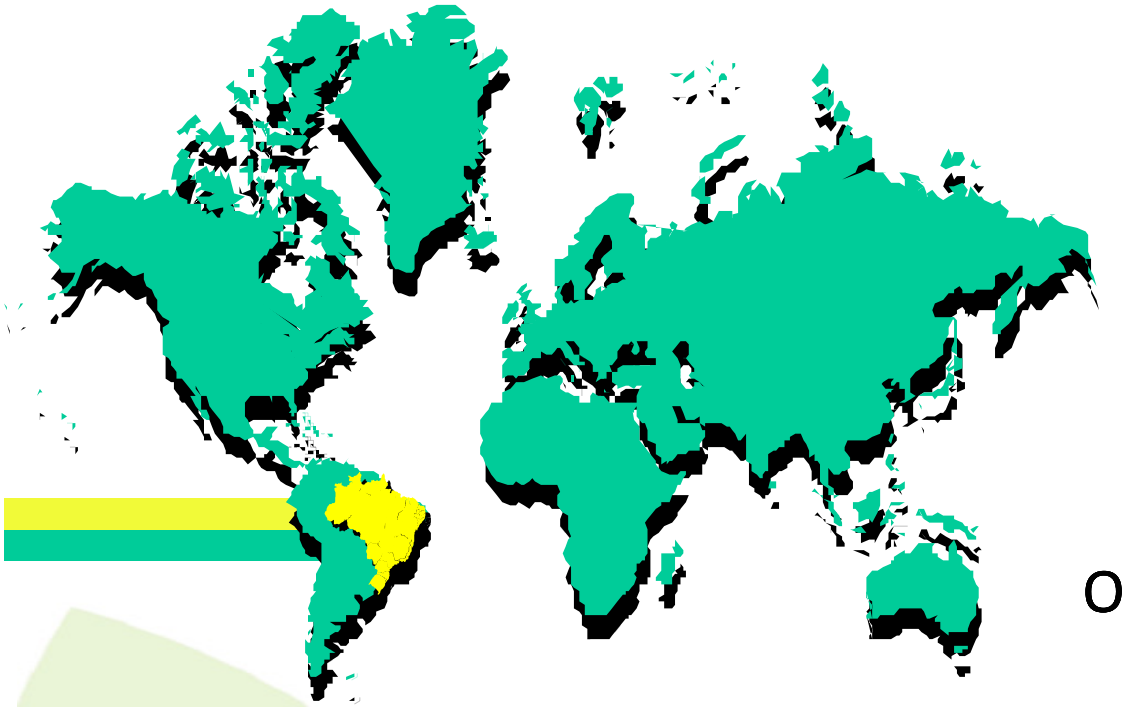
The Labex Experience

Embrapa

Ministry of Agriculture,
Livestock and Food Supply

BRASIL
BRAZILIAN GOVERNMENT

The Labex Experience



Brazil & Embrapa

The Labex Concept

Starting Labex Korea

Opportunities and Challenges

Path to the Future…

Source: MDIC

There is a Brazil that most people know

Amazon forest

Soccer

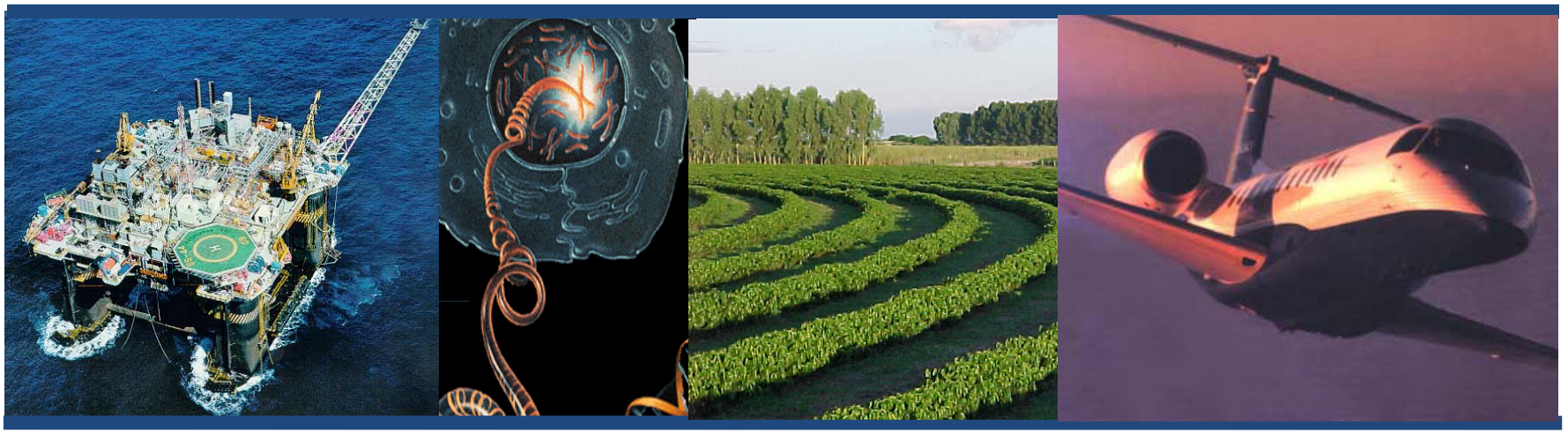
Carnival

Coffee

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

Source: modified from MDIC

The Brazil you must know



Technology, Innovation, Competitiveness

