

Networking and harmonization in GMO analysis: EU efforts

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1st International Workshop on Harmonisation of GMO Detection and Analysis in MENA Region
Jordan, 4-5 June 2012

CONTENT

- The context
- JRC capacity building
- The Better Training for Safer Food (BTSF) Programme
- Enlargement, International Collaboration and Capacity Building' Project
- GMO Proficiency/Comparative Testing



EU-RL mandate Reg. (EC) 1829/2003

Validation of GMO detection methods as part of the EU GMO approval process

Provision of control samples (provide laboratories with appropriate tools to carry out necessary controls)

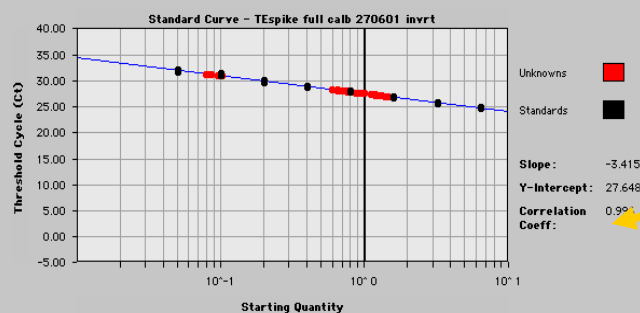
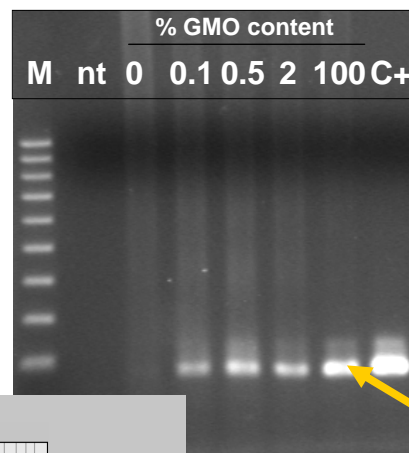
Provision of guidance documents on sampling and testing, method acceptance criteria, method performance criteria

EU-RL mandate Reg. (EC) 882/2004

Provision of reference analytical methods

Organisation of comparative testing and appropriate follow-up in accordance with internationally accepted protocols

Collaboration with laboratories responsible for analysing feed and food **in third countries.**



GMO or not GMO ?

...towards harmonisation on

- **Sampling**

- **Sample preparation**

- **Extraction methods**

- Matrix
 - Processing
 - Protocols

- **Analytical choice**

- **DNA-based methods**

- **Protein-based methods**

- Protocols
 - Specificity
 - Sensitivity

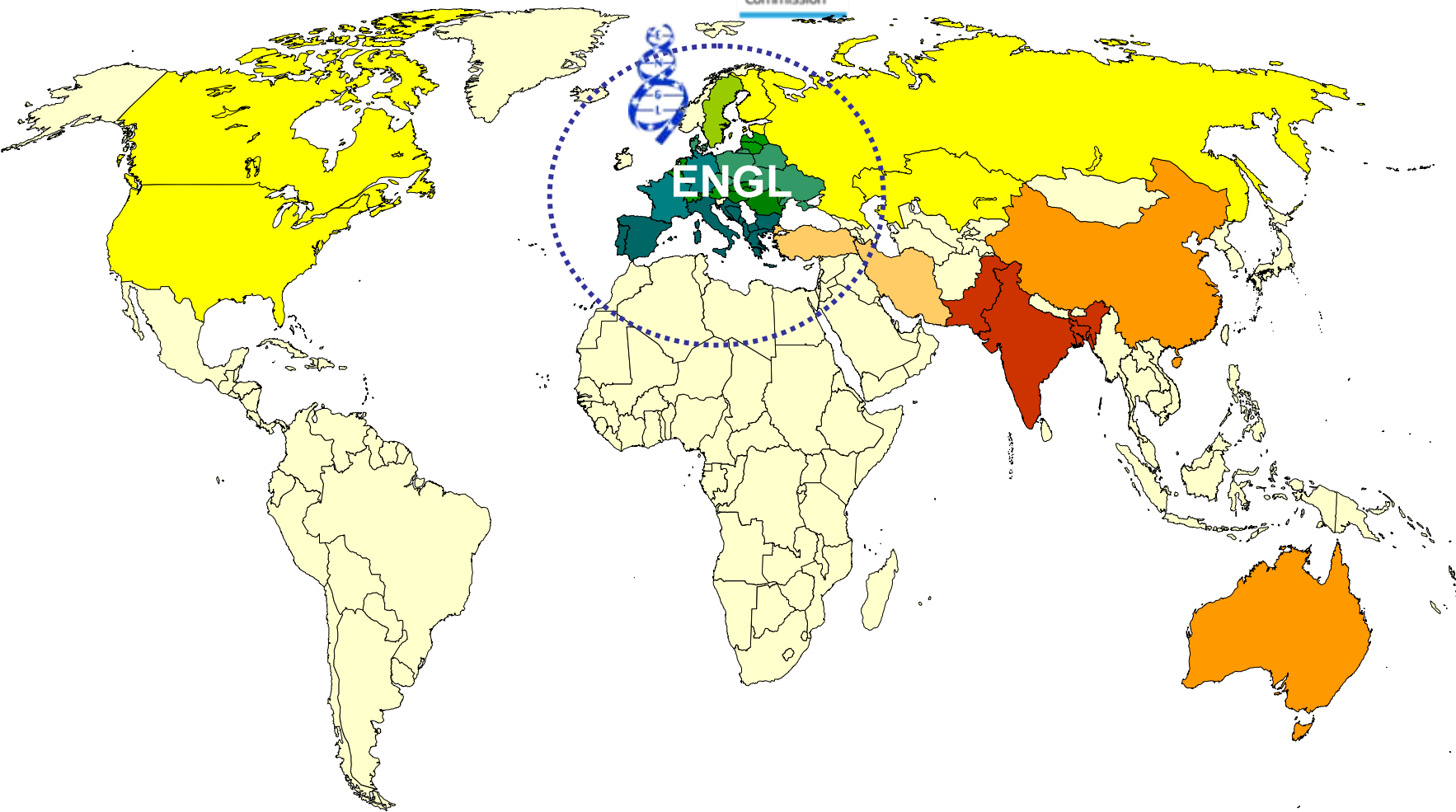
- **Interpretation and reporting**

- **Laboratory facilities**

- **Quality assurance**

- **Accreditation**

- **Method validation**



JRC Capacity Building Programme

Objective:

