

# GM crops in the global pipeline, asynchronous approvals and challenges for testing

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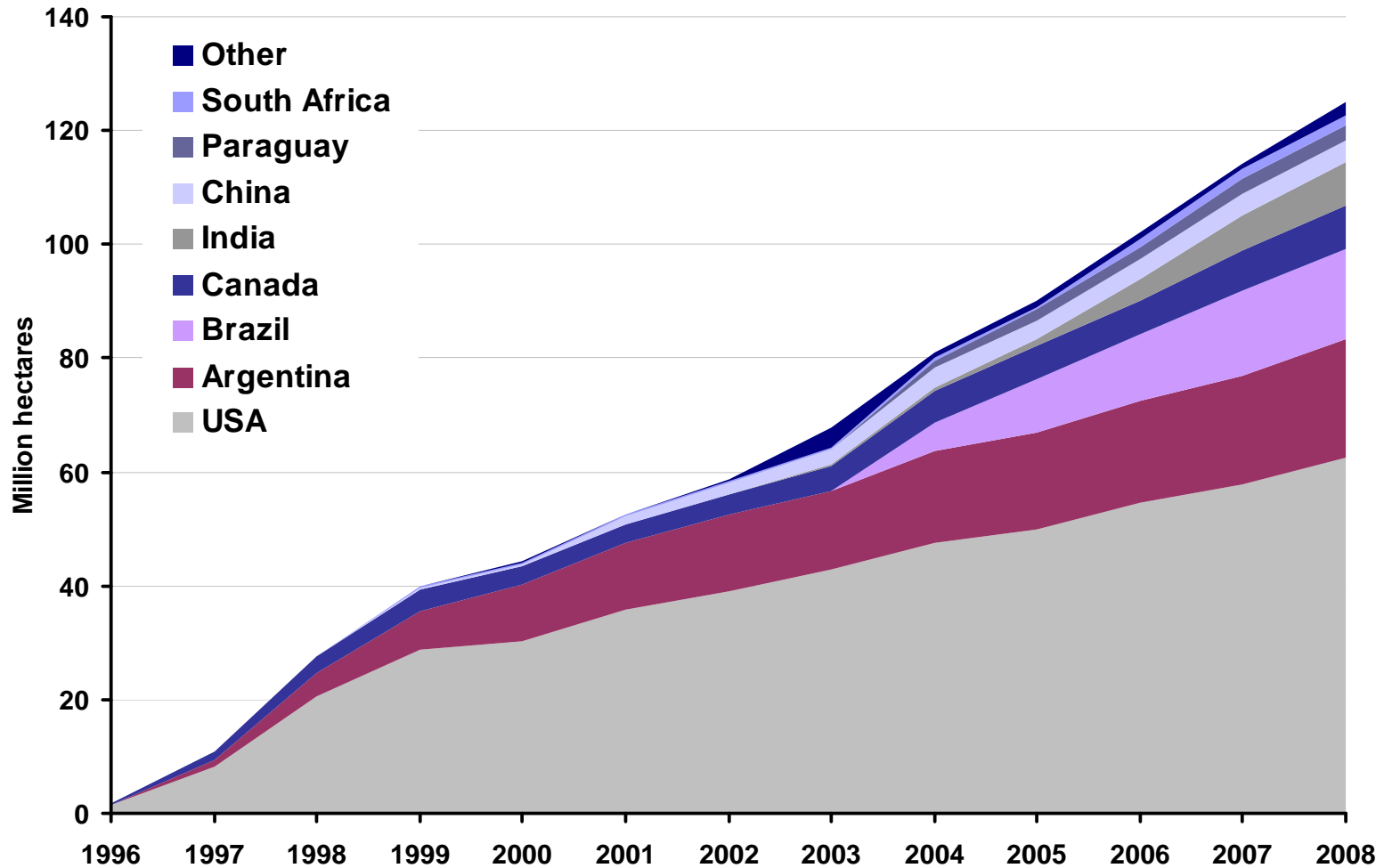
**JRC-IPTS – Institute for Prospective Technological Studies**

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## Main GM crops 2009: share of global agricultural production and total area

<b>Soybean</b>	<b>HT</b>	<b>77 %</b>	<b>69 M ha</b>
<b>Cotton</b>	<b>Bt/HT</b>	<b>49 %</b>	<b>16 M ha</b>
<b>Maize</b>	<b>HT/Bt</b>	<b>26 %</b>	<b>41 M ha</b>
<b>Canola</b>	<b>HT</b>	<b>21 %</b>	<b>6 M ha</b>

**Sugar-beet**



- **Authorisation of new GM crops different across countries (scope, timing, recognition)**
- ➔ **Low-level presence (LLP) of non-approved GM material is already documented in several cases**
  - **Since there is Zero-tolerance policy to LLP**
  - ➔ **Trade disruptions**
  - ➔ **Impact for developing detection methods (low thresholds, lack of information)**

