

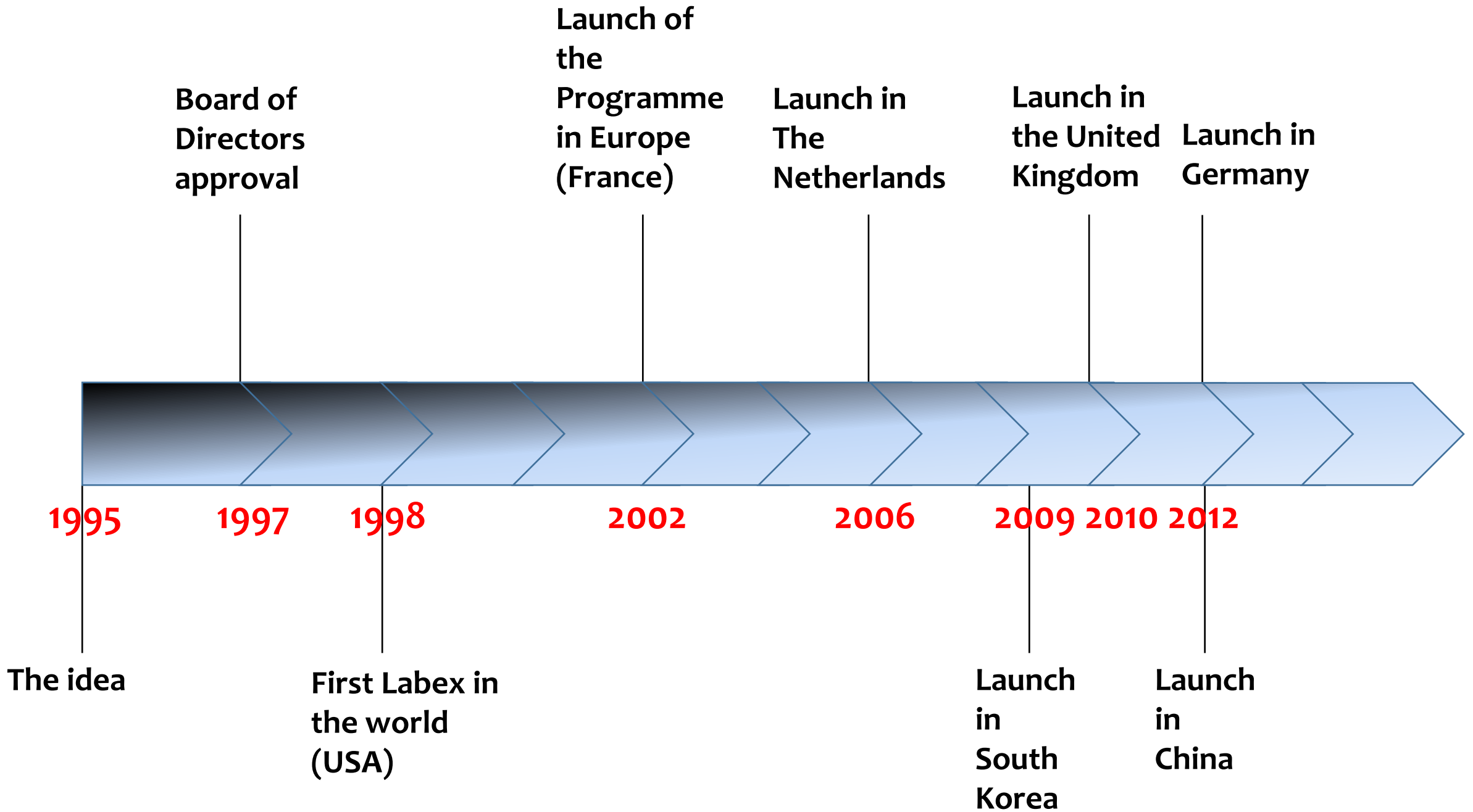
The Virtual Labex Abroad (Labex) from Embrapa: The Toolbox for Scientific Cooperation

