

# GM crops in the pipeline: implications for asynchronous approvals in the EU

Emilio Rodríguez-Cerezo

CEN-ENEA Workshop, March 18-19, 2010, Brussels.



**IPTS – Institute for Prospective Technological Studies**

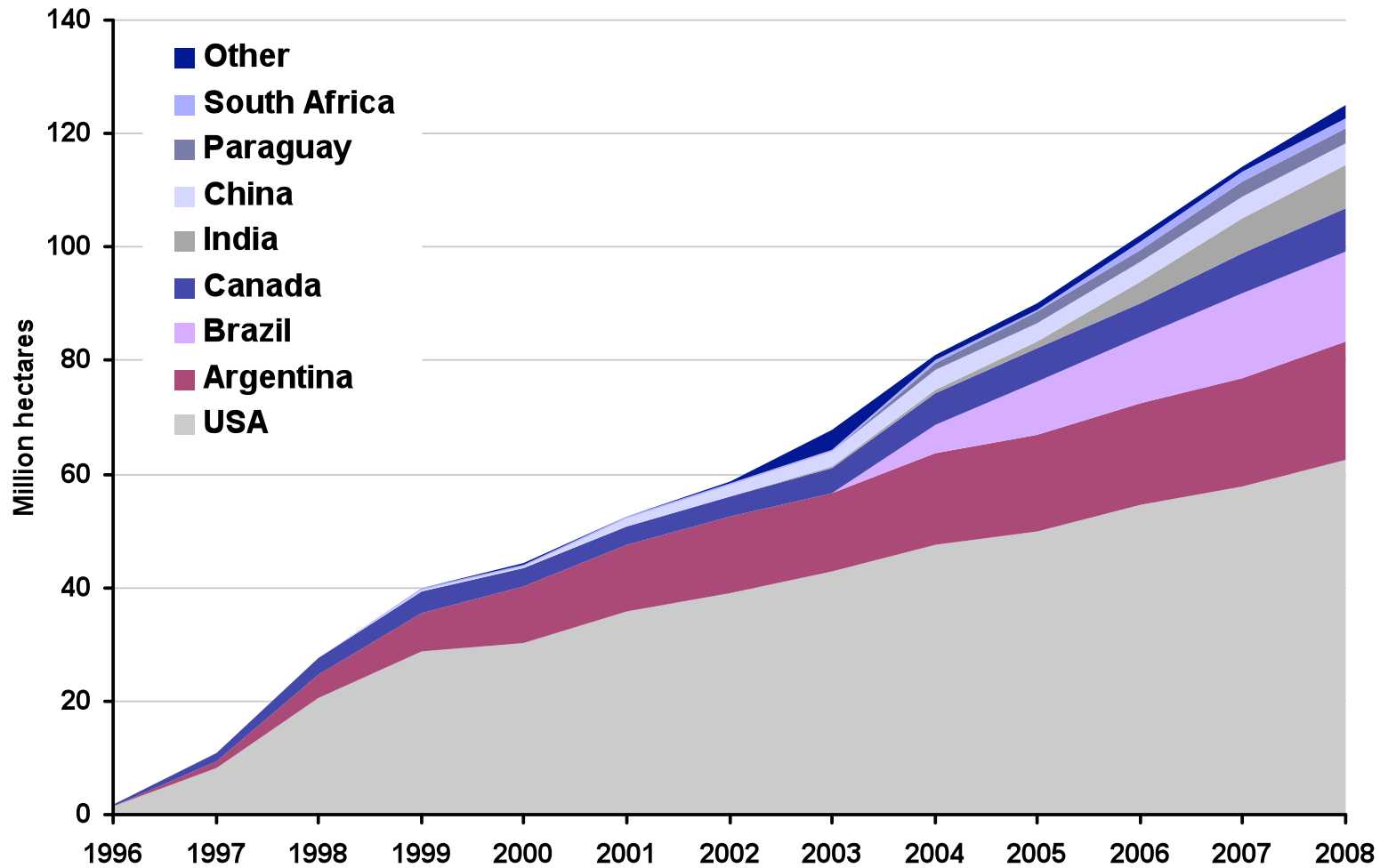
Agriculture and Life Sciences in the Economy Unit, Seville, Spain