- To help control laboratories to implement proper facilities and expertise in GMO testing
- To contribute to the enforcement of an harmonised approach in GMO analysis

Training courses on the Analysis of Food and Feed Samples for the presence of GMOs

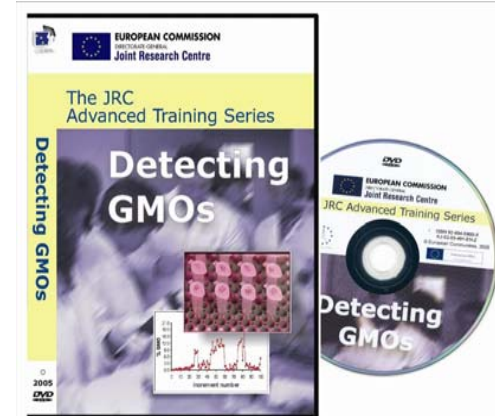
- ✓ Scientists from more than 120 laboratories trained worldwide
- ✓ Specific training for trainees
- ✓ External facilities as 'Training Sites'
- ✓ Production and release of *ad-hoc* didactic material



JRC Capacity Building Programme

Training courses on the Analysis of Food and Feed Samples
for the presence of GMOs

- In-house
- Cyprus, Hungary, Tunisia, Cuba, Chile, Turkey...
- In collaboration with WHO, ILSI, ICGEB ...
- *Ad hoc*, e.g. Rumania, FVO ...
- ISO 17025 Trainings



- USER MANUAL:
- English
- French
- Spanish
- Russian
- Chinese
- Turkish
- Portuguese
(in preparation)

<http://gmo-crl.jrc.ec.europa.eu/capacitybuilding/documentation.htm>



1st Global Conference on GMO Analysis

Villa Erba, Como, Italy
24-27 June 2008

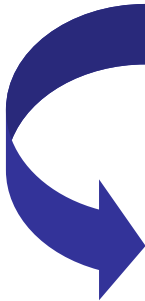
<http://gmoglobalconference.jrc.it/>

The way towards the 'Enlargement, International Collaboration and Capacity Building' Project

- 1998 – ongoing Expertise in molecular approaches for GMO analysis
- 2000 – ongoing Training and capacity building programme
- 2002 Establishment of the European Network of GMO Laboratories (ENGL)
- 2003 EU Reference Laboratory for GM Food and Feed (EURL-GMFF)
- 2004 EU-RL Mandate according to Regulation (EC) No 882/2004
- 2008 1st Global Conference on GMO Analysis



• 2009



Enlargement, International Collaboration and Capacity Building
Project kick-off



'Enlargement, International Collaboration and Capacity Building' Project

Project Aim

- To share the networking experience and the advantages derived from the implementation of the ENGL in the EU
- To support the establishment of regional networks outside the EU
- To help building capacity by providing training to enforcement laboratories

Developed through:

- Networking workshops
- Support toward the establishment of regional networks
- Regional training courses
- Dedicated web page



The Better Training for Safer Food Programme



A DG SANCO training initiative for EU and third country officials who undertake controls on food safety and veterinary issues.

Legal basis: Article 51 of Regulation 882/2004

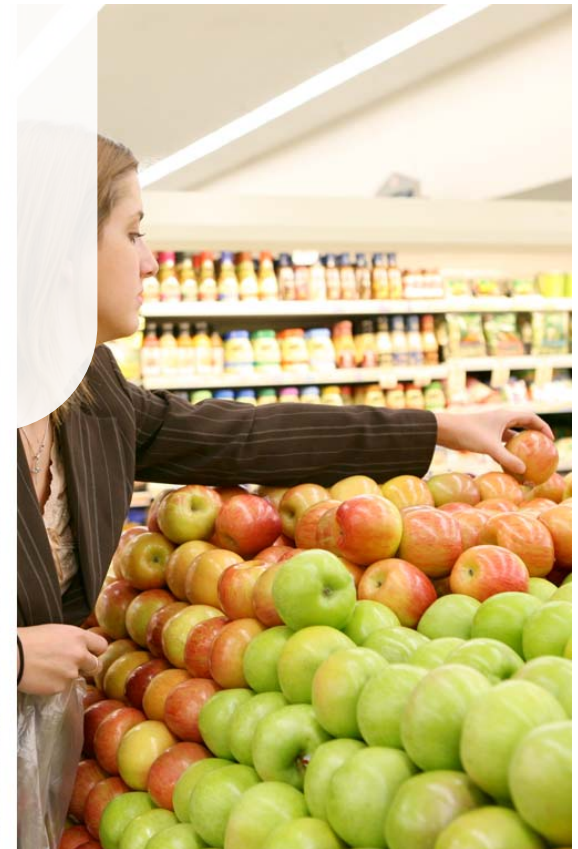
Areas covered:

- Food law
- Feed law
- Animal health rules
- Animal welfare rules
- Plant health rules



General aims

- High levels of competence and awareness of EU rules amongst official control staff
- Harmonised approach to Community and national control systems
- High levels of consumer protection, animal health and welfare and plant health
- Level playing field for food businesses
- Enhance trade of safe food



Third country specific aims

- Ensure fair trade with third, particularly developing countries
- Help third countries to better understand and meet EU standards
- Reduce rejections at EU borders and the burden on EU border inspectors
- Safer food for third country consumers and a more diverse product range in the EU



Programmes (EU-third countries)

1. HACCP
2. Animal by Products
3. Animal Welfare
4. BIPs Airport/seaport/roads/rail
5. Zoonoses/microbiological criteria
6. Food Hygiene and Control
7. Food Contact Materials
8. Plant Protection Products
9. Plant Health Control
10. TSE
11. Food/feed of non-animal origin
12. Feed law
13. Animal Health Controls (Aquaculture)
14. Animal Health Controls (bees/zoo animals)
15. TRACES for EU Member States
16. Quality schemes
17. Audit systems
18. Support for EU controls
19. Food additives
20. Veterinary medicinal residues
21. Food contact materials
22. Contingency planning/animal disease control
23. Emerging animal diseases
24. Risk assessment
25. EU food standards
26. Avian Influenza
27. Food Testing/SPS issues
28. GMO analysis
29. RASFF and TRACES
30. Feed rules and import requirements
31. International standard-setting bodies