**Goal: Understand the evolution of future sources of LLP by studying global GMO pipeline**

- **Three sources of LLP can be distinguished:**
  - **Asynchronous approval (AA)**: an exporter country has already authorised a GMO for cultivation while trade partners are in the process
  - **Isolated foreign approval (IFA)**: a country has authorised a GMO for cultivation, with no intention to seek approval in other areas of the world
  - **Research events**: cultivation of a GMO in field trials, but due to accidental admixture traces end up in the commercial crop supply

- **The pipeline of future GM crops**

## Current and future events, by crop

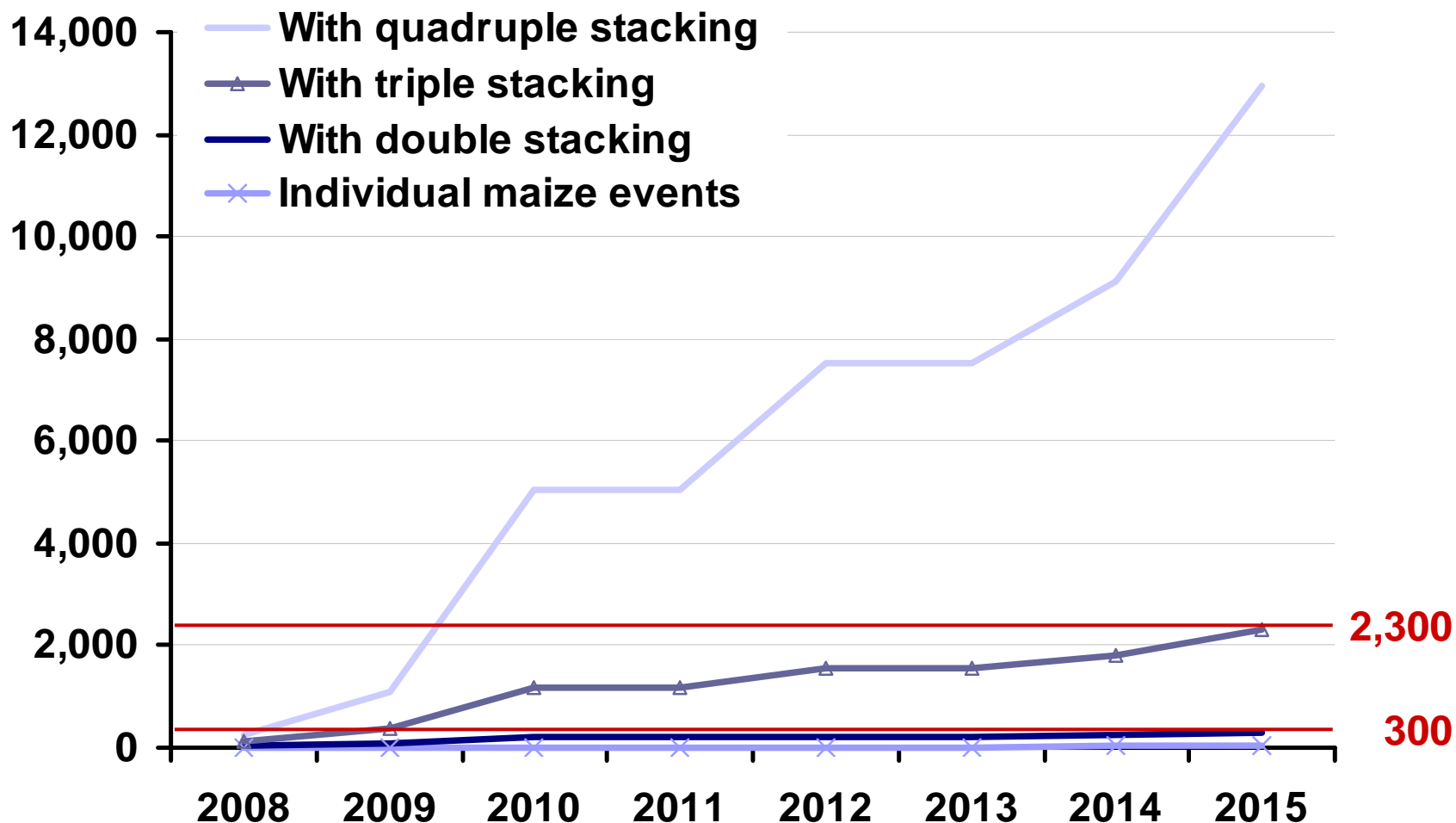
	Commercial in 2008	Commercial pipeline	Regulatory pipeline	Advanced dvpmt	Total by 2015
Soybeans	1	2	4	10	17
Maize	9	3	5	7	24
Rapeseed	4	0	1	5	10
Cotton	12	1	5	9	27
Rice	0	1	4	10	15
Potatoes	0	0	3	5	8
Other	7	0	2	14	23
<b>All crops</b>	<b>33</b>	<b>7</b>	<b>24</b>	<b>61</b>	<b>124</b>