A strong academic base

10,000 doctorates every year

> 16,000 scientific papers

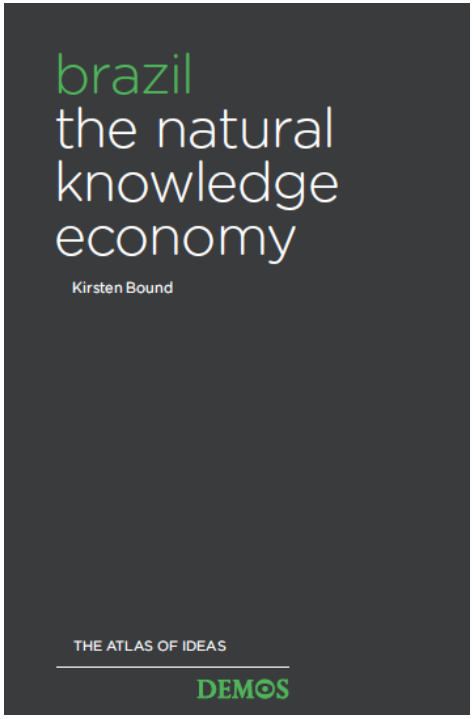
A growing intensity of industry R&D

Source: modified from MDIC

The Brazil you must know

The Economist - Nov. 14-20, 2009

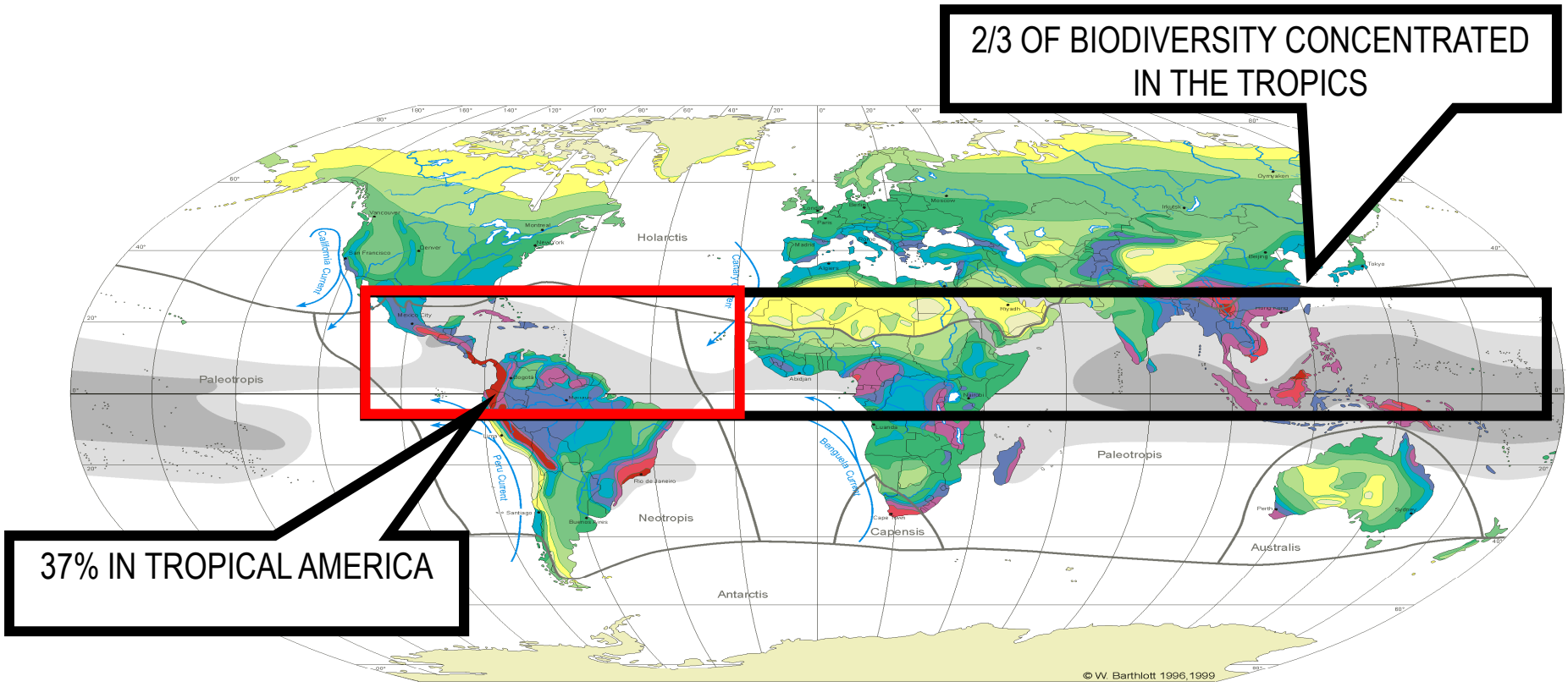
"A country with the world's largest freshwater supplies, the largest tropical forests, fertile land that in some places allows up to three harvests a year, and huge mineral and hydrocarbon wealth."



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."

