

Plenary Session IV

Potential Impacts of Regulatory Asynchronicity and LLP: Moving from the Abstract to the Concrete

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1 October 26-28, 2011 | Vancouver, Canada



IPC's Approach: IPC convenes influential policymakers, agribusiness executives, farm and civil society leaders, and academics from around the world in order to clarify complex issues, foster broad stakeholder participation in policy deliberations, and build consensus around pragmatic policy recommendations.

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Global Food Security 

Productivity & Sustainability 

Growth & Development 

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Outline of Presentation

- Asynchronicity/LLP: **Moving from the Abstract to the Concrete**
- Europe (several existing case studies)
- China (new IPC case study)
- Vietnam (new IPC case study)
- Latin America (new IPC case study)
- Conclusions & Recommendations

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European Union - Background

- Importance of Livestock Sector (4.0% of EU ag production)
- Compound Feeds – reliance on maize and soy; most soy is imported
- Regulatory System in place...but rapidly increasing asynchronicity
- Segregation increasingly difficult and expensive

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EU – 2009 JRC Study

- Large number of events in commercial and regulatory pipelines
- Large increase in commercialized events (2009: 33 – 2015: 124)
- New Players – Isolated Foreign Approvals?

Table 10: Events in commercial GM crops and in pipelines worldwide, by region of origin

Developing country*	Commercialized in 2008	Commercial pipeline	Regulatory pipeline	Advanced development	Total by 2016
USA & Europe	24	7	10	26	67
Asia	9	0	11	34	54
Latin America	0	0	2	1	3

Note: * While most in other parts of the world (FAO) on GM crops is under way, it is not expected that these crops will be commercial before 2015. Source: Based on the overview tables in the appendix.

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EU – 2010 ARAID Study

- Limited impact from ban of US soy imports
- “Alarming” impacts on price (500%) and trade from ban of US, Brazilian & Argentine soy imports
- Pork/Poultry production suffers the most:
 - 34% EU 27 decline
 - 37% Spain decline
- Pork/Poultry exports decline 40-50%

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EU – Dec.2010 DG Agri Study Wageningen & EMAC/U.Missouri

Maize

- Ban on US imports – very limited impact
- Ban on US, Braz, Arg imports – price increases 5-23%

Soy

- Ban on US imports – 25% price increase
- Ban on US, Braz, Arg imports – 210+%

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EU –2010 DG Agri Study Wageningen & EMAC/U.Missouri

Disruption of trade with major exporters:

- price increases maize:24%, soy: 220%
- 7-53% price decreases for major exporters

Caveats

- Long run response more complex:
 - changes in feed rations
 - substitution of imports / expanded cultivation

Moderated impact

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China – IPC Case Study

Background

- Burgeoning livestock sector
- Large soy importer, likely large corn importer, small rice exporter
- Important biotech actor: public investment doubled every 3-4 years; 2009-2020 budget: \$3.8b

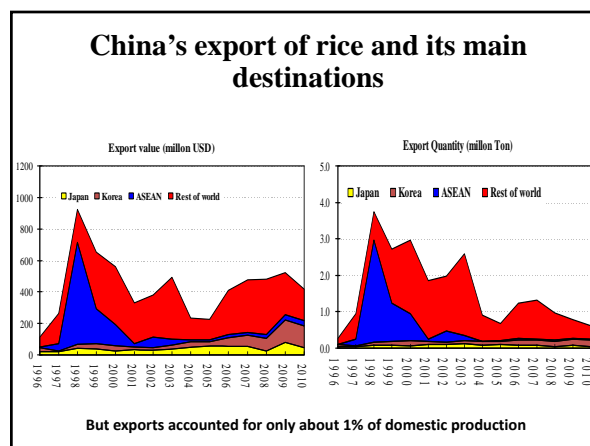
Functioning approval system but high asynchronicity and risk of trade disruption for imports and exports

- Import approval process starts after foreign approval
- China has never requested import approval from trade partners