## Current and future events, by region of origin

	Commercial in 2008	Commercial pipeline	Regulatory pipeline	Advanced dvpmt	Total by 2015
USA & Europe	24	7	10	26	67
Asia	9	0	11	34	54
Latin America	0	0	2	1	3

**Decisions by players in Asia may matter in future**

## Theoretical combinations of GM maize stacks



## GM rice cultivation perspectives until 2015

- No commercial cultivation yet anywhere in the world but LLP has occurred with varieties from research labs and breeding trials (USA, China)
- China (Bt63, Bt KMD1, IR CpTi, HT Bar68-1, Bt 63, Xa21)
- Iran (Bt B827)
- India (3-4 Bt events)
- Indonesia (2-3 Bt events)
- Pakistan (Bt events)
- Philippines (GR1, GR2)



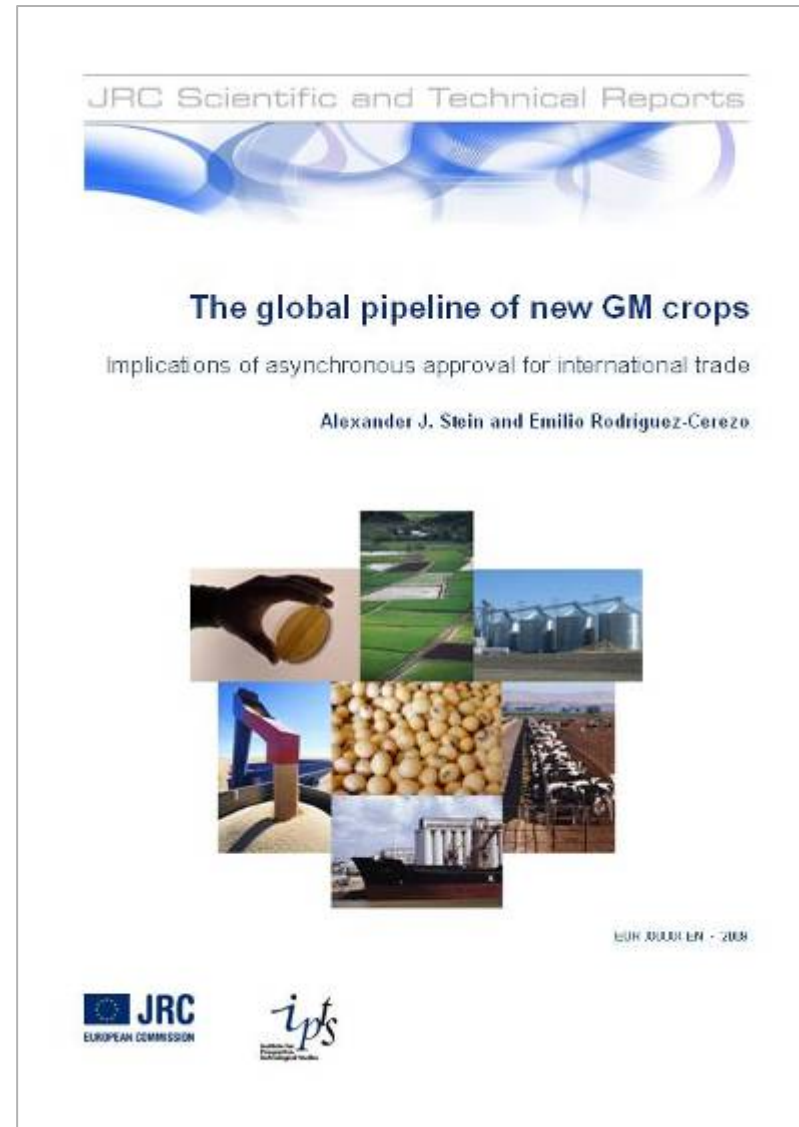
- **Asynchronous approvals**: streamlined approval timing for major crops is not likely enough to solve the LLP
- **Active pipeline and cross-LLP presence between crops complicates the picture**
- **Stacking will also be demanding regulatory resources**
- **Many “local” events are in the pipelines (particularly for “new” for new crops such as rice, potatoes, vegetables, wheat, sugarcane)**
- **Depending on decisions by developers of these varieties, also isolated foreign approvals (and research events) will continue to be an issue**

## Further reading:

Stein A.J., Rodríguez-Cerezo E.  
(2009). *The global pipeline of  
new GM crops: implications  
of asynchronous approval  
for international trade.*

Technical Report **EUR 23486 EN**.  
Luxemburg: European Communities.

<http://ipts.jrc.ec.europa.eu/publications/>



**Thank you very much  
for your attention!**