BTSF in figures 2006-11

Around 660 events

More than 29.000 participants

Budget of approx. € 68 million

Approx 35% of this activity covers third countries

Training 2012

Around 150 events

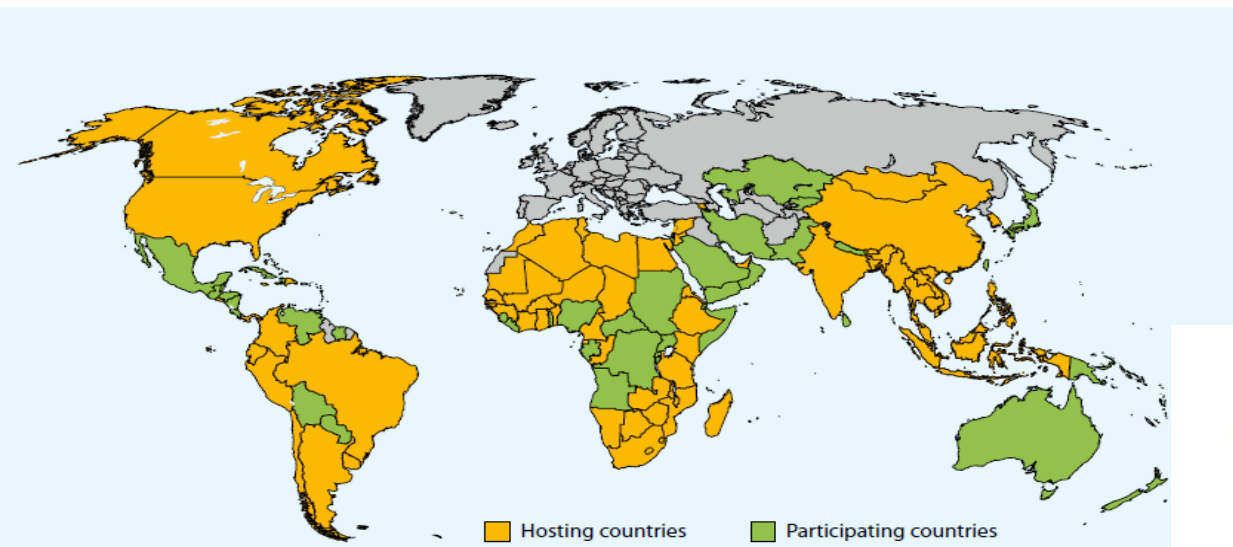
Approx 31 activities

Almost 7.000 participants

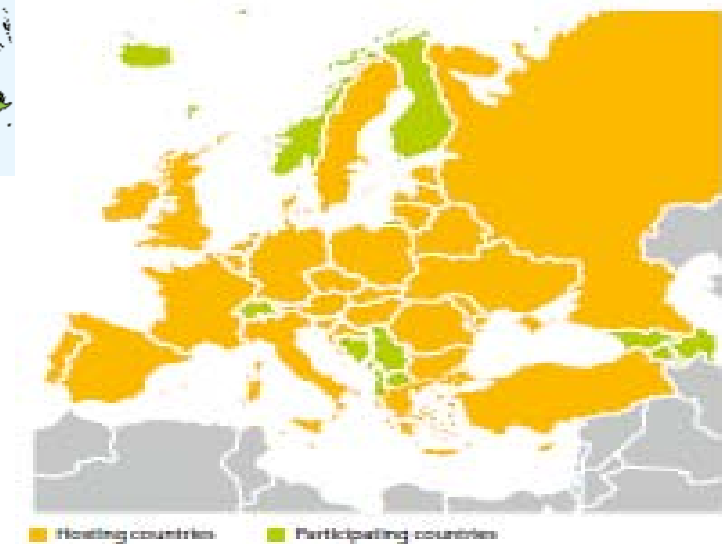
Budget of nearly € 15 million

Hosting/participating countries 2006-present

BTSF overall




BTSF overall



More information?

http://ec.europa.eu/food/training_strategy/index_en.htm


Food Safety - From the Farm to the Fork

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Training Strategy - Home

Better Training for Safer Food is a Commission training initiative covering food and feed law, animal health and welfare and plant health rules. It trains Member State and candidate country national authority staff involved in official controls in these areas.

This aims to keep participants up-to-date with Community law in these areas and should help to ensure more harmonised and efficient controls. Efficient controls are an essential factor in maintaining high levels of consumer protection, animal health and plant health. Harmonisation of controls should help to create a level playing field for food businesses.

Training is also organised specifically for third, particularly developing country participants so as to familiarise them with EU requirements. This should help to ease access to the EU market for products from developing countries.

Recent News



Second import controls workshop takes place in Italy

The second in a series of three BTSF workshops on import controls on food and feed products of non-animal origin takes place in Pisa and Livorno, Italy on 23-26 March. Around 50 people are to attend from EU Member States, candidate and EFTA countries.

The training should provide participants with a solid knowledge of Community requirements for food and feed imports. This should improve implementation of EU legislation and contribute to developing best practices for controls on relevant products.