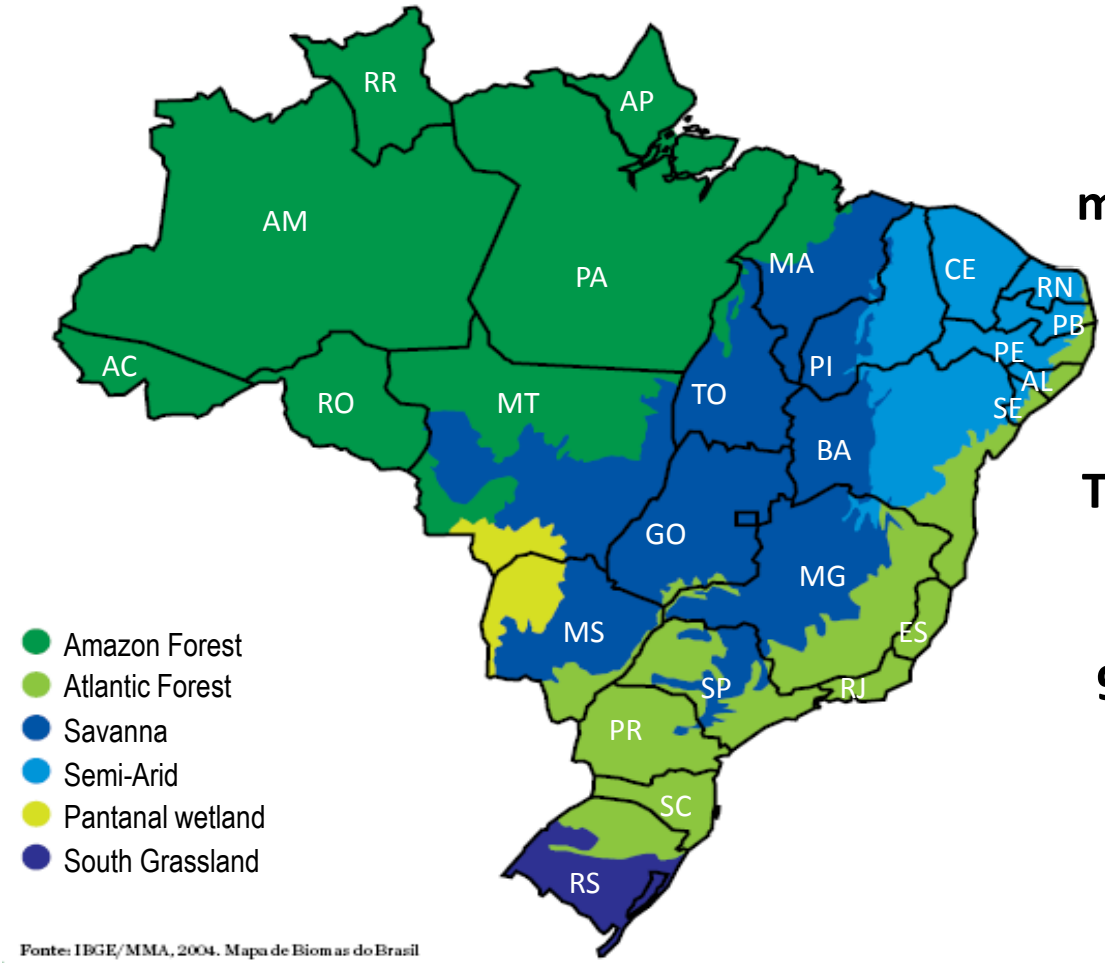
“Brazil: the natural knowledge economy”



Barthlott, W., Biedinger, N., Braun, G., Feig, F., Kier, G. & J. Mutke (1999): Terminological and methodological aspects of the mapping and analysis of global biodiversity. In: Acta Botanica Fennica 162: 103-110.

“Brazil: the natural knowledge economy”

Brazilian Biomes: a rich natural resource base



Fonte: IBGE/MMA, 2004. Mapa de Biomas do Brasil

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 the be farmed

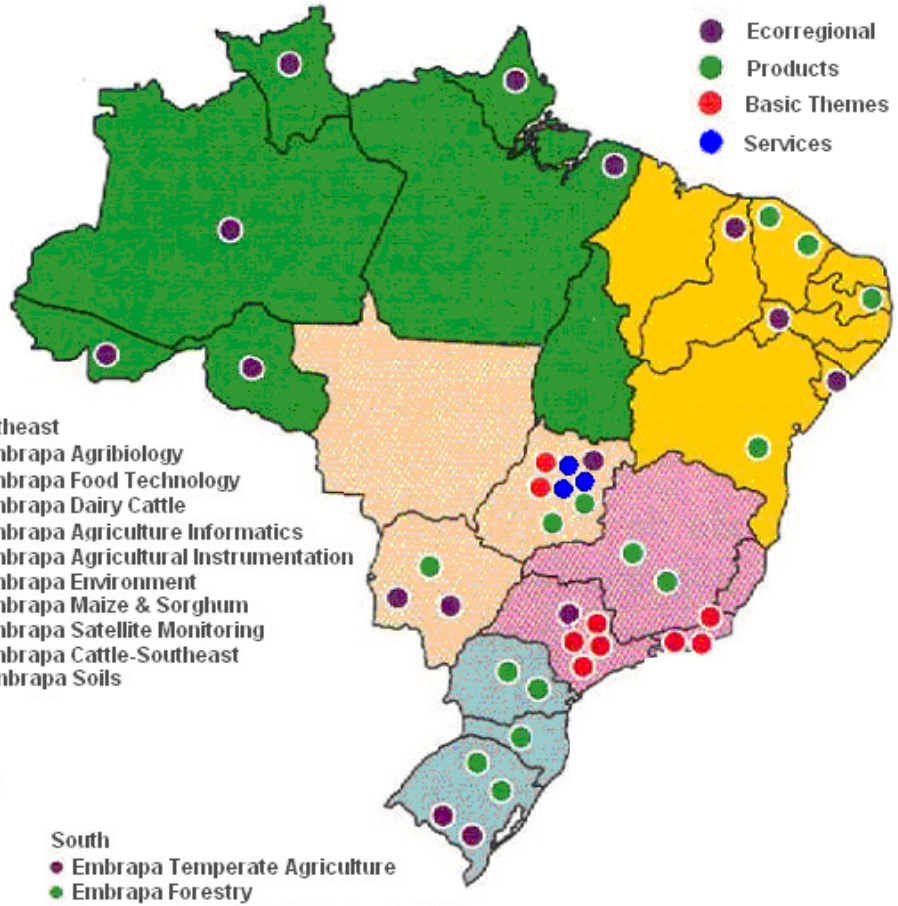
“Brazil: the natural knowledge economy”