Alexandre Morais do Amaral
Head – International

Beijing, 25-28, June, 2018



“Virtual Laboratories Abroad” Embrapa-Labex Program



Spiral up

Long term, new
Joint project

Inverted Labex

Students

Patents

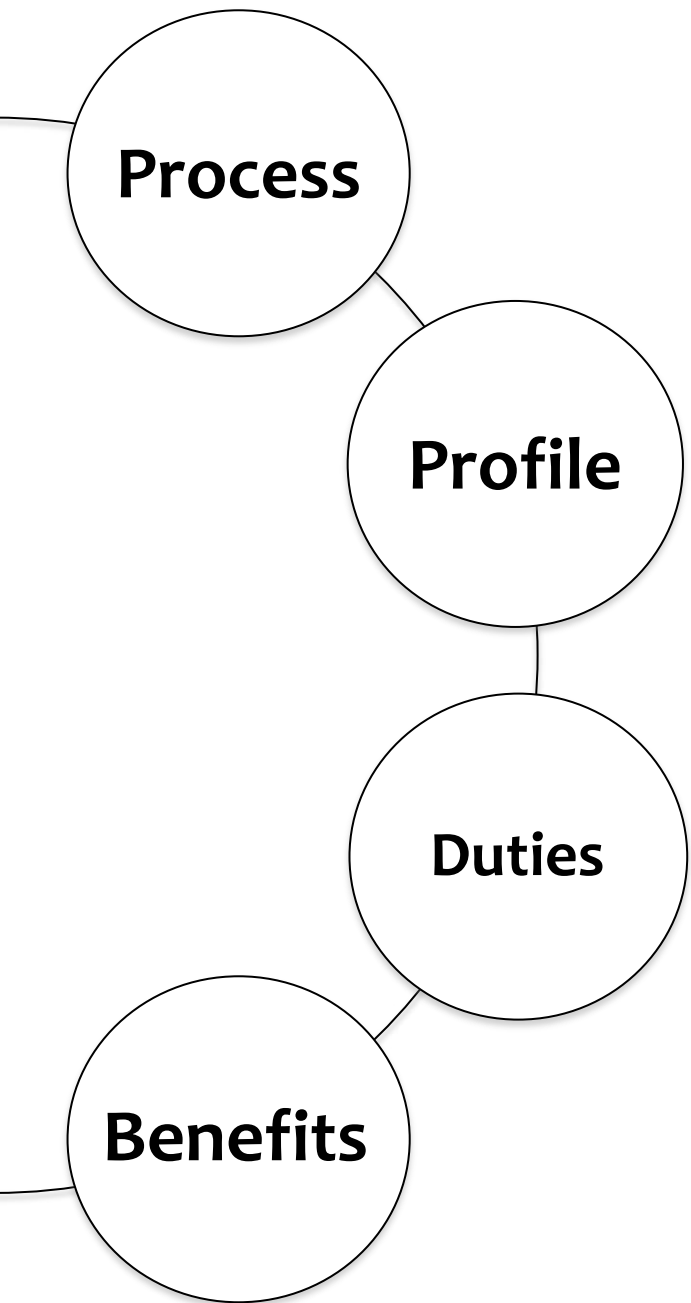
Visiting scientists

Publications

PCI

(Project of Common Interest)





Expats

Expats

Process

- . Open call
- . Resume evaluation
- . Interview with commission
- . Interview with board of directors
- . Board of directors decision

Profile

- . Research leader
- . International experience
- . Skilled in communication
- . Fluent in English

Expats

Duties

- . Mandatory report (every 6 months)
- . Develop a joint project with host
- . Stay in Brazil the same period (return)

Benefits

- . Fellowship
- . Reimbursement of housing
- . Reimbursement of school
- . Logistics grant
- . Health insurance
- . Flight tickets (including family)



Name: Dr Sílvia Crestana
Location: USDA-ARS, Beltsville, MD
Area(s): Coordinator

Period: 1998-2001
Research Centre: CNPDIA



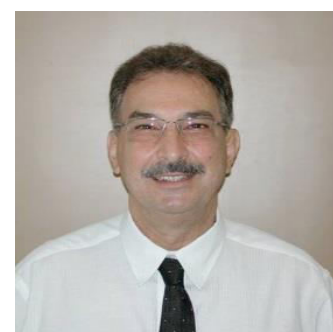
Name: Dr Ariovaldo Luchiari Junior
Location: USDA-ARS, Lincoln, NE
Area(s): Precision agriculture

Period: 1998-2002
Research Centre: CNPTIA



Name: Dr Maria Jose Sampaio
Location: USDA-ARS, Ithaca, NY
Area(s): Intellectual property

Period: 1998-2000
Research Centre: SRI



Name: Dr Miguel Borges
Location: USDA-ARS, Beltsville, MD
Area(s): Integrated pest management

Period: 1998-2000
Research Centre: Cenargen



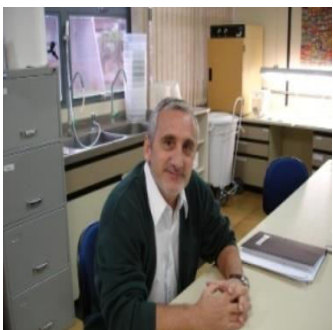
Name: Dr Terezinha Padilha
Location: USDA-ARS, Beltsville, MD
Area(s): Animal health

Period: 1998-2002
Research Centre: CNPGL



Name: Dr Airdem G. de Assis
Location: USDA-ARS, Beltsville, MD
Area(s): Coordinator

Period: 2001-2004
Research Centre: CNPGL



Name: Dr Antonio R. Panizzi
Location: USDA-ARS, Peoria, IL
Area(s): Pest control

Period: 2002-2004
Research Centre: CNPT



Name: Dr Helvecio De-Polli
Location: USDA-ARS, Beltsville, MD
Area(s): Carbon dynamics

Period: 2002-2004
Research Centre: CNPAB



Name: Dr Mercedes C. Carrao Panizzi
Location: USDA-ARS, Peoria, IL
Area(s): Use of new products

Period: 2002-2004
Research Centre: CNPT



Name: Dr Pedro A. Arraes Pereira
Location: USDA-ARS, Beltsville, MD
Area(s): Coordinator

Period: 2004-2007
Research Centre: CNPAF



Name: Dr Jose R. Feitosa Brito
Location: USDA-ARS, Wyndmoore, PA
Area(s): Food security

Period: 2005-2007
Research Centre: CNPGL



Name: Dr Luciano L. Nass
Location: USDA-ARS, Fort Collins, CO
Area(s): Genetic resources

Period: 2005-2008
Research Centre: SRI



Name: Dr Luiz H. C. Mattoso
Location: USDA-ARS, Albany, CA
Area(s): Nanotechnology



Name: Dr Félix H. França
Location: USDA-ARS, Beltsville, MD
Coordinator



Name: Dra Janice Reis
Location: Ciacci-Zanella
 USDA-ARS, Ames, IA
Area(s): Animal Health



Name: Dr Cesar H. B. Miranda
Location: USDA-ARS, Univ. Nebraska Lincoln, NE
Area(s): Bioenergy



Name: Dr Marcus V. N. D'Oliveira
Location: USDA-FS, Seattle, WA
Area(s): Forest resources



Name: Dr Alfredo A. Cunha Alves
Location: USDA-ARS, Fort Collins, CO
Area(s): Genetic resources

Period: 2005-2007
Research Centre: CNPDIA

2007-2009
 DPD

2008-2010
 CNPSA

2008-2010
 CNPAE

2008-2011
 CPAFAC

2009-2013
 CNPMF



Name: Dr Ladislau Martin Neto - USDA-ARS
Location: Beltsville, MD
Area(s): **Coordinator**



