interaction is important, but limited at the beginning of a program such as Labex Korea

<http://labexkorea.wordpress.com/>

Labex Korea – New Tools of Communication



The weblog of Labex

Disseminating information about Embrapa-RDA cooperation

FRONT PAGE ABOUT LABEX ADDRESS PARTNERS EDITOR

Brazil-Asia Cooperation in Agricultural Research

Embrapa Labex Korea

← [Agricultural Research in Brazil – part II](#) [“Brazil – The Natural Knowledge Economy”](#) →

Embrapa is part of the RDA Overseas Honorable Researcher Program

November 21, 2009 · [Leave a Comment](#)

Twenty three Embrapa researchers have been recognized by the Rural Development Administration (RDA) of South Korea for the international importance of their scientific work. They are now part of the Overseas Honorable Researcher Program, which identifies foreign researchers with major accomplishments in areas and themes of interest for cooperation and exchange with South Korea. The article below, published in the webpage of [Embrapa](#), describes the process and identifies the Embrapa nominees.

<http://labexkorea.wordpress.com/>

EMBRAPA LABEX

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Labex Korea – New Tools of Communication




FRONT PAGE ABOUT LABEX ADDRESS PARTNERS EDITOR

Embrapa Labex Korea Brazil-Asia Cooperation in Agricultural Research

ENTRIES CATEGORIZED AS 'BRAZIL KOREA COOPERATION'

Brazil, Korea emerging together
September 6, 2009 · Leave a Comment




Source: The Korea Herald

The Korea Herald published on September 6th an interview with the Brazilian Ambassador in South Korea, Mr. Edmundo Fujita. According to him, there are many areas where Korea and Brazil can work together, especially bioenergy and agroindustry. “We already have some beginnings there” and “research institutes in both countries are already cooperating in several programs”, he said. The full article can be seen at the [Korea Herald](#) web link.

Brazilian Ambassador Edmundo Fujita.

Categories: Brazil Korea Cooperation

EMBRAPA LABEX



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PARTNERS

[Rural Development Administration](#)
[Brazilian Agricultural Research Corporation](#)

The weblog of Labex

Disseminating information about Brazil-Korea cooperation

<http://labexkorea.wordpress.com/>

Labex Korea – New Tools of Communication



The weblog of Labex

Announcing meetings and activities of common interest

The screenshot shows the homepage of the Labex Korea weblog. At the top, there is a navigation menu with links for 'FRONT PAGE', 'ABOUT LABEX', 'ADDRESS', 'PARTNERS', and 'EDITOR'. Below the menu is a red banner with the Embrapa logo on the left, the text 'Labex Korea' in the center, and 'Brazil-Asia Cooperation in Agricultural Research' on the right. A world map is visible in the background of the banner. Below the banner, there is a link to a previous post: '← "Brazil – The Natural Knowledge Economy" A momentous transformation in Brazil →'. The main content area features a post titled 'Food and Agricultural Applications of Nanotechnologies' dated 'December 6, 2009 · Leave a Comment'. Below the title is a green banner for the 'International Conference on Food and Agricultural Applications of Nanotechnologies 2010'. The text of the post describes the conference, which will be held in São Carlos, SP, Brazil from June 20 to 25, 2010. To the right of the main content, there is a sidebar with the heading 'EMBRAPA LABEX' and a paragraph explaining the concept of a Virtual Laboratory. Below this, there is a 'PARTNERS' section with links to 'Rural Development Administration' and 'Brazilian Agricultural Research Corporation'.

FRONT PAGE ABOUT LABEX ADDRESS PARTNERS EDITOR

Embrapa Labex Korea Brazil-Asia Cooperation in Agricultural Research

← "Brazil – The Natural Knowledge Economy" A momentous transformation in Brazil →

Food and Agricultural Applications of Nanotechnologies

December 6, 2009 · Leave a Comment

International Conference on Food and Agricultural Applications of Nanotechnologies 2010

The I International Conference on Food and Agricultural Applications of Nanotechnologies, which will be held in São Carlos, SP, Brazil from June 20 to 25, 2010. New and emerging applications of nanotechnologies in food and agriculture and issues related to their use will be the focus of this Conference. In addition to exploring relevant scientific and technological advances, the Conference will also seek to highlight areas of research with the greatest potential to benefit society.

EMBRAPA LABEX

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PARTNERS

[Rural Development Administration](#)
[Brazilian Agricultural Research Corporation](#)

<http://labexkorea.wordpress.com/>

Thank You - 감사합니다

labex.korea@ymail.com



Embrapa



Embrapa Labex Korea
Brazilian Agricultural Research Corporation – Embrapa
Rural Development Administration – RDA

Mauricio Antonio Lopes, Ph.D.
Scientist – Coordinator

International Technology Cooperation Center - ITCC
Rural Development Administration - RDA
250 Seodun-dong, Gwonseon-gu, Suwon 441-707, Republic of Korea
Office: 82-(0)31-299-1099 / Fax: 82-(0)31-293-9359
labex.korea@ymail.com <http://labexkorea.wordpress.com>



Embrapa



브라질 농업연구청 아시아협력연구센터
Embrapa Labex Korea
Brazilian Agricultural Research Corporation – Embrapa

마우리시오 안토니오 로페스
농학박사, Labex 상주조정관

농촌진흥청 국제농업기술협력센터
(441-707) 경기도 수원시 권선구 서둔동 250
사무실: 82-(0)31-299-1099 / 팩스: 82-(0)31-293-9359
labex.korea@ymail.com <http://labexkorea.wordpress.com>