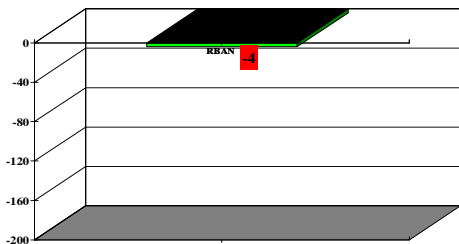
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Approved GM Rice Events

Events of GM Rice (Total 10 events)	Approved by countries
LibertyLink™ (ACS-OS001-4, ACS-OS002-5)	Australia, Canada, Japan, Mexico, Russia, USA
LLRice601 (line: LLRice601)	Colombia, USA
LLRice604 (LLRice604)	-
Bt Shanyou 63, Huahui 1 (line: T51-1)	China
KMD1 (TR30)	-
KeFeng6 (Event 166)	-
Tararikhteh (line: B827)	Iran
PE-7 (PE-7)	-
Golden Rice (GR2-G, GR2-E, GR2-L, GR2-R, GR2-T, GR2-W)	-
Golden Rice (GR1-309, GR1-146, GR1-652)	-



Impacts on Economic Welfare in China, relative to baseline in 2010 (million USD)



GM maize's events approved by China (12 in total)

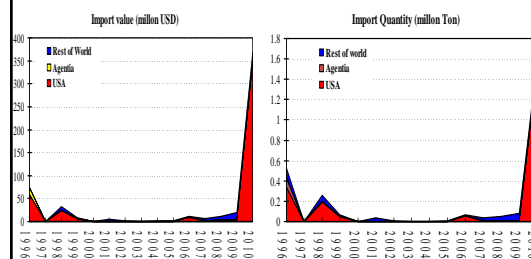
GM maize's events approved by Chinese governments	
1	Agrisure CB Advantage™, Agrisure™ CB/LL (OECD Identifier: SYN-BT011-1)
2	KnockOut™, NatureGard™ (OECD Identifier: SYN-EV176-9)
3	Roundup Ready™, Agrisure GT™ (OECD Identifier: MON-00021-9)
4	Herculex I™ (OECD Identifier: DAS-01507-1)
5	Herculex RW™ (OECD Identifier: DAS-59122-7)
6	LibertyLink™ (OECD Identifier: ACS-ZM003-2)
7	Agrisure RW™ (OECD Identifier: SYN-IR604-5)
8	YieldGard™, MaizeGard™ (OECD Identifier: MON-00810-6)
9	YieldGard Rootworm™, MaxGard™ (OECD Identifier: MON-00863-5)
10	LibertyLink™ (OECD Identifier: DKB-89790-5)
11	Roundup Ready 2™ (OECD Identifier: MON-00603-6)
12	phytase B23 (OECD Identifier: line: B23-3-1)

Data source: Eurofins GeneScan

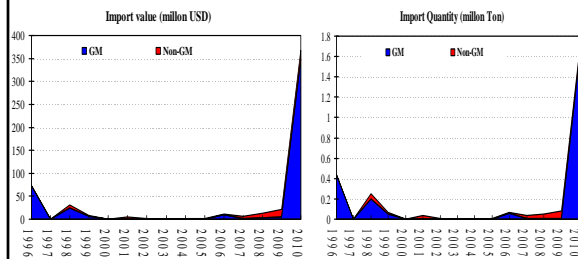
GM maize events approved in US, but not yet in China

1	YieldGard VT Pro™ (OECD Identifier: MON-89034-3)
2	Enogen™ (OECD Identifier: SYN-E3272-5)
3	Optimum™ GAT™ (OECD Identifier: DP-098140-6)
4	Mavera™ (OECD Identifier: REN-00038-3)
5	Agrisure Viptera™ (OECD Identifier: SYN-IR162-4)
6	MON87400 (OECD Identifier: MON-87400-4)
7	YieldGard VT RW™ (OECD Identifier: MON-88017-3)
8	Bt-Xtra™ (OECD Identifier: DKB-89614-9)
9	LibertyLink™ (OECD Identifier: ACS-ZM002-1)
10	StatLink™ (OECD Identifier: ACS-ZM004-3)
11	YieldGard™ (OECD Identifier: line: MON801)
12	YieldGard™ (OECD Identifier: MON-80200-7)
13	MON809 (OECD Identifier: PH-MON809-2)
14	Roundup Ready™ (OECD Identifier: line: MON832, MON831, MON830)
15	SeedLink™ (OECD Identifier: ACS-ZM001-9)
16	SeedLink™ (OECD Identifier: ACS-ZM005-4)
17	Pioneer MS (OECD Identifier: PH-000676-7, PH-000678-9, PH-000680-2)
18	TC 6275 (OECD Identifier: DAS-06275-8)