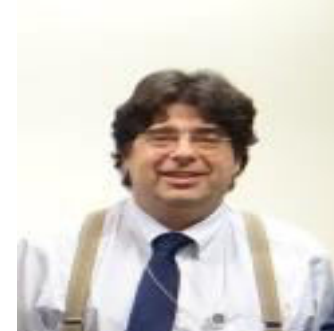
Name: Dr Ricardo Elesbão Alves
Location: Texas A&M Univ., College Station, TX
Area(s): Biodiversity



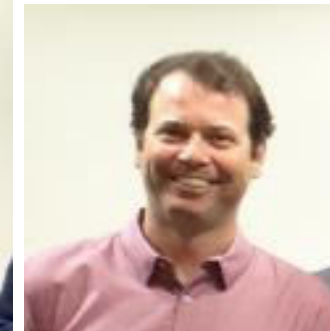
Name: Dr Alexandre L. Nepomuceno
Location: USDA-ARS, Albany, CA
Area(s): Plant Biotechnology



Name: Dr Magda V. Benavides
Location: USDA-ARS, Beltsville, MD
Area(s): Animal health



Name: Dr Carlos E. Lazarini
Location: USDA-ARS, Beltsville, MD
Area(s): **Coordinator**



Name: Dr Eduardo C. de Andrade
Location: USDA-ARS, Fort Pierce, FL
Area(s): HLB

Period: 2009-2011
Research Centre: CNPDIA

2011-2014
 CNPAT

2011-2013
 CNPSO

2011-2014
 CPPSul

2012-2014
 CPAC

2012-
 CNPMF



Name:	Dr Samuel Rezende PaivaDr Geraldo Martha JrDr Márcio Elias Ferreria		
Location:	USDA-ARS, Fort Collins, COUSDA-ARS, Beltsville, MDUSDA-ARS, Beltsville, MD		
Area(s):	Animal genetic resources	Coordinator	Preventive breeding
Period:	2012-	2015-	2015-
Research Centre:	Cenargen	SIM	Cenargen



Name: Dr Elisio Contini
Location: Agropolis International, Montpellier, France
Area(s): **Coordinator**

Period: 2002-2005
Research Centre: CECAT



Name: Dr José Madeira
Location: INRA/IRD/SupAgro, Montpellier, France
Area(s): Natural resources

Period: 2002-2005
Research Centre: DPD



Name: Dr Regina Lago
Location: SupAgro/INRA/UM2/CIRAD Montpellier, Food technologies
Area(s):

Period: 2002-2005
Research Centre: CTAA



Name: Dr Ana Brasileiro
Location: CIRAD, INRA, SupAgro Montpellier, France
Area(s): Plant Biotechnology

Period: 2002-2005
Research Centre: Cenargen



Name: Dr Luis Vieira
Location: Agropolis International, Montpellier, França
Area(s): **Coordinator**

Period: 2005-2009
Research Centre: DPD



Name: Dr Heloísa Filgueiras
Location: INRA/UAPV, Avignon, France
Area(s): Food technologies

Period: 2005-2008
Research Centre: CNPAT



Name: Dr Manoel T. Souza Júnior
Location: PRI-WUR, Wageningen, The Netherlands
Area(s): Plant health

Period: 2006-2010
Research Centre: CNPAE



Name: Dr Geraldo S. Rodrigues
Location: CIRAD, Montpellier, France
Area(s): Natural resources

Period: 2007-2009
Research Centre: CNPMA



Name: Dr Pedro B. Arcuri
Location: Agropolis International, Montpellier, France
Area(s): **Coordinator**

Period: 2009-2013
Research Centre: CNPGL



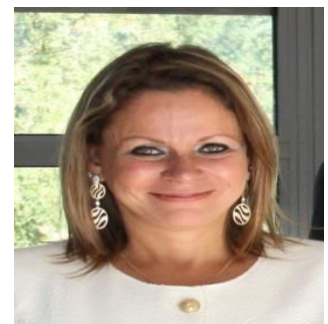
Name: Dr Amauri Rosenthal
Location: Univ. Burgundy/AgroSup Dijon, France
Area(s): Food technologies

Period: 2009-2011
Research Centre: CTAA



Name: Dr Rosires Deliza
Location: CNRS/Univ. Burgundy/INRA Dijon, France
Area(s): Food technologies

Period: 2009-2011
Research Centre: CTAA



Name: Dr Margareth Simões
Location: TETIS, Montpellier, France
Area(s): Natural resources management

Period: 2010-2012
Research Centre: CNPS



Name: Dr Alexandre M. do Amaral
Location: Rothamsted Research Harpenden, UK
Area(s): Molec. Plant-Microb Interactions

Period: 2010-2014
Research Centre: SRI



Dr Paulo Herrmann Jr,
Jülich Institute, Jülich,
Germany

Phenotyping

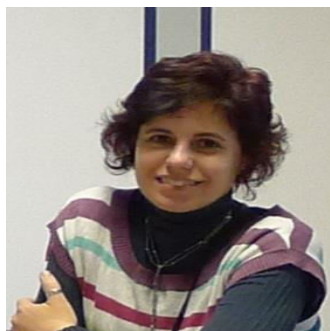
2012-
CNPDIA



Dr Claudio Carvalho
Agropolis international
Montpellier, França

Coordinator

2013-2015
CPATU



Dr Henriette MC de Azeredo
Institute of Food
Research, Norwich, UK
Food technology