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

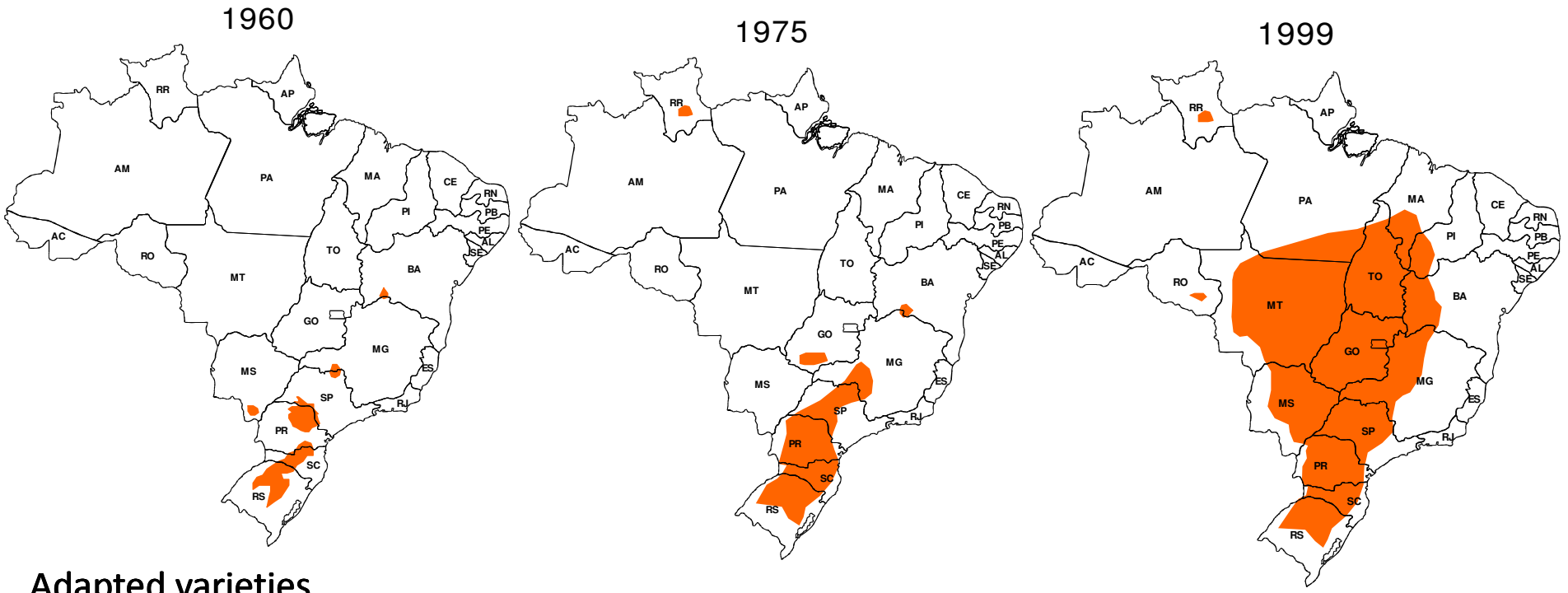
Southeast
- Embrapa Agribiology
- Embrapa Food Technology
- Embrapa Dairy Cattle
- Embrapa Agriculture Informatics
- Embrapa Agricultural Instrumentation
- Embrapa Environment
- Embrapa Maize & Sorghum
- Embrapa Satellite Monitoring
- Embrapa Cattle-Southeast
- Embrapa Soils

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

The Brazilian Agricultural Research Organization

Tropical soybeans

Technological evolution and crop expansion in Brazil



Adapted varieties

Biological fixation of nitrogen

Minimum tillage - mechanization

Source: Embrapa Soybean

The Brazilian Agricultural Research Organization

Products

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

Information

- 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

Processes

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

Services

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

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

Product	Production	Exports
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/

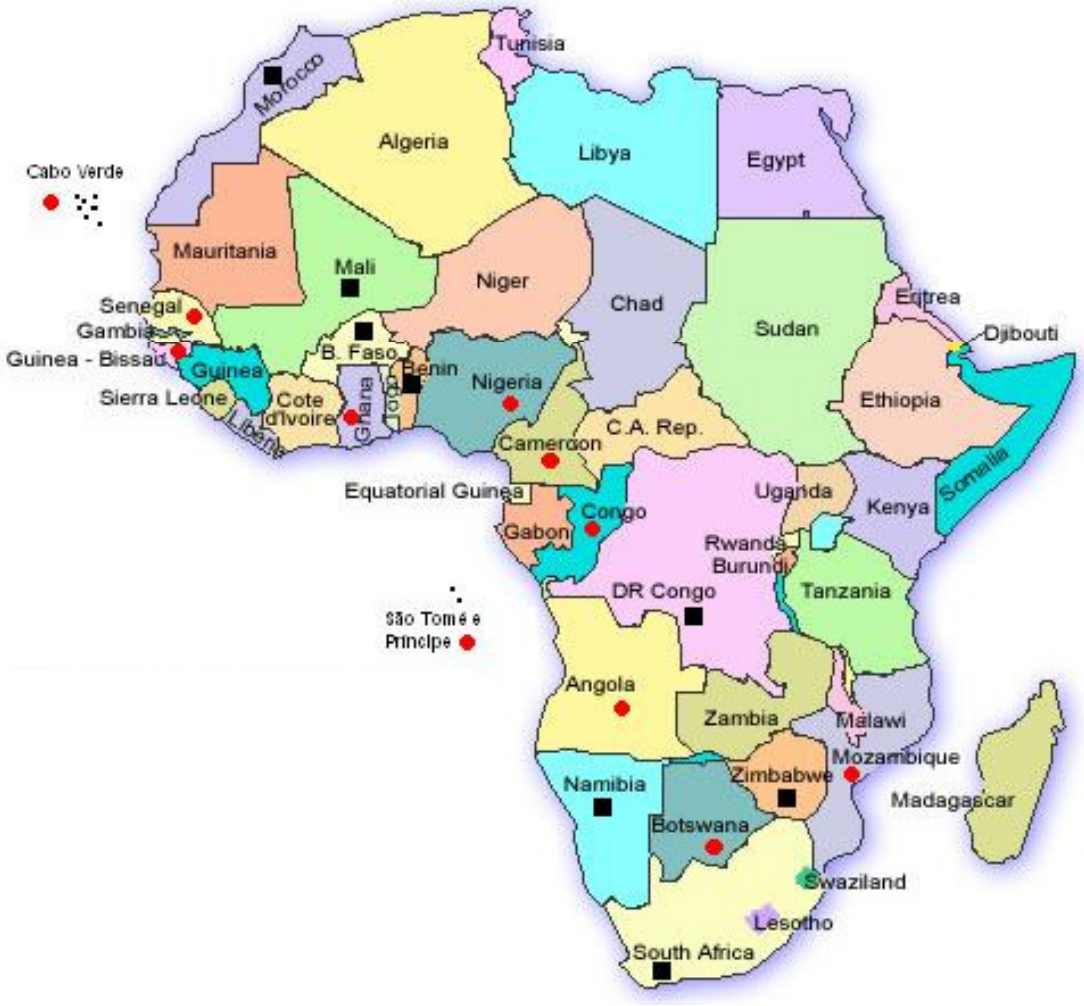
International Cooperation is Key to Embrapa