Upcoming workshops

23-26 March: Veterinary and food safety checks in seaport border inspection posts, Southampton, UK
 23-26 March: Controls of food and feed of non-animal origin, Livorno, Italy
 30 March-2 April: Trade Control and Expert System (TRACES), Madagascar
 12-14 April: Prevention, control and eradication of transmissible spongiform encephalopathies, Oldenburg/Wilhelmshaven, Germany
 12-16 April: Food hygiene and controls of fishery products and live-bivalve molluscs, Santander, Spain
 19-21 April: Prevention, control and eradication of transmissible spongiform encephalopathies, Oldenburg/Wilhelmshaven, Germany
 19-23 April: Food hygiene and controls of milk and dairy products, Brescia, Italy
 19-23 April: Better Training for Safer Food in Africa - regional food hygiene workshop for East Africa, Uganda
 20-23 April: Official controls on food and feed of non-animal origin, Genoa, Italy

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Last Update : 11-03-2010



JOINT RESEARCH CENTRE

European Union Reference Laboratory for GM Food and Feed

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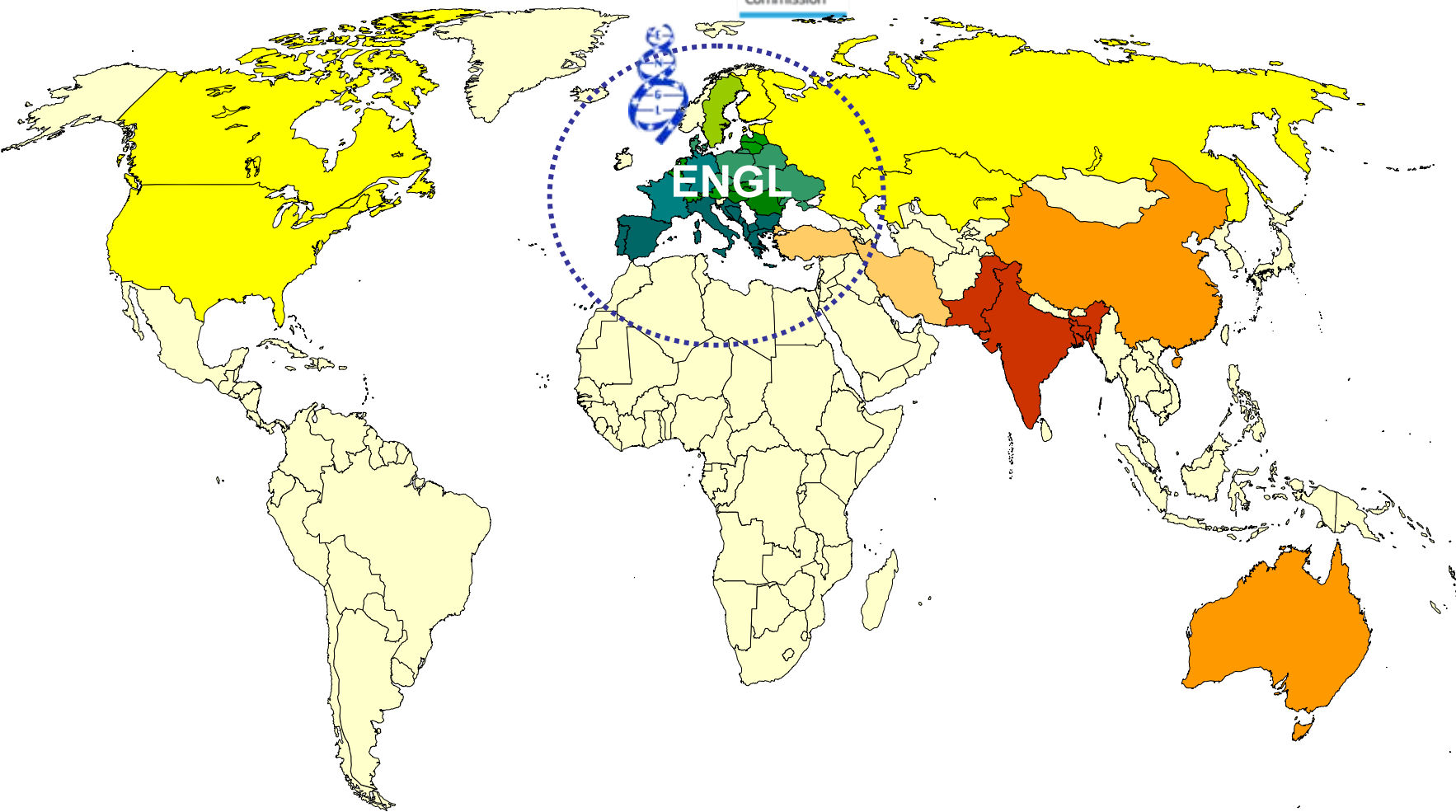
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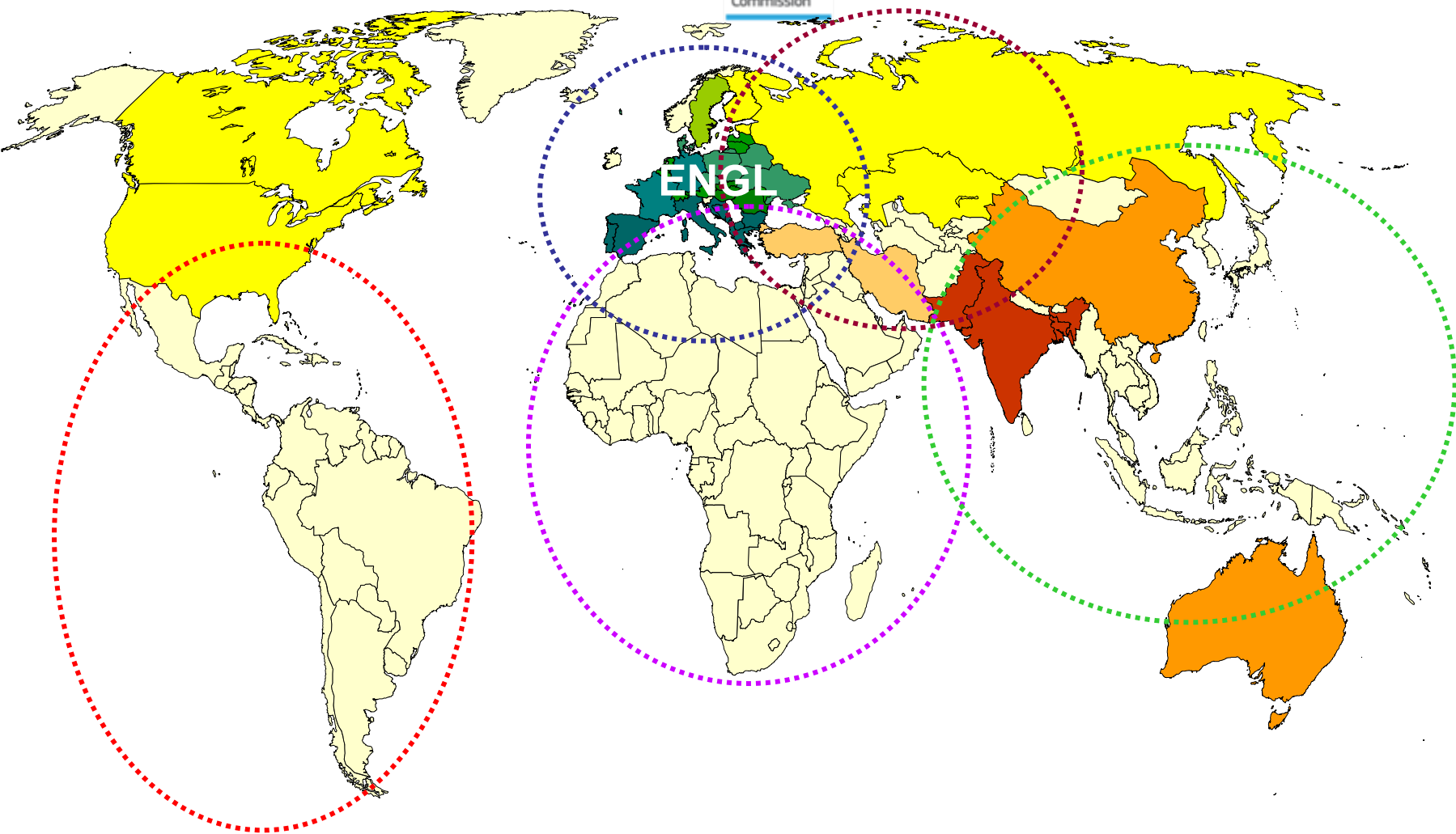