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

## Main GM crops 2009: share of global 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**



- **Last year GM crops were cultivated by 12 million farmers in 25 countries on 125 million hectares**
  - **These crops are grown for feed & fibre**
  - **They are also important for international trade**
  - **Authorisation of new GM crops different across countries (scope, timing, recognition)**
- Low-level presence (LLP) of GM material possible that is unapproved in importing country**

- **Given that there is a zero-tolerance policy to LLP**
    - ➔ **Trade disruptions and product withdrawals have occurred**
    - ➔ **Economic impact for EU agro-food chain documented (and studies on future impacts underway)**
- Need to understand evolution of future sources of LLP (technological 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

- **Examples of LLP incidents due to Asynchronous Approvals**
  - *2006 traces of Herculex maize were found in shipments from the USA to the EU*
  - *2007 another LLP situation seemed likely for “RoundupReady 2” (RR2) soybeans*

- **Did the approval of soybean by EU solve the issue for soy trade?**
  - **Maybe for the short term...but**
- **Cross-presence: unauthorised GM maize detected in soybean imports to Europe in 2009**
- **Therefore: need to consider also development of new GMOs in crops other than soybean**
- **The number of new GM crops will increase substantially, due to new developments and stacking of old GMOs**

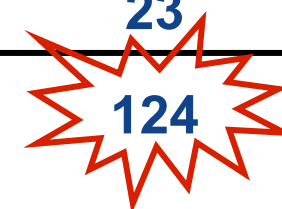


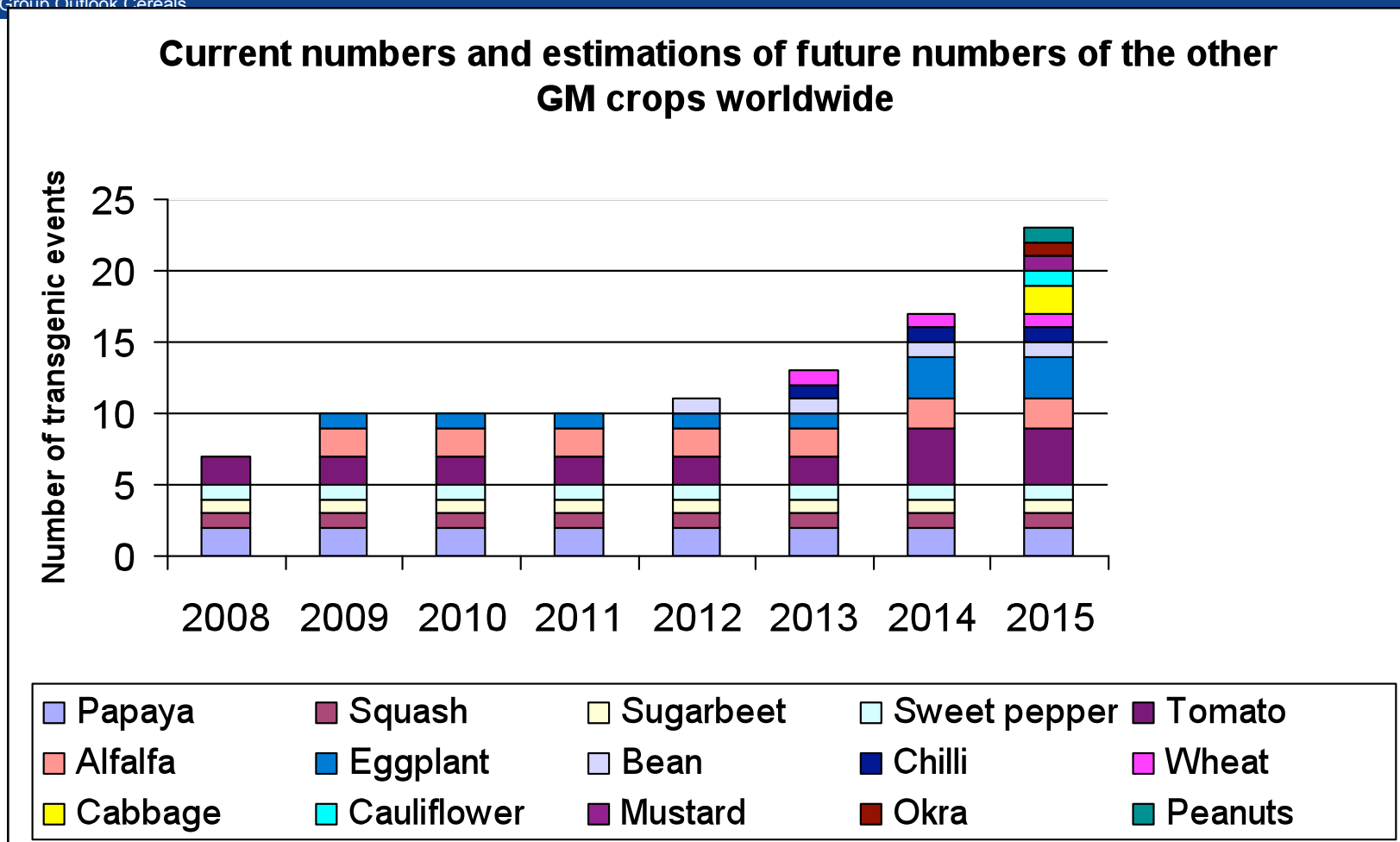
- **Past LLP incidents due to isolated foreign approvals and/or research events**
- ***In 2006 rice trade with the USA disrupted (LLRice)***
- ***In 2009 trade with Canada disrupted after detection of GM flax Triffid line (Univ Saskatchewan)***
- ***Several incidents with GM rice events from China***