2013-2015
CNPAT



Dr Pedro Machado
Agropolis international
Montpellier, França

Coordinator

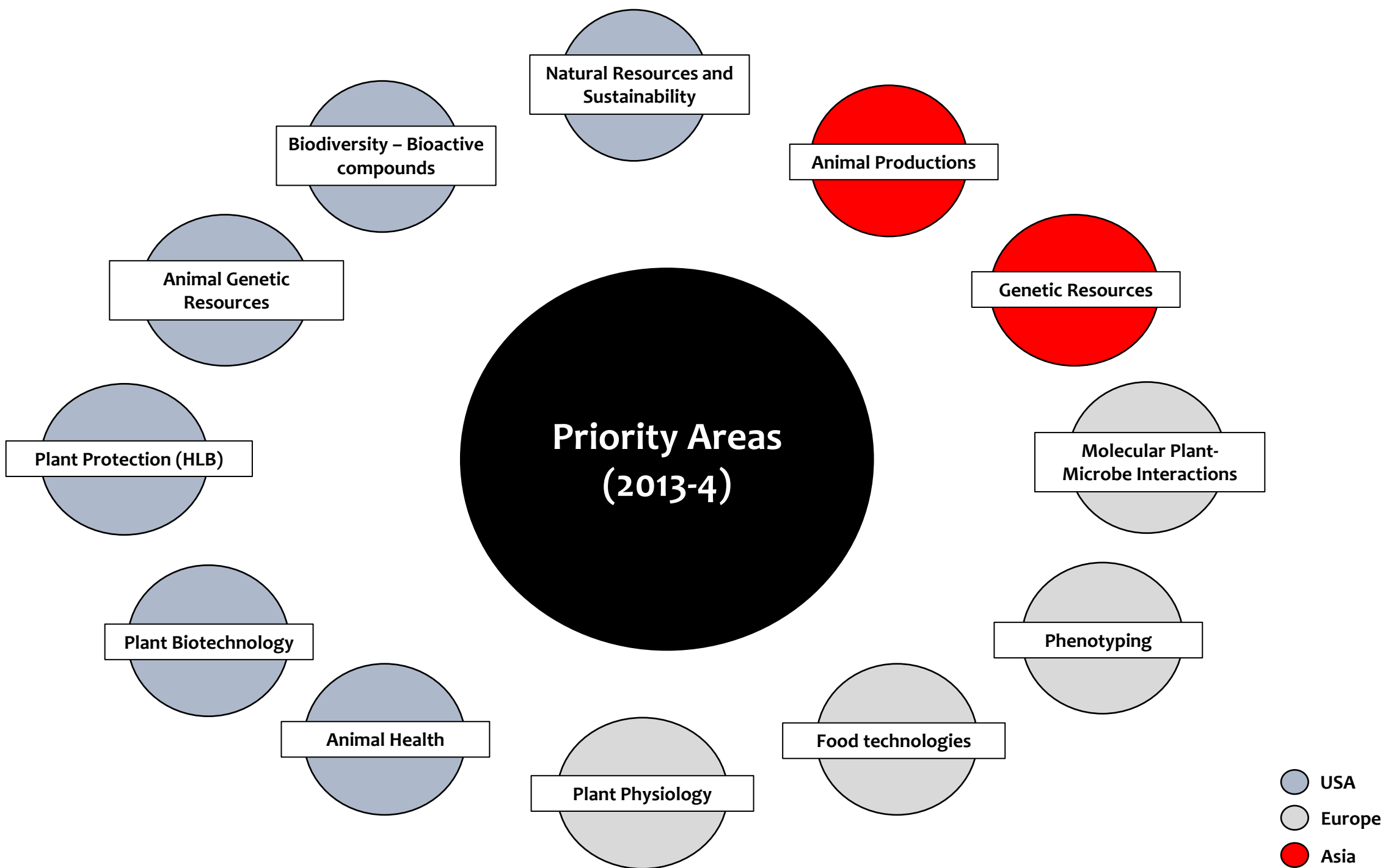
2015-?
CNPAF



Name:	Dr Maurício A. Lopes	Dr Gilberto Silber Schmidt	Dr Damares de Castro
Location:	ITCC-RDA, Suwon, South Korea	ITCC-RDA, Suwon, South Korea	Monte Brasil Embassy, Beijing, China
Area(s):	Coordinator	Coordinator	Coordinator
Period:	2009-2011	2012-2014	2012-2014
Research Centre:	DE	CNPISA	Cenargen

Some Statistics (1998 to 2018)

- Number of members so far: 47 (32 researchers, 15 Coordinators)
- **How long in Embrapa before Labex**
 - Average: 19 years
 - Coordinators: 24 years
 - Researchers: 17 years
 - (median 20 years; minimum 5 years; max 37 years)
- How many coordinators and researchers per year (average): 7



Some themes

- ✓ Nanotechnology
- ✓ Bioenergy
- ✓ Bioinformatics
- ✓ Precision agriculture
- ✓ Forest management
- ✓ Animal nutrition
- ✓ Integrated Pest Management
- ✓ Genetic resources
- ✓ Animal Health
- ✓ Food security
- ✓ Intellectual property
- ✓ Climate Change
- ✓ New products
- ✓ Natural resources
- ✓ Abiotic Stress Resistance
- ✓ Molecular Plant-Microbe Interactions

“Inverted Labex”

Dr. Michael Keller
Forest Service-USDA
Embrapa Monitoramento por Satélite



Marcus Vinicio D'Oliveira (Labex EUA, 2008 - 2010)/ Mateus Batistella

REVIEW

doi:10.1038/nature10717

The Amazon basin in transition

Eric A. Davidson¹, Alessandro C. de Araújo^{2,3}, Paulo Artaxo⁴, Jennifer K. Balch^{1,5}, I. Foster Brown^{1,6}, Mercedes M. C. Bustamante⁷, Michael T. Coe¹, Ruth S. DeFries⁸, Michael Keller^{9,10}, Marcos Longo¹¹, J. William Munger¹¹, Wilfrid Schroeder¹², Britaldo S. Soares-Filho¹³, Carlos M. Souza Jr¹⁴ & Steven C. Wofsy¹¹