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**



Source: ARI/Embrapa

International Cooperation is Key to Embrapa

Source: ARI/Embrapa

Embrapa Latin America

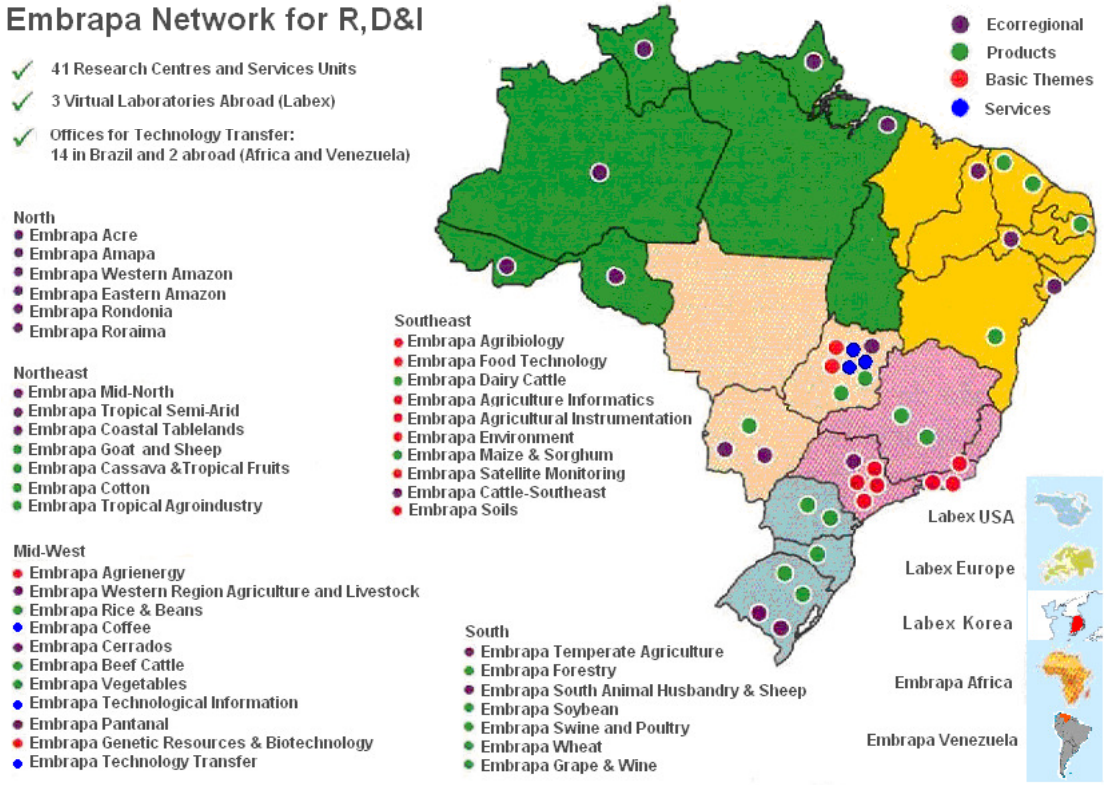
Technology transfer office in Caracas, Venezuela, since May 2008

- **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.



Labex USA 1998

Labex Europe 2002

Labex Korea 2009

Source: ARI/Embrapa

The Embrapa Labex Program

"Labex Role"

To bring the international dimension to the innovation process

Monitoring trends in S&T and opportunities of cooperation

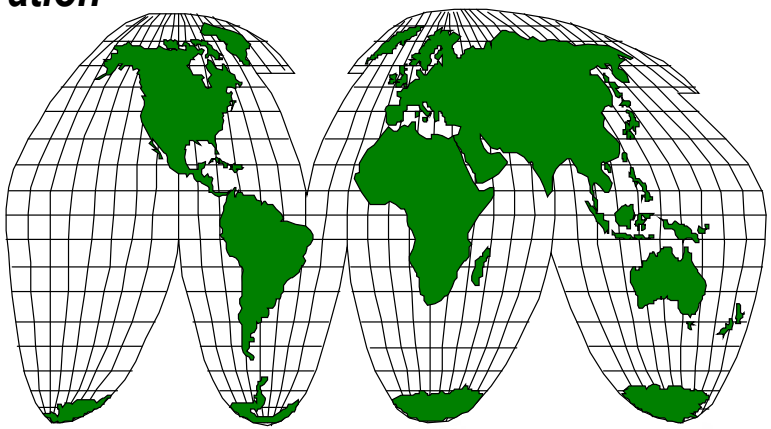
Promoting collaborative projects in strategic areas

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...