- **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>





Source:

Stein, A.J. and E. Rodríguez-Cerezo (2009). The global pipeline of new GM crops: introduction to the database. *JRC Technical Note EUR 23810 EN*. Luxembourg: European Communities, (2010) Current numbers and estimations of future numbers of GM crops worldwide. *Nature Biotechnology* 28, 23-25 (Supplementary Data)

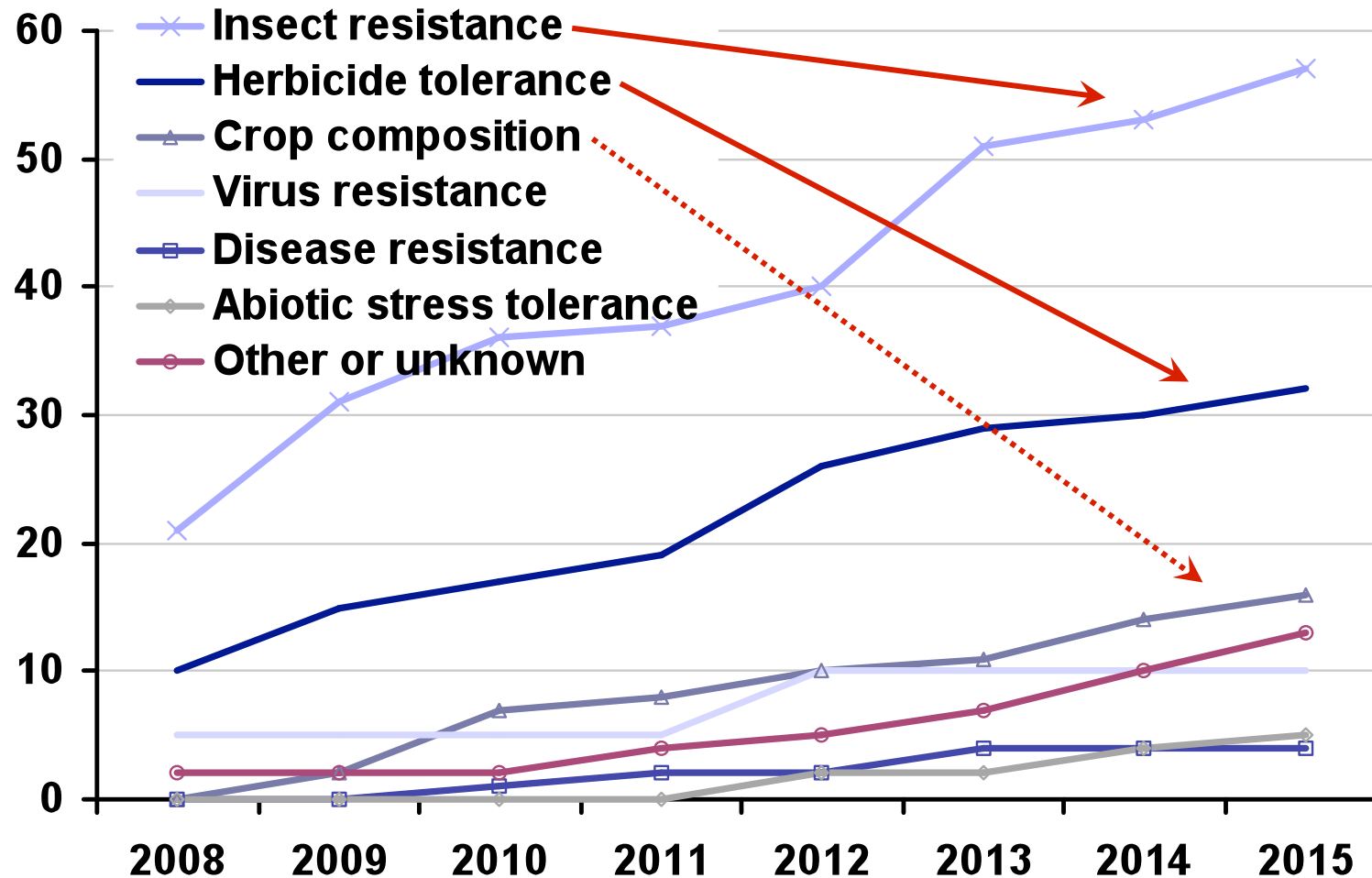
<http://ipts.jrc.ec.europa.eu/publications/pub.cfm?id=2199>