¹The Woods Hole Research Center, 149 Woods Hole Road, Falmouth, Massachusetts 02540-1
²Embrapa Amazônia Oriental, Travessa Dr. Enéas Pinheiro, s/n, Marco, Caixa Postal 48, Belém, Pará 66095-100, Brazil. ³Instituto Nacional de Pesquisas da Amazonia (INPA), Large Scale Biosphere-Atmosphere Experiment in Amazonia (LBA), Avenida André Araújo, 2936, Manaus, Amazonas, 69060-001, Brazil. ⁴Instituto de Física, Universidade de São Paulo, Rua do Matão, Travessa R, 187, São Paulo, SP 05508-090, Brazil. ⁵National Center for Ecological Analysis and Synthesis, 735 State Street, Suite 300, Santa Barbara, California 93101, USA. ⁶Universidade Federal do Acre, Mestrado em Ecologia e Manejo de Recursos Naturais, Parque Zoobotânico, Distrito Industrial, Rio Branco, AC 69915-900, Brazil. ⁷Universidade de Brasília, Instituto de Ciências Biológicas, Departamento de Ecologia, Campus Universitário Darcy Ribeiro, Asa Norte, Brasília, Distrito Federal 70910-900, Brazil. ⁸Columbia University, Department of Ecology, Evolution, and Environmental Biology, 1200 Amsterdam Avenue, New York, New York 10027, USA. ⁹USDA Forest Service, International Institute of Tropical Forestry, Jardín Botánico Sur, 1201 Calle Ceiba, San Juan, Puerto Rico 00926-1
¹⁰Embrapa Monitoramento por Satélite, Avenida Soldado Passarinho, 303, Fazenda Chapadão, Campinas, São Paulo, Brazil. ¹¹Harvard University, School of Engineering and Applied Sciences, Department of Earth and Planetary Sciences, 20 Oxford Street, Cambridge, Massachusetts 02138, USA. ¹²University of Maryland, Earth System Science Interdisciplinary Center, 5825 University Research Court Suite 4001, College Park, Maryland 20740, USA. ¹³Universidade Federal de Minas Gerais, Centro de Sensoriamento Remoto, Avenida Antônio Carlos 6627, Belo Horizonte, Minas Gerais 31270-900, Brazil. ¹⁴Imazon, Centro de Geotecnologia do Imazon, Rua Domingos Marreiros 2020, Belém, Pará 66060-160, Brazil.

“Inverted Labex”

Dr. Anke Schickling
Centro de Pesquisas de Jülich
Embrapa (a ser definido)



Paulo Sérgio de Paula Herrmann Júnior (**Labex** Europa na Alemanha, 2012 - até o presente)

Dr. Gregory M. Glenn
ARS-USDA
Embrapa Instrumentação na Agricultura



Luiz H. C. Mattoso (**Labex** EUA, 2005 - 2007)

Prof. John Lucas
Rothamsted Research
Embrapa Recursos Genéticos e Biotecnologia



Alexandre Moraes do Amaral (**Labex** Europa no Reino Unido, 2010 - 2014)

“Inverted Labex”

Dr. Bohsuk Yang

RDA

Embrapa Sede

Rodolfo Rumpf (Embrapa Recursos Genéticos e Biotecnologia)



Dr. Sang-ho Kim

RDA

Embrapa Sede

Roberto Guimarães (Embrapa Cerrados)



Dr. Donk-hyuk lee

RDA

Embrapa Sede

Tadeu Grizolli (Embrapa Cerrados)



Embrapa Labex as a model

LABINTEX:

Laboratorios virtuales del Instituto Nacional de Tecnología Agropecuaria en el exterior
Agropolis, Montpellier

“LABINTEX – Laboratorio Exterior sin muros del INTA”



INTA, Agropolis International

Launch in November 2012

CORPOICA:



Workshops

Organizers:





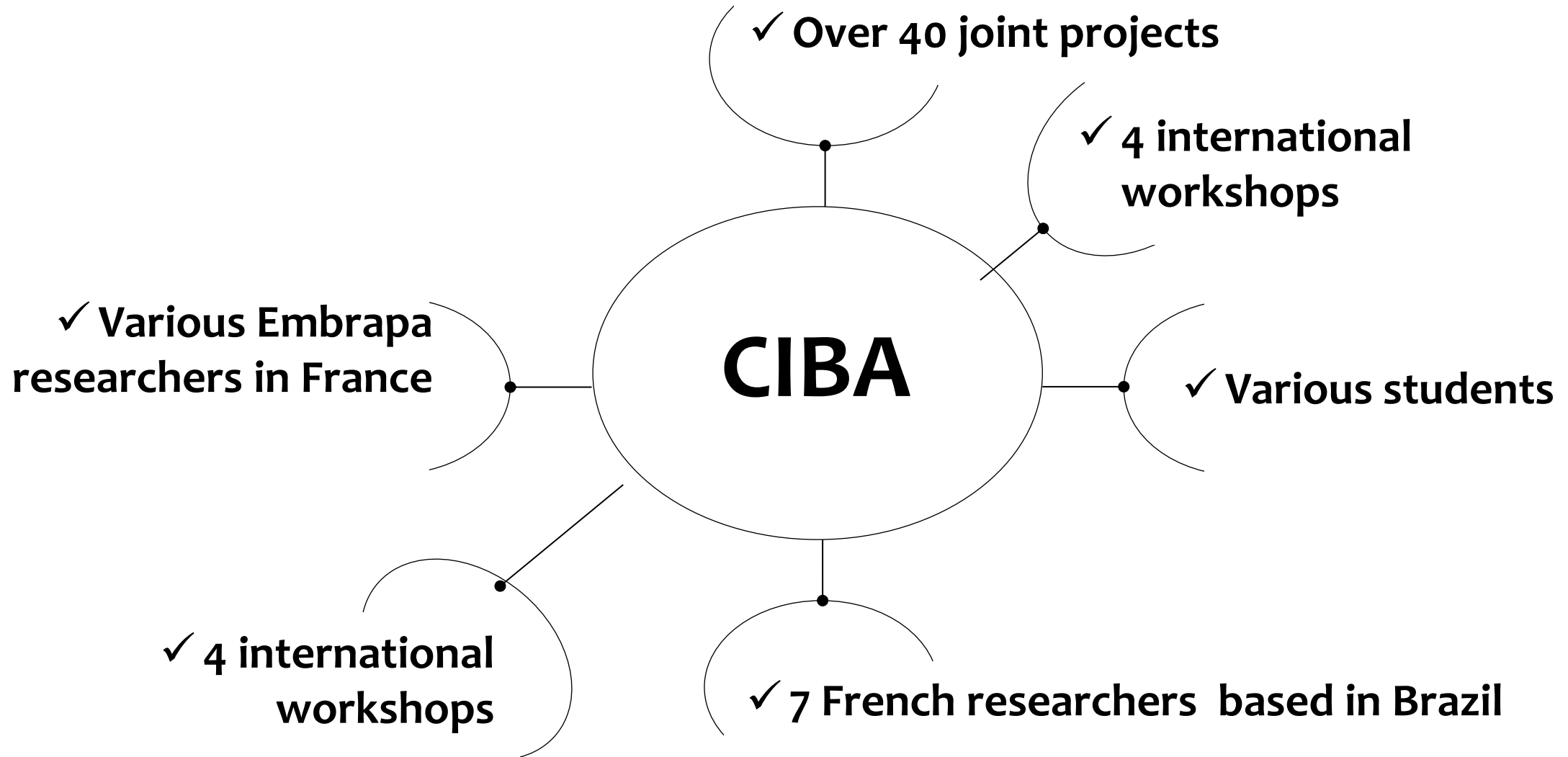
Joint call

Embrapa + Agropolis

5 Joint projects

Acronym	CLIMCOFFEA	NemControl	CAWaS	Theobroma	DRYCE
Embrapa centre French institution	Cenargen IRD UMR DIADE	Cenargen IRD UMR RPB	CNPA CIRAD UMR AGAP	Cenargen CIRAD BIOS-AGAP	CNPAF CIRAD UMR AGAP
Embrapa	€ 50,000	€ 50,000	€ 44,459	€ 70,880	€ 41,975
Agropolis	€ 50,024	€ 49.920	€ 54,964	€ 26,832	€ 45,840

Total = € 500,000



Embrapa + BBSRC + Newton Fund

Mobility: 8 joint projects

Top-down portfolio	Embrapa	UK body	Pounds
Plant health	Wheat	John Innes Centre	72,047.00
Plant health	Wheat	Rothamsted Research	68,056.00
Climate change	Umip GenClima	University of Nottingham	58,000.00
Plant health	Wheat	IBERS/Aberystwyth University	46,250.00
Drought resilience	Cerrados	Rothamsted Research	30,250.00
Plant health	Wheat	NIAB	28,900.00
Ecologic systems	Environment	Rothamsted Research	28,584.34
Climate change	Wheat	Rothamsted Research	28,176.00

Total = £ 360,263.34



Wheat



Environment



Cerrados



Informatics



Workshops Nanotechnology Applied to the Agribusiness (8 editions)