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"

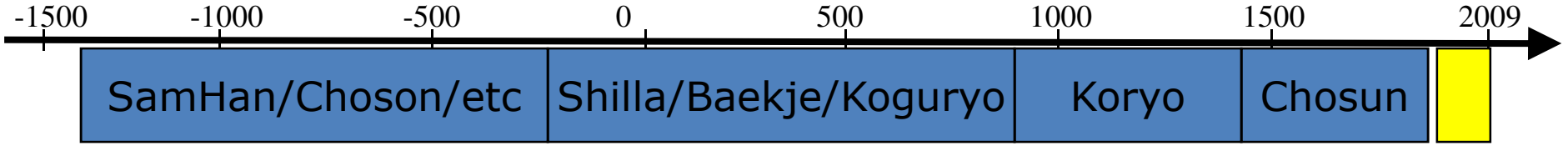
Economies intensive in knowledge, capital and "drive" towards a better future

Expanding the Labex Program to Korea

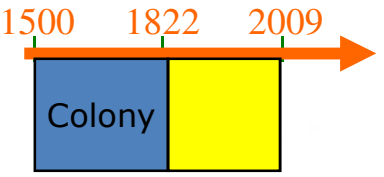
South Korea has a wealth of knowledge and experience!

Korea (5000 Years)

www.korean-arts.com/timeline



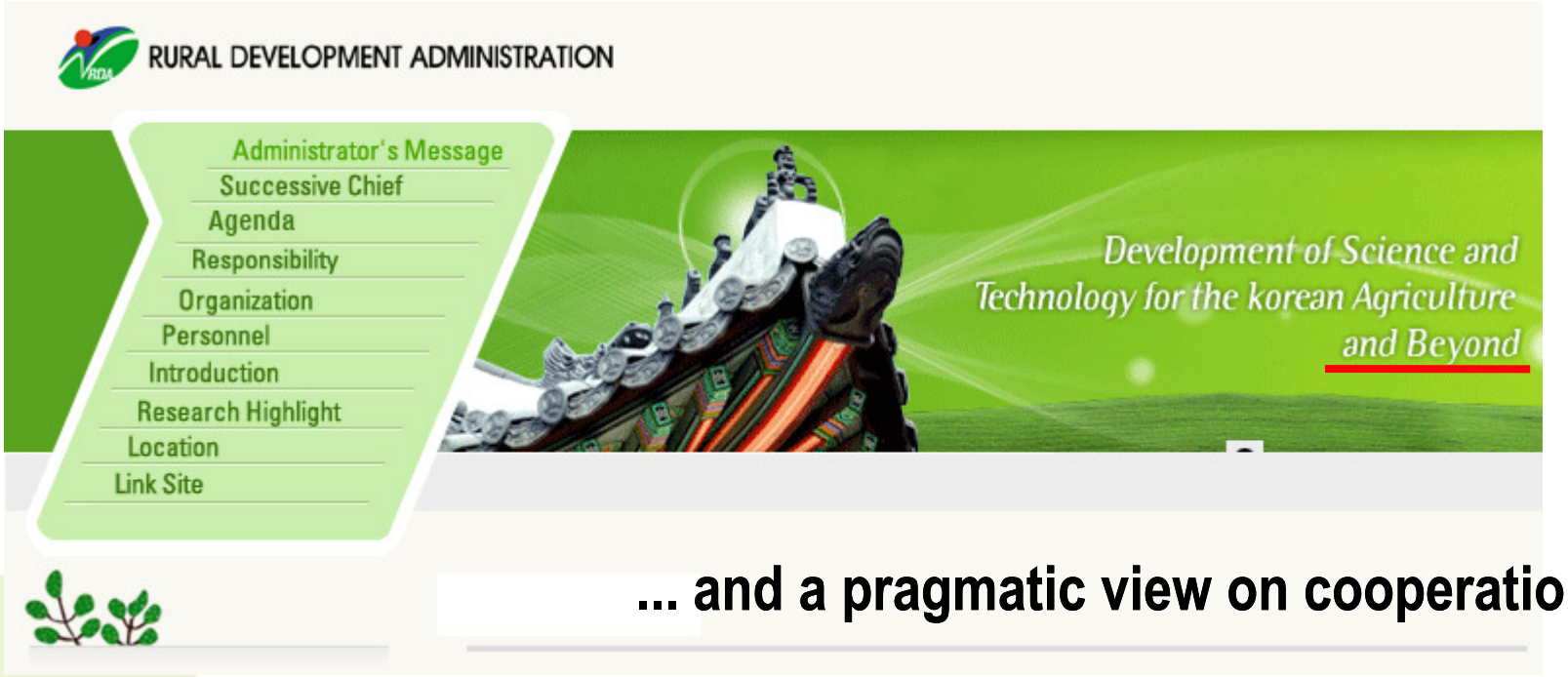
Brazil (500 Years)



Source: Daniel Fink

Expanding the Labex Program to Korea

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



... 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!

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

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.