Enlargement, International Collaboration & Capacity Building

The Molecular Biology and Genomics Unit of the Institute for Health and Consumer Protection (European Commission, Joint Research Centre) plays a leading role in the area of analysis of food, feed and environmental samples for the presence of genetically modified organisms (GMOs).

Here we present the international activities related to capacity building and training and we provide regular updates on workshops, training sessions and conferences we organise that aim to increase expertise and to foster international collaboration and harmonisation.







Roadmap 2009 - 2012

Latin America

- Cuba, October 2009 - Training Course for Central & South American Countries
- Brazil, 3 - 4 December 2009 - Regional Networking Workshops for Central & South American Countries
- Ispira, 8 - 12 November 2010 - Study Tour on GMO Analysis for Central & South American Countries
- Mexico, 2 – 3 March 2011 - 2nd Regional Networking Workshop for Central & South American Countries
- Colombia, 3-4 July - 3rd Regional Networking Meeting for Central & South American Countries



Latin America

- Connection among Laboratories within the region
- Intense Exchange of information
- Participation to comparative testing rounds
- Red Latino Americana de laboratorios de detección de OGM
- RLAC-OGMNET

RLAC OGMnet - Home - Windows Internet Explorer

https://rlac-ogmnet.jrc.it/

RLAC OGMnet - Home

System Account

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Welcome to the RLAC-OGMNET

Latin American and Caribbean Network of GMO Detection Laboratories

Red Latinoamericana y del Caribe de Laboratorios de Detección de OGM

Rede Latino-Americana e Caribe de Laboratórios de Detecção de OGM

This website is hosted by the Molecular Biology and Genomics (MBG) Unit of the European Commission Joint Research Centre (JRC)

Events

	Title	Location	Start Time	End Time
<input type="checkbox"/>	ISTA Workshop on Statistical Aspects of GMO Detection	Mexico City, Mexico	25/07/2011 00:00	29/07/2011 23:59
<input type="checkbox"/>	15th ENGL Plenary Meeting	Ispra, Italy	24/05/2011 09:00	25/05/2011 14:00
<input type="checkbox"/>	We get the keys and began to test the tool that gave us the European Union		22/03/2011 16:00	22/03/2011 16:30
<input type="checkbox"/>	Second International Workshop on Harmonisation of GMO Detection and Analysis for Central and South America	Merida, Mexico	02/03/2011 09:00	03/03/2011 17:00
<input type="checkbox"/>	First International Workshop on Harmonisation of GMO Detection and Analysis for Central and South America	Foz do Iguacu, Brazil	04/12/2009 09:00	05/12/2009 17:00

Links

- European Commission Joint Research Centre (JRC)
- JRC Molecular Biology and Genomics Unit
- European Union Reference Laboratory for GM Food Feed (EU-RL GMFF)
- New (industry) database of detection methods

[Add new link](#)

Working Groups

Type	Edit	URL	Notes
There are no items to show in this view of the "Working Groups" list. To add a new item, click "New".			

[Add new link](#)



Asia

Roadmap 2009 - 2012

- Malaysia, 16 -17 June 2009 – 1st Regional Networking Workshop for Asian Countries
- Malaysia, 15 -19 June 2009 - Training Course for Asian Countries (EC BTSF Initiative)
- Singapore, 7-8 June 2010 - 2nd Regional Networking Workshop for Asian Countries
- Singapore, June 2011 – 3rd Regional Networking Workshop for Asian Countries
- Ispira, 15 - 17 November 2011 - ASEAN Study Tour on GMO Analysis
- Philippines, 21 - 25 May 2012 – 4th Regional Networking Workshop for Asian Countries + ISO 17025 Training Course

Asia

- Connection among Labs within the region
- Collaboration between existing ASEAN Network and other Asian countries
- Intense Exchange of information
- Participation to comparative testing rounds
- MoU
- EU-Asia GMonet

EU-Asia GMonet - Home - Windows Internet Explorer

https://eu-asia-gmonet.jrc.ec.europa.eu/

Site Actions Browse Page

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Welcome to the EU-Asia GMonet

Meeting / events

Title	Location	Start Time	End Time	All Day Event
ASEAN Network Study Tour	Ispra, Italy	15/11/2011 09:00	17/11/2011 17:00	
3rd EU-Asia Regional Network Meeting	Singapore, Singapore	07/06/2011 09:00	07/06/2011 17:00	
2nd EU-Asia Regional Network Meeting	Singapore, Singapore	09/06/2010 09:00	10/06/2010 17:00	