Technologies



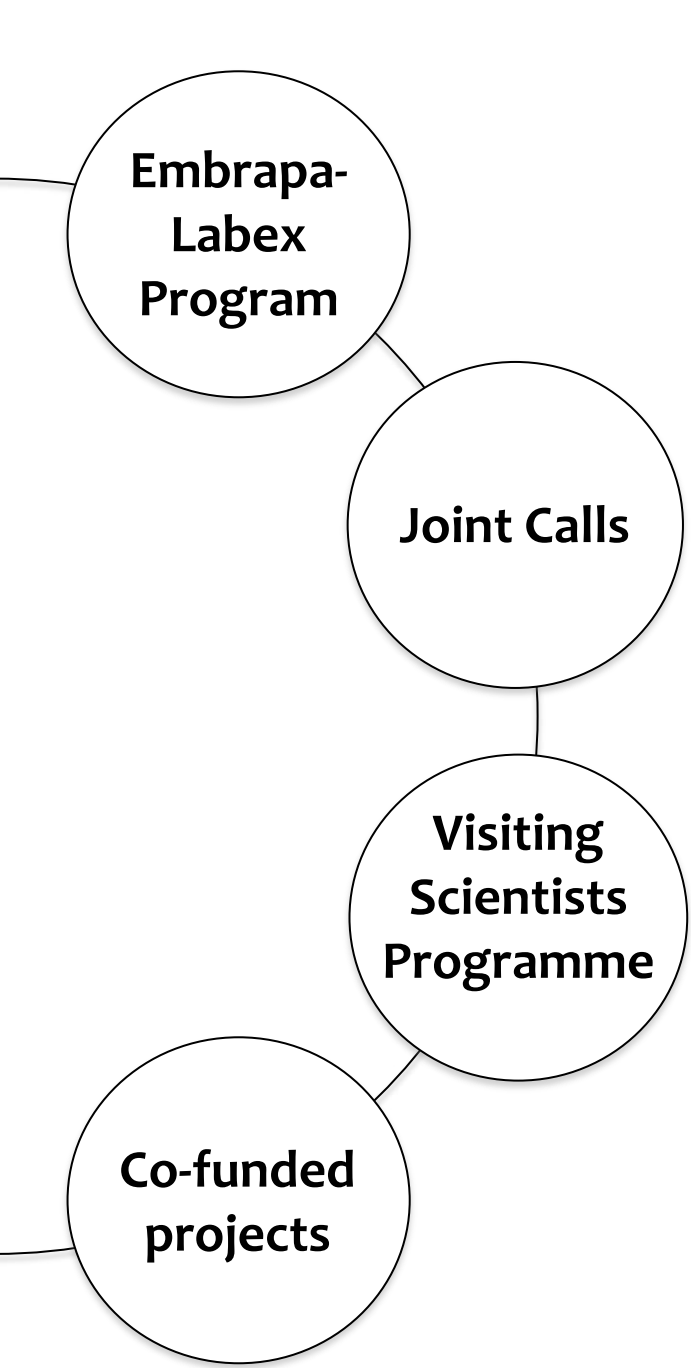
Edible plastic film from papaya



**6th edition,
Fortaleza,
2012**



**8th edition, Juiz
de Fora,
2014**



**Embrapa-
Labex
Program**

Joint Calls

**Visiting
Scientists
Programme**

**Co-funded
projects**

Mechanisms


```
graph LR; A((Embrapa-Labex Program)) --- B((Joint Calls)); A --- C((Visiting Scientists Program)); A --- D((Co-funded projects)); A --- E[. Embrapa's research leaders  
. World-class hosting laboratories  
. Cutting-edge research topics  
. 2-3 years abroad  
. USA, Europe, Asia  
. USDA-ARS, Agropolis, Univ. Texas, CIRAD, INRA, Rothamsted Research, Wageningen University, Julich Institute, IFR];
```

Embrapa-Labex Program

Joint Calls

Visiting Scientists Program

Co-funded projects

- . Embrapa's research leaders
- . World-class hosting laboratories
- . Cutting-edge research topics
- . 2-3 years abroad
- . USA, Europe, Asia
- . USDA-ARS, Agropolis, Univ. Texas, CIRAD, INRA, Rothamsted Research, Wageningen University, Julich Institute, IFR

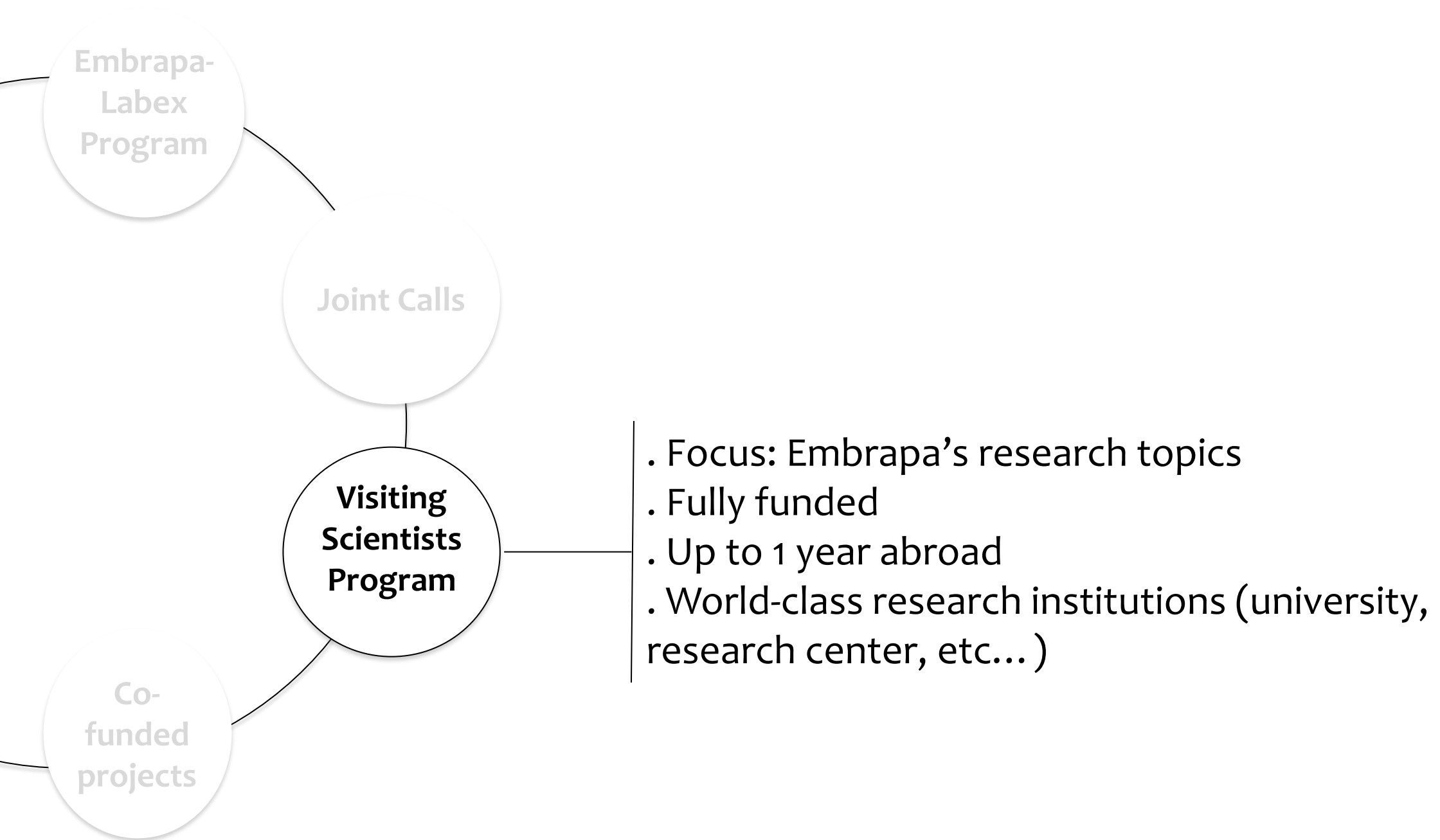
Embrapa-
Labex
Program

Joint Calls

- . Bilateral negotiation
- . Specific topics (common interest)
- . Single projects
- . BBSRC, Agropolis, VIB, INTA, INIA
- . Sharing of data, people, biological material
- . Funds are for local use

