IMPLEMENTING A NETWORKING PLATFORM
TO PROMOTE AND ENHANCE SCIENCE AND TECHNICAL CO-OPERATION WITH EUROPE
IN FOOD QUALITY AND SAFETY

Mathieu WEIL, Caroline BLACHE, Fabrice DAVRIEUX,
Didier MONTET, Marc LEBRUN, Dominique PALLET
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Food Traceability: the key to global market access

French Agricultural Research Centre for International Development

working for developing countries and the French overseas regions
Six strategic lines of research

- Ecological intensification
- Biomass energy in favour of communities in the South
- Safe, varied food
- Animal health and emerging diseases
- Public policy, poverty and inequality
- Relations between agriculture, environment, nature and society
One operating principle: partnerships

Projects built and implemented hand-in-hand with research and development players

- Research organizations and universities
- Professional organizations and the private sector
- Public authorities and donor agencies
- Local authorities
- NGOs

Working in the South
Food Traceability: the key to global market access

Cirad’s Organization

3 Departments - 60 research units
1800 persons including **750 researchers**

Metropolitan France: 430 researchers

Outside metropolitan France: 320 researchers
French overseas regions = 110
Other countries = 210, including 30 in international research centres
2. **ALCUEFOOD**

“From European fork to Latin American farm”: an innovative networking platform for EU – LAC partnerships in food quality and safety R&D”

[www.alcuefood.org](http://www.alcuefood.org)
Project’s objectives

MAIN GOAL
To strengthen the EU-LAC R&D cooperation through the effective involvement of LAC partners in European consortium on FQS

GENERAL OBJECTIVE
To implement a permanent EU-LAC platform on FQS

SPECIFIC OBJECTIVES

To develop and implement a comprehensive EU-LAC information system on FQS issues

To define EU-LAC stakes on FQS and state priorities on elaboration of joint R&D projects

To enhance the LAC capacity building through better use of the existing EU-LAC cooperation instruments

To propose to EC and/or European consortia relevant LAC "groups of excellence" for further involvement in the new FP 6&7 instruments
KEY DATAS

- Full project time: 36 months
- Total human resources: 121 person months – 13 partners
- 4 EU Member States (France, Belgium, Spain, Portugal)
- 4 Latin American MERCOSUR countries (Argentina, Brazil, Chile, Uruguay)
- Total Budget: 737,500 euros

EXPECTED RESULTS

- Strengthening of trade in Food Sector
- Compliance of LAC Food Exports with EU regulations

PROJECT CUSTOMERS

- All stakeholders of the food supply chain: producers, firms, consumer associations, academic and research sector, policy makers, regulatory bodies
Traceability was identified as one of major priority topics (existence of a knowledge, existence of research activities ...)

- Elaboration of joint projects
- Data base implementation
- Information System (Web portal)
- Dissemination activities
- Organization of Workshops and Training sessions
Organization of workshops and training sessions

Field: Traceability in the food chain

“Geo information in traceability systems, agricultural production systems and environmental management: opportunities in regional development”
Campinas, Brazil, 27th of July 2005, 35 participants

“Recent advances on food traceability systems”
Santiago, Chile, 1st of August 2005, 95 participants

“Opportunities for EU-LAC co-operation on food traceability systems”
Santiago, Chile, 2-3 August 2005 (60 participants)

“Traceability systems along the meat chain”
Buenos Aires, 4th of August 2005 (60 participants)

“Strategic Technology Watch - applied to traceability, why and how to use Internet efficiently”
Buenos Aires, 28 November - 2 December 2005 (15 persons trained)
Elaboration of joint EU-LAC Projects

Field: Traceability in the food chain

Offer interface with INCO (southern cone) countries to FP6 project (SSA PETER)

Facilitate integration of INCO partners in the EC top-up procedure (joining Integrated Projects or Network of Excellence)

Elaboration of new projects for the FP6/FP7 (ex: SSA OTAG - Geodecision to Track and Trace Agricultural Production)
Data base implementation

Building a Database in traceability between the two regions for Key Stakeholders:

Producers, Entreprises and Traders

Scientists and Research Institutions

Consumer Groups and Policy Makers
Information System (www.alcuefood.org)

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This system is currently under construction...
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Dissemination activities

Through the Information System / Web Portal

Through Workshops and Trainings

Through Participation in PETER:
- Disseminate European information to LAC/INCO countries
- Put forward LAC/INCO demands/contexts for better adequation of traceability systems to the real needs
3. A few Cirad’s researches on traceability using innovative tools for Food Quality and Safety

- PCR DGGE (fishes)
- Electronic nose (dates)
- Near Infra Red Spectrometry (coffee and cocoa)
Microbial ecology to trace origin
by Polymerase Chain Reaction – Denaturant Gel Gradient Electrophoresis
didier.montet@cirad.fr

Pangasiculture in Mekong delta (100,000 tons per year)
New method PCR-DGGE

**Food sample**

- Extraction of total DNA
- PCR Amplification of a ribosomal DNA variable region by specific primers
- Separation of different DNA by DGGE
- Comparative analysis of sequences and determination of microbial markers of specific area
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PCR-DGGE

UV transilluminator

DGGE

Statistical analysis

DGGE

Image analysis
DGGE prints of bacteria extracted from dry fishes coming from three different farms (rainy season)

L. plantarum

E.Coli
Factorial analysis of DGGE fingerprint of bacteria from fishes of 4 districts in the province of Angiang (Vietnam) at rainy and dry seasons

CP: Chau Phu; CD: Chau Doc; TC: Tan Chau; AP: An Phu
R: rainy season; D: dry season
Electronic nose to distinguish dates varieties
marc.lebrun@cirad.fr
Visualization of the global finger prints

Electronic nose
Mass spectrometer + sensors
Distribution of Black Bousthammi, Deglet nour and their mix 50% on first principal plan
Near Infra Red Spectrometry

fabrice.davrieux@cirad.fr
Near Infra Red Spectrometry: principle

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The SPIR is the measurement of the absorption (Wave length and intensity) of the near infra-red light by a sample. The principle of the technic is based on the vibrational properties of the molecules and their interactions with the light.
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Energy absorbance by Chemical Links

Comparaison to spectral data base

Spectral fingerprint

Qualitative Analysis
Quantitative Analysis

Infrared Light
Characterization of coffee mixtures (roasted and grounded)

Distribution of coffee arabica and robusta on first principal plan

Comparison of specific coffees to standard

- Decaffeinated
- Defatted
- Aromatized with vanilla

CP1 (63.86%)
CP2 (29.85%)
CP3

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Linear discriminant analysis of three origins of cocoa beans

Classification rate 100%
Many Thanks for your attention!

www.cirad.fr

www.cirad.fr/ur/qualite_aliments

www.alcuefood.org

Mathieu WEIL  mathieu.weil@cirad.fr