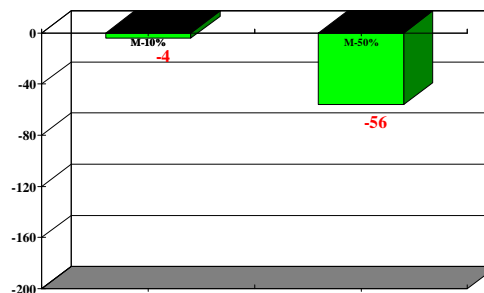
China's maize imports



China's GM and Non-GM maize imports



Impacts on Economic Welfare in China, relative to baseline (million USD)



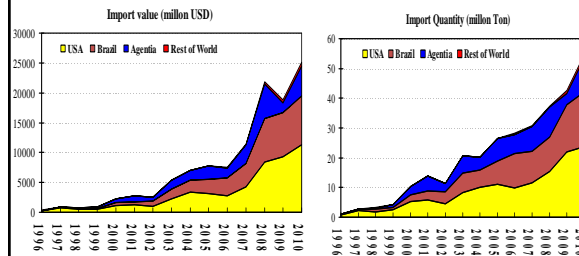
3 GM soybean events approved in China and 13 events approved by USA

Events in total (13)

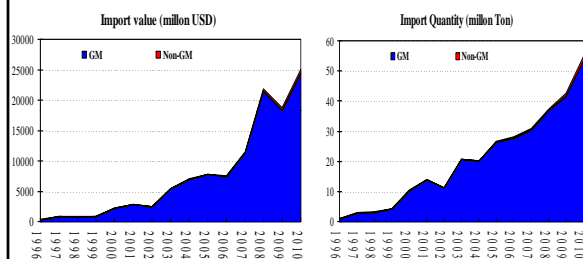
Approved by China marked by red, in all events approved by USA,

- 1 Roundup Ready™ (OECD Identifier: MON-04032-6)
- 2 Genity Roundup Ready 2 Yield™ (OECD Identifier: MON-89788-1)
- 3 LibertyLink™ (OECD Identifier: ACS-GM005-3)
- 4 LibertyLink™ (OECD Identifier: ACS-GM006-4)
- 5 Cultivance™ (OECD Identifier: BPS-CV127-9)
- 6 Optimum™ GAT™ (OECD Identifier: DP-356043-5)
- 7 TREUS™ (OECD Identifier: DP-305423-1)
- 8 MON87701 (OECD Identifier: MON-87701-2)
- 9 MON87705 (OECD Identifier: MON-87705-6)
- 10 DuPont (lines: DD-026005-3, DD-026005-3, DD-026005-3)
- 11 LibertyLink™ (OECD Identifier: ACS-GM004-2)
- 12 LibertyLink™ (lines: ACS-GM002-9, ACS-GM001-8)
- 13 LibertyLink™ (OECD Identifier: ACS-GM003-1)

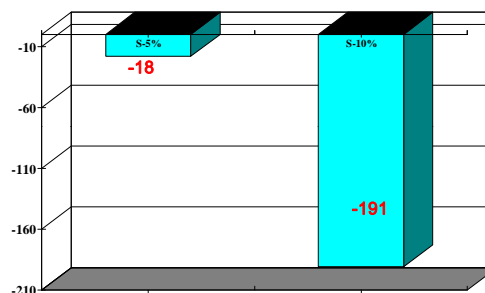
China's import of soybean and its main resources



China's import of soybean classified by GM and Non-GM



Impacts on Economic Welfare in China in 2015, relative to baseline (million USD)



Vietnam – IPC Case Study

Background

- Small market actor
- Significant GM maize, soy, soymeal, canola imports (growing livestock sector)