Visiting
Scientists
Program

Co-funded
projects



Embrapa-
Labex
Program

Joint Calls

Visiting
Scientists
Program

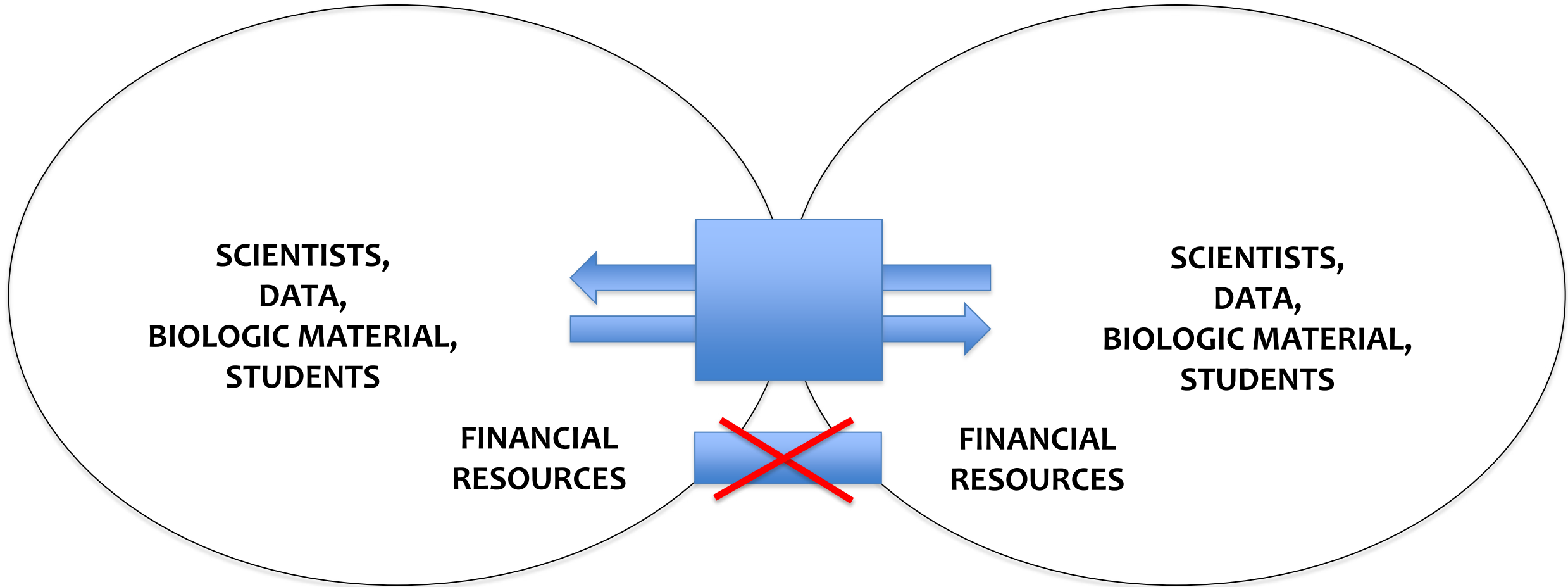
**Co-funded
projects**

- . Scientist to scientist
- . National and international bodies (CNPq, CAPES, FAPESP, etc...)
- . Bottom-up initiative

Joint Calls with World Class Institutions



Joint Calls with World Class Institutions



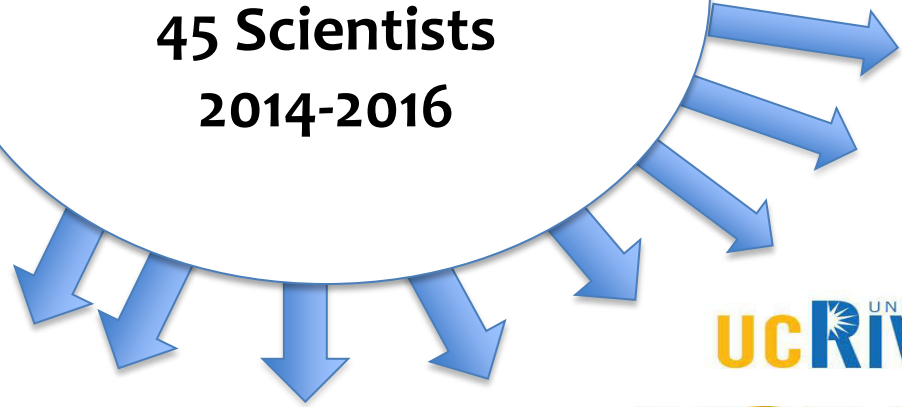
Partner institution



VISITING SCIENTISTS PROGRAM

Embrapa

45 Scientists
2014-2016



USDA **das**

UMR ESPACE-DEV

jbei
Joint BioEnergy Institute



UNIVERSITY OF CALIFORNIA
UC RIVERSIDE



THE UNIVERSITY OF
WARWICK



UC DAVIS
UNIVERSITY OF CALIFORNIA



UNIVERSITY OF
CAMBRIDGE



UNIVERSITY OF
STIRLING



MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND



UF UNIVERSITY of
FLORIDA



Agriculture and
Agri-Food Canada



Agriculture et
Agroalimentaire Canada



**IOWA STATE
UNIVERSITY**
**PURDUE
UNIVERSITY**

“Virtual Laboratories Abroad” Embrapa-Labex Program



... a program on which the sun never sets...



Thank you