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”

“Applied Nanotechnology”

“Animal Science”

“Genetic Resources”

“Agro-energy”

“Advanced Biology”

“Animal Health”

“Climate Change”

“Environmental Sciences”

“Engineering / automation”

“Food Processing”

“Botanic”

“Functional Foods”

“Food Health”

Labex Korea - Opportunities

“The Labex Portfolio”

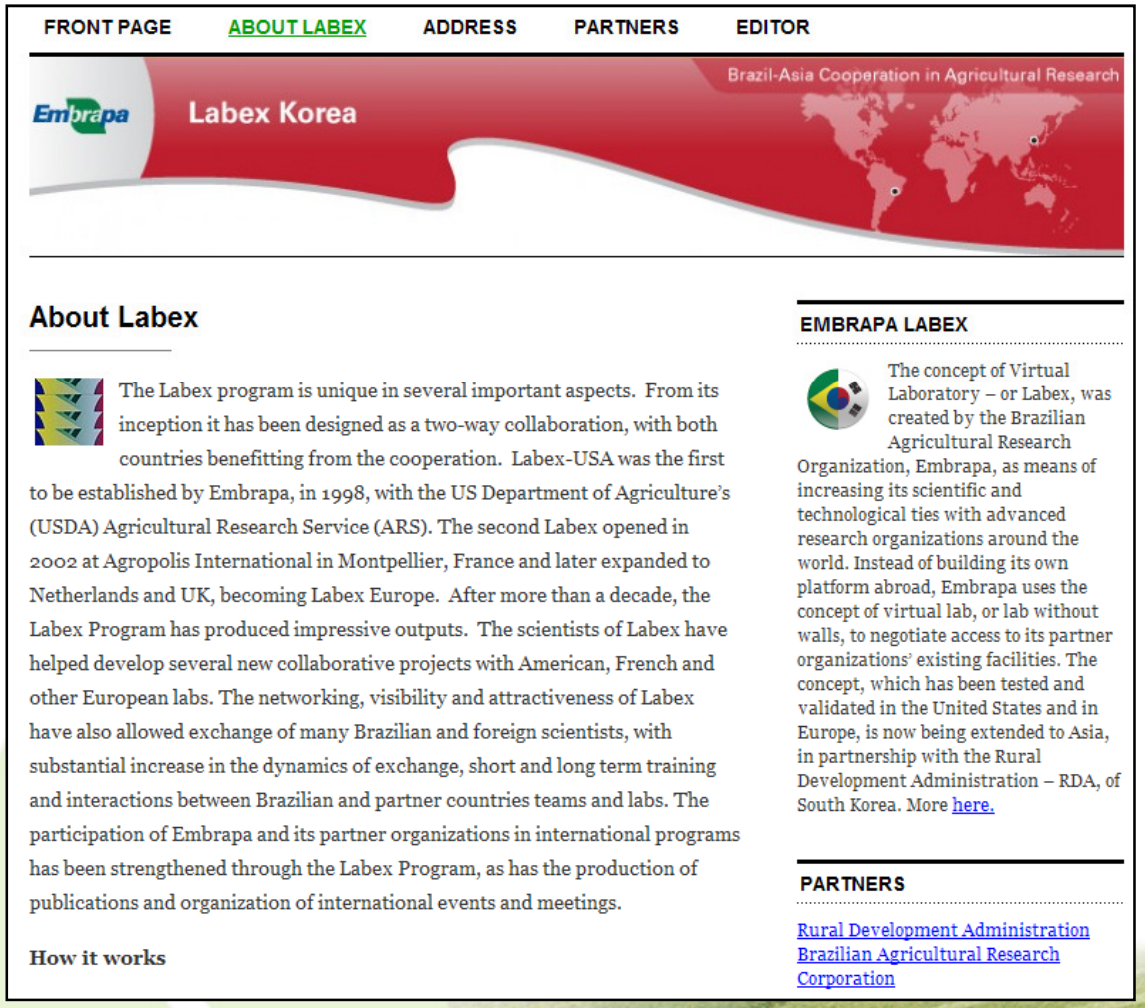
- ❑ Cooperation between the Genetic Resources and Biotechnology Center of Embrapa and the **National Institute of Horticultural and Herbal Sciences** – Mushroom Research Division – Support from the Kopia Program
- ❑ Cooperation between the Agronomic Institute of Campinas - Brazil and the **Chungcheongnam-do 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



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

http://labexkorea.wordpress.com/

The weblog of Labex

Disseminating information about Embrapa-RDA cooperation

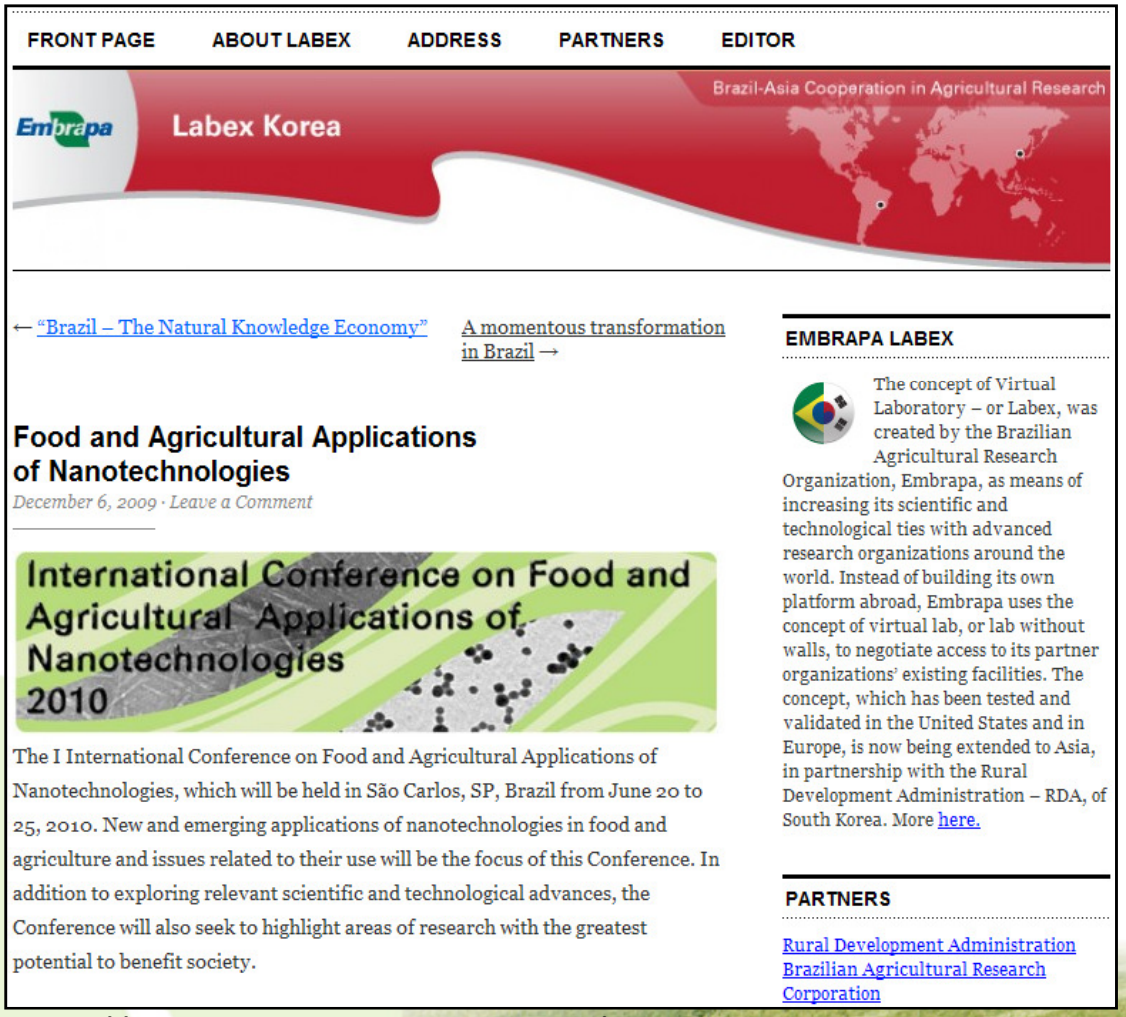
Labex Korea – New Tools of Communication