+ Add new event

Shared Documents

Type	Name	Modified	Modified By
Document	2009-05-19 ENGL Consortium Agreement Final	22/11/2011 11:54	Damien Plan
Document	2011-06-24 Commission PR LLP regulation	23/08/2011 16:28	Damien Plan
Document	2011-09-01 ENGL UGM WG Final	12/10/2011 13:57	Damien Plan
Document	2011-09-01 Technical Guidance from EURL on LLP	12/10/2011 13:58	Damien Plan
Document	ENGL MV WG Report July 2011	23/08/2011 16:29	Damien Plan
Document	EU JRC Report_Compedium Reference Methods GMO Analysis_April 2011	23/08/2011 16:30	Damien Plan
Document	JRC63971 New Plant Breeding Techniques	23/08/2011 16:30	Damien Plan

Plasmid control samples

Type	Name	Modified	Modified By
Document	Plasmid Control Samples List 2011	23/08/2011 16:38	Damien Plan
Document	Template MTA Plasmid Control Samples	23/08/2011 16:37	Damien Plan

+ Add document

Proficiency testing

Type	Name	Modified	Modified By
Document	EURL Comparative testing report_CT0110	23/08/2011 16:37	Damien Plan

+ Add document

GMO detection matrix

Type	Name	Modified	Modified By
There are no items to show in this view of the "GMO detection matrix" document library. To add a new item, click "New" or "Upload".			

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https://eu-asia-gmonet.jrc.ec.europa.eu/_layouts/viewlists.aspx?BaseType=0&ListTemplate=...



Roadmap 2009 - 2012

Africa

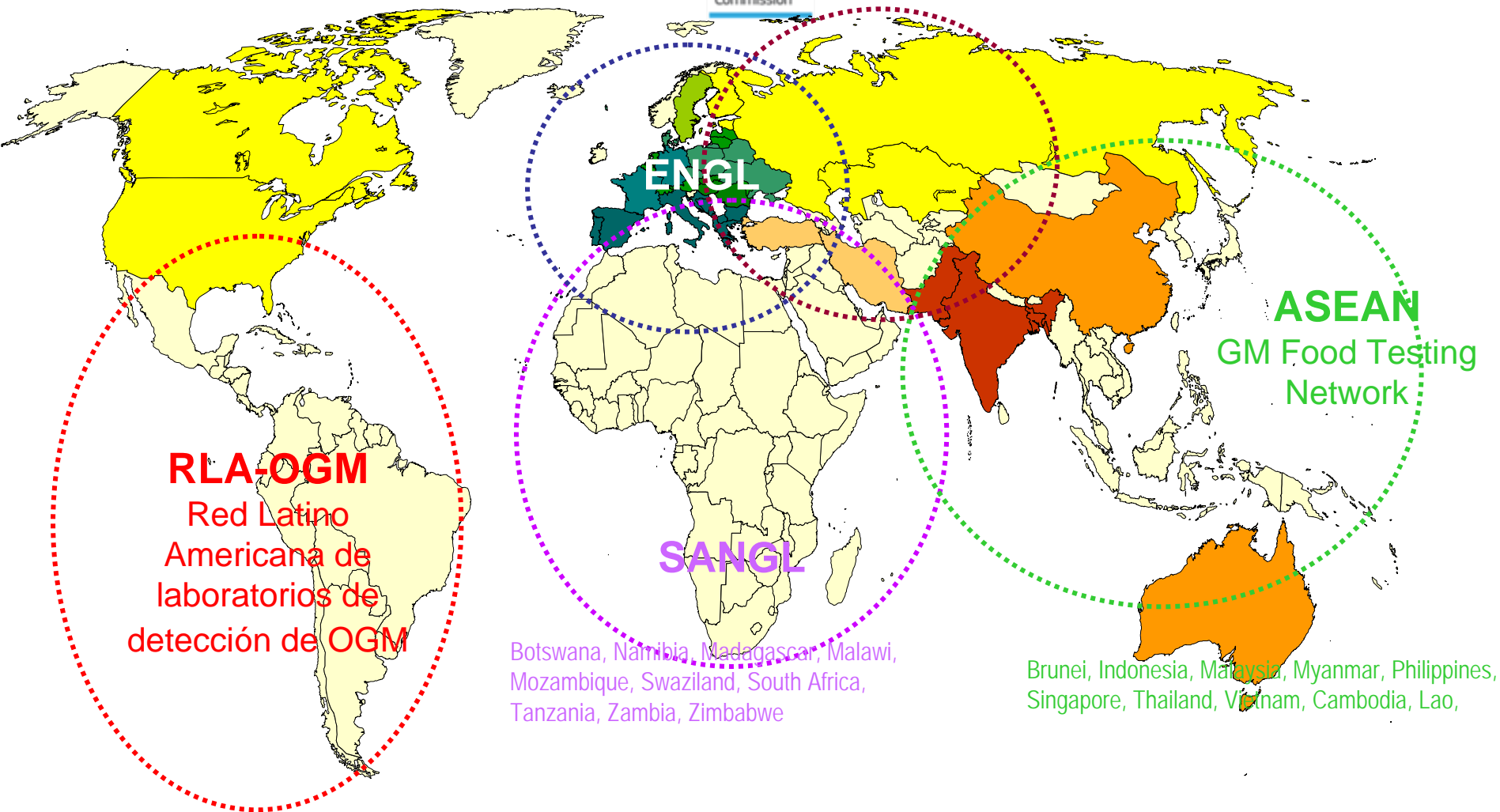
- Tunisia, 18-22 September 2006 – *Training course on the analysis of food and feed samples for Maghreb region*
- South Africa, 28-29 October 2010 – **1st Regional Networking Workshop for African Countries**
- South Africa, 7- 8 February 2012 – **2nd Regional Networking Workshop for African Countries**



Roadmap 2009 - 2012

EU neighbourhood + **Middle East/North Africa (MENA)**

- Turkey, 27 - 28 April 2009 - Enlargement/Networking Workshop for new MS, Candidate Countries, Potential Candidate Countries and Territories, Countries incl. in the European Neighbourhood Policy
- Turkey, 12-16 April 2010 - Training Course for new MS, Candidate Countries, Potential Candidate Countries and Territories, Countries incl. in the European Neighbourhood Policy
- Croatia, 27-28 September 2010 - 2nd Enlargement/Networking Workshop for new MS, Candidate Countries, Potential Candidate Countries and Territories, Countries incl. in the European Neighbourhood Policy
- **Jordan, 4-5 June 2012 - 1st International Workshop on Harmonisation of GMO Detection and Analysis in MENA**



