

2nd International Workshop on Harmonisation of GMO Detection and Analysis for Central and South America

Developments with respect to GMO analysis: Experience from Brazil

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- Update on recent developments:
 - LANAGROs (RS, MG e GO) – Participation in the EURL comparative tests;
 - Study Tour in Ispra – outputs;
 - Networking;
 - GMO labs in Brazil: 9 public and 7 private;
 - 27 approved GM events:

DESENVOLVIMENTO E VALIDAÇÃO INTERLABORATORIAL DE SISTEMAS DE DETECÇÃO E QUANTIFICAÇÃO EVENTO- ESPECÍFICOS DE OGMS NO BRASIL

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Embrapa Soja

Embrapa Arroz e Feijão

UFSC

UFRS

INCQS

27 crops approved by National Biosafety Technical Commission (CTNBio)

5 GM soybean approved

Event Name	Original Developer/year	Trait	Analysis method	GMO quantification kit	CRM	DNA (GeneScan)
40-30-2 (RR)	Monsanto/1998	glyphosate tolerance	JRC	GeneScan	ERM	genomic
CV127	Basf Embrapa/2009	imidazolinones tolerance	JRC step 5 reporting			
LL A2704/12	Bayer/2010	glyphosate tolerance	JRC	GeneScan		
LL A5547-127	Bayer/2010	glyphosate tolerance	JRC			
MON 87701 x MON 89788	Monsanto/2011	glyphosate tolerance and insect resistance	JRC step 5 reporting			

15 GM maize approved

Event Name	Original Developer/year	Trait	Analysis method	GMO quantification kit	CRM	DNA (GeneScan)
T 25 (Liberty-Link)	Bayer/2007	glyphosate tolerance	JRC	GeneScan		genomic
MON 810 (Guardian)	Monsanto/2007	insect resistance	JRC	GeneScan	ERM	genomic
Bt 11	Syngenta/2007	insect resistance	JRC	GeneScan	ERM	genomic
GA 21	Syngenta/2008	glyphosate tolerance	JRC	GeneScan	ERM	genomic
NK 603	Monsanto/2008	glyphosate tolerance	JRC	GeneScan	ERM	genomic
TC 1507 (Herculex I)	Dow AgroScience / 2008	insect resistance	JRC	GeneScan	ERM	genomic
TC 1507 x NK 603	Du Pont/2009	glyphosate tolerance, insect resistance	JRC		ERM	
MON 89034	Monsanto/2009	insect resistance	JRC	GeneScan		
MIR 162	Syngenta/2009	insect resistance				
MON 810 x NK 603	Monsanto/2009	glyphosate tolerance, insect resistance	JRC		ERM	
Bt 11 x GA21	Syngenta/2009	glyphosate tolerance, insect resistance	JRC		ERM	
Bt11 x MIR 162 x GA21	Syngenta/2010	glyphosate tolerance, insect resistance	JRC step 5 reporting			
MON 89034 x NK 603	Monsanto/2010	glyphosate tolerance, insect resistance	JRC			
MON 89034 x TC1507 x NK603	Monsanto/2010	glyphosate, glyphosate tolerance and insect resistance	JRC			
MON 88017	Monsanto/2010	glyphosate tolerance, insect resistance	JRC			

07 GM cotton approved

Event Name	Original Developer/year	Trait	Analysis method	GMO quantification kit	CRM	DNA (GeneScan)
Bt 531 (Bollgard I)	Monsanto/2005	insect resistance	JRC			
LL25 (Liberty-Link)	Monsanto/2007	glyphosate tolerance	JRC			
MON 1445 (RR)	Monsanto/2008	glyphosate tolerance	JRC			
15985 (Bollgard II)	Monsanto/2009	insect resistance	JRC			
Widestrike (281-24-236)	Dow AgroScience / 2009	glyphosate tolerance, insect resistance	JRC		ERM	
MON 531 x MON 1445	Monsanto/2009	glyphosate tolerance, insect resistance	JRC			
GHB 614 (GlyTol)	Bayer, 2010	glyphosate tolerance	JRC			

Events to be approved soon:

- ✓ Maize TC1507 x MON810
- ✓ Cotton TwinLink (T304-40 x GHB119)
- ✓ Cotton 88913
- ✓ Maize TC1507 x MON810 x NK603

LABORATORY NEEDS (27 methods: 5 soybean, 15 maize, 7 cotton)	DIFFICULTIES	EUROPEAN ACTIONS: SUGGESTIONS
Implementation of all these methods in lab. routine	High costs, time consuming, lack of CRM or DNA plasmidial	<ul style="list-style-type: none"> •Development of CRM by IRMM •Multi-target system •Providing training
Implementation of quantitative methods in compound food with low number of DNA targets (LOD)	Choose of the best DNA extraction method	<ul style="list-style-type: none"> •Providing training
Establishing some performance characteristics of the methods already fully validated	Lack of CRM	<ul style="list-style-type: none"> •Development of other CRM by IRMM
Measurements uncertainty (MU) of the quantitative method	Complex guidelines (JRC report, 2009)	<ul style="list-style-type: none"> •Providing training •Establishing guidelines
Establishing of "Decision Limit" to assess compliance with legal requirements, considering uncertainty of the methods	How to calculate?	<ul style="list-style-type: none"> •Providing training