## Current and future events, by region of origin

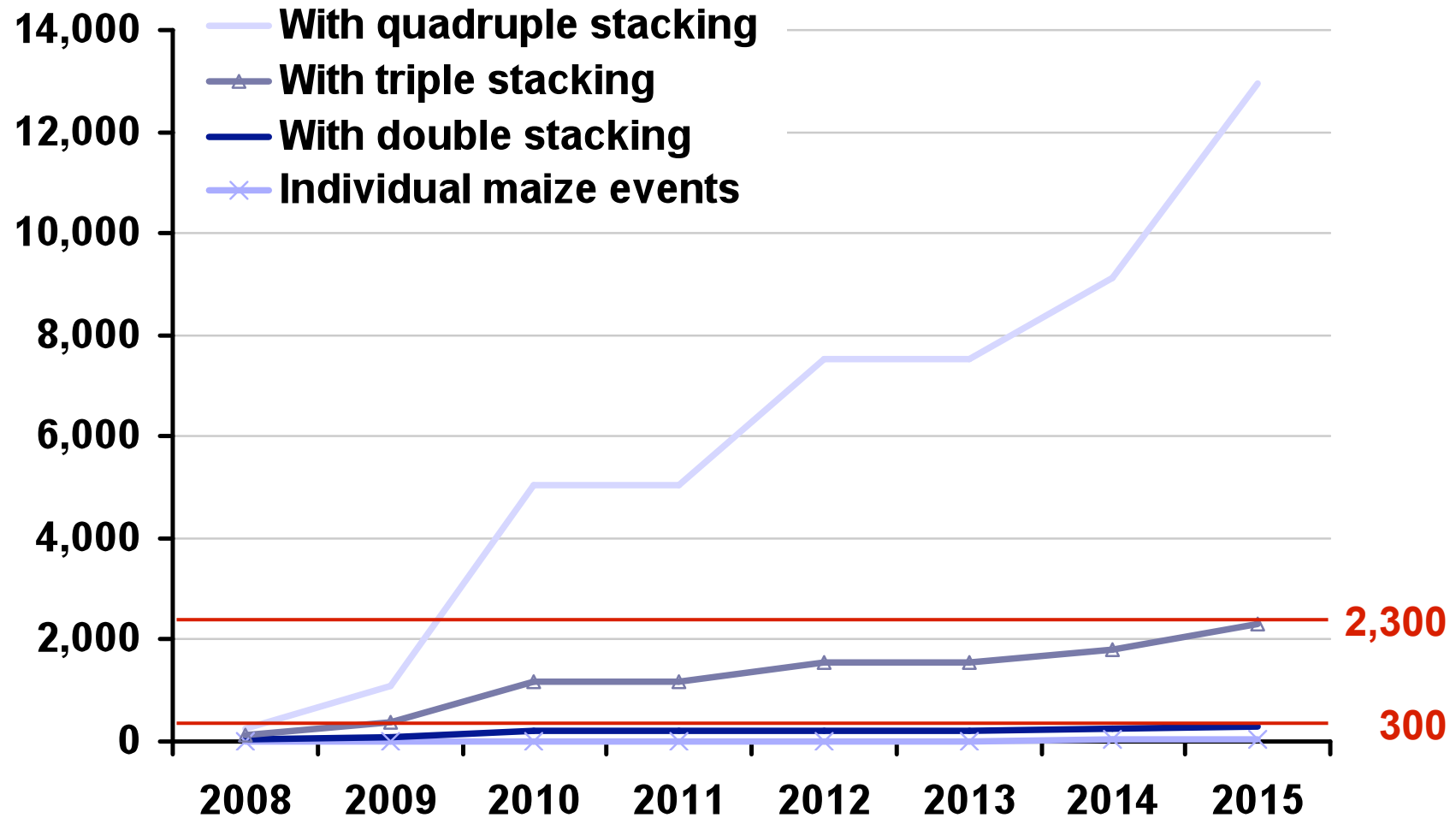
	Commercial in 2008	Commercial pipeline	Regulatory pipeline	Advanced dvpmt	Total by 2015
USA & Europe	24	7	10	26	67
Asia	9	0	11	34	54
Latin America	0	0	2	1	3