The next step : a Global Network of GMO Laboratories

Roadmap 2009 - 2012

Global GMO Networking Forum (GGNF)

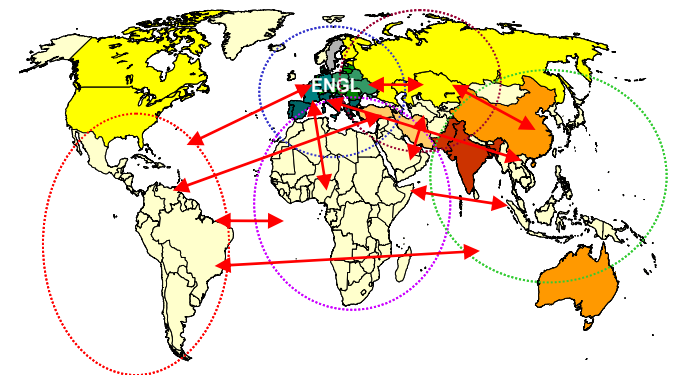
Date: 16-17 October 2012

Location: Brussels (EC Buildings)

General Objective: to "network the GMO networks"

Participants: approx 100 delegates from all regions including representatives from

- EU Commission
- Regional Networks
- International Organisations
- Individual Countries



Roadmap 2009 - 2012

Global GMO Networking Forum (GGNF)

Format:

2-days workshops

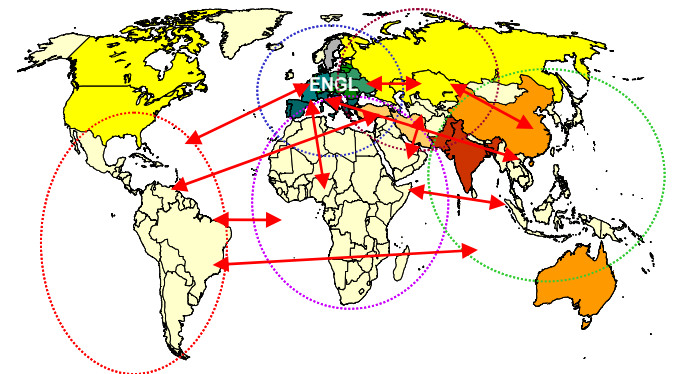
Draft agenda topics:

1st day – Focus on policy and networking

2nd day – Focus on technical topics
and "next steps"

Your task:

give us your suggestions (e.g. on key topics)
and your expectations



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- **GMO Proficiency/Comparative Testing**

Comparative Testing

General definition: 'evaluation of participant performance against pre-established criteria by means of interlaboratory comparisons'

Standard ISO/IEC 17043:2010(E) (Ed1 from 01-02-2010)

Mandatory under ISO 17025

Comparative Testing

- quality tool which measures the outputs of a laboratory
- complementary to other quality assurance tools (use of CRMs, implementation of a formal Quality System, use of validated methods etc.
- CT is concerned with a laboratory routine methods with routine sample types *(Laboratories are encouraged to use their own methods and procedures to reflect the handling of real samples as closely as possible)*
- CT is educational - there should be no “pass” or “fail”



EU-RL Comparative/Proficiency Testing Programme

EU-RL mandate to organise proficiency testing (also called comparative testing) under Reg. EC (No) 882/2004

Two rounds per year

Participants: European laboratories (National Reference Laboratories and ENGL members) + invited participants from third countries

First three rounds (2010 – mid-2011) : one GM event per round + two test materials representing different GM levels

From fourth round (CT-02/11) onwards: mixtures of GM events.
Combination of qualitative and quantitative PCR

General Comparative Testing Procedure

Step 1 Dispatch Test materials are dispatched to participating laboratories

Step 2 Analysis Participants analyse test materials and report results and methods

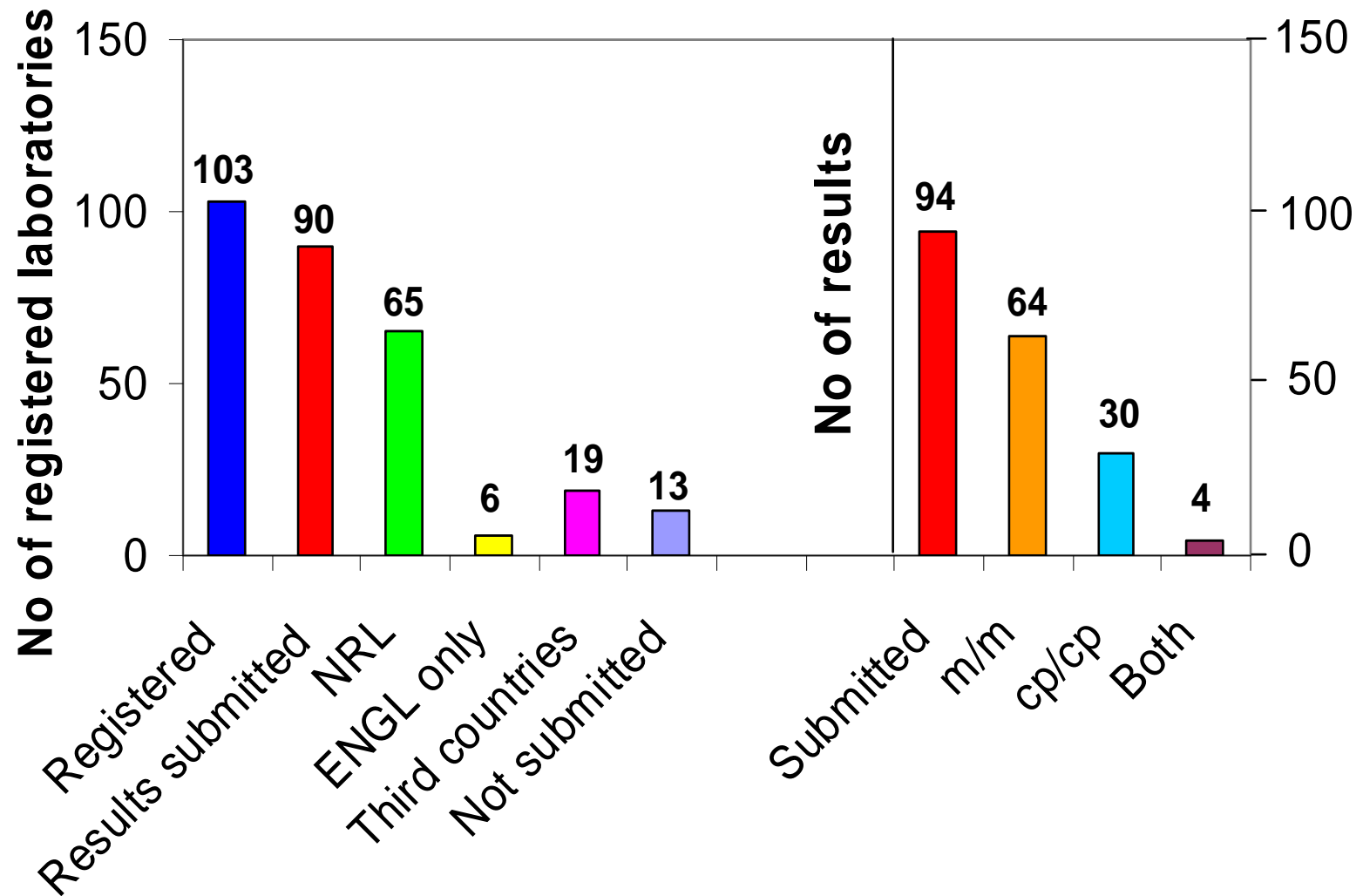
Step 3 Statistics A statistical analysis of results is performed and a z-score is awarded to the laboratory