The weblog of Labex

Disseminating information about Brazil-Korea cooperation

http://labexkorea.wordpress.com/

Labex Korea – New Tools of Communication

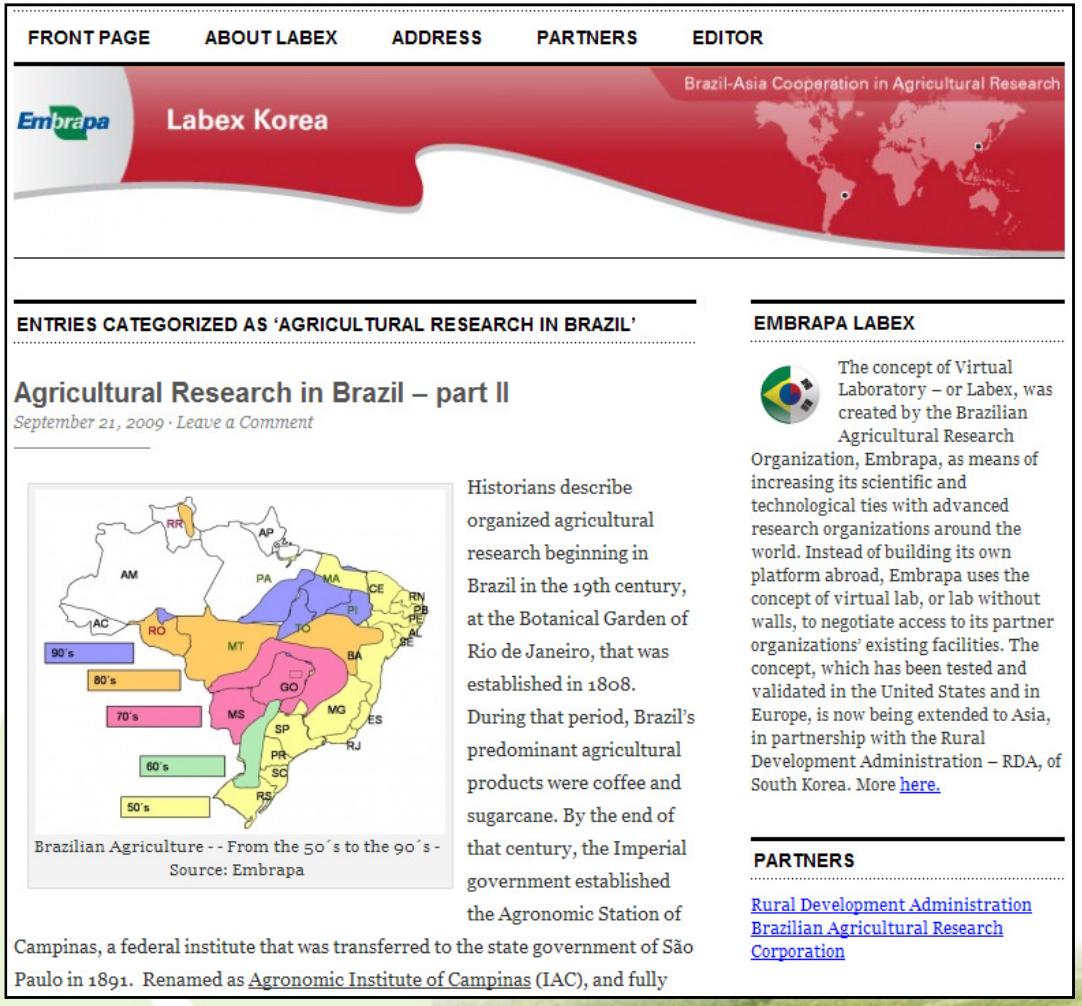


http://labexkorea.wordpress.com/

The weblog of Labex

Announcing meetings and activities of common interest

Labex Korea – New Tools of Communication



http://labexkorea.wordpress.com/

The weblog of Labex

Disseminating information about agricultural research in Brazil

Thank You - 감사합니다

labex.korea@ymail.com