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

## Current and future events, by trait



## Theoretical combinations of GM maize stacks







## GM rice cultivation perspectives until 2015

- No commercial cultivation yet but incidents have occurred with escaped varieties escaped 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 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**

## Therefore

- **Future problems due to LLP cannot be excluded**
- **Impacts under study and to be discussed in this meeting include**

**Impacts on prices and availability of EU  
traded feed**

**EU Feedstuff and crushing sectors**

**EU livestock sector**

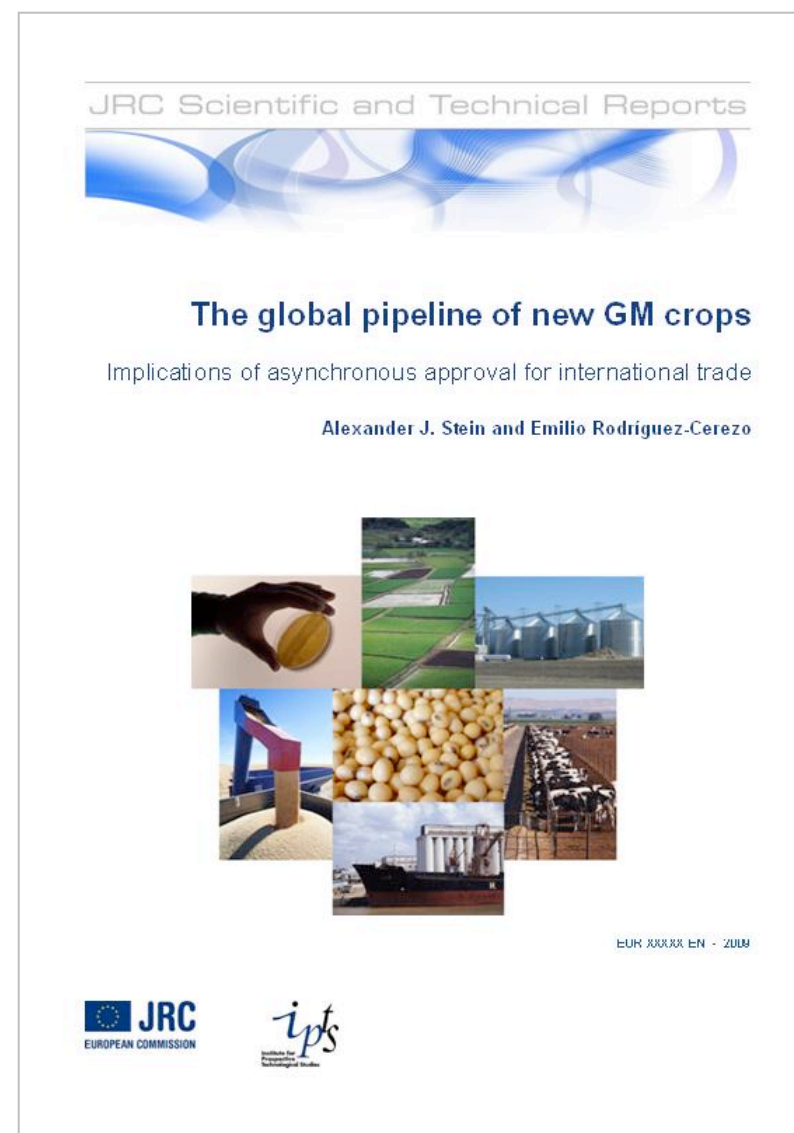
**EU Food production sector**

## 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!**