z-scores between -2 and +2 are satisfactory

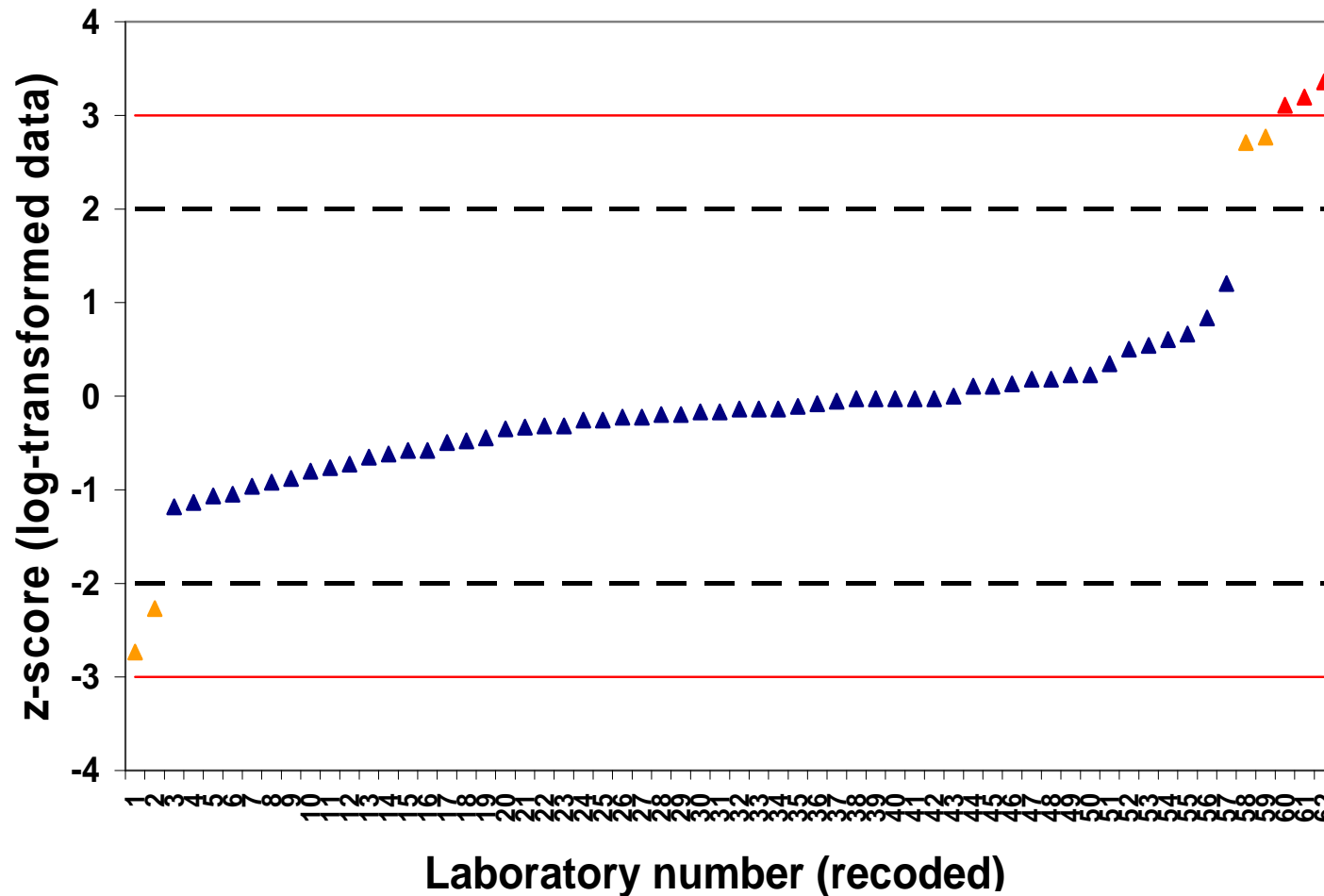
z-scores < -3 and > +3 are unsatisfactory

z-scores between -2 and -3 or +2 and +3 might signal problems, but could also be caused by chance variation

Step 4 Report a *confidential* report is made available to participants. The report identifies the performance of the laboratory and the *anonymous* performances of other laboratories in the test for comparison. The report also contains details of the test material preparation and methods used by participant laboratories.



GM Mass fraction Level 1



JRC-EURL-GMFF-CT-02/10



Thank you for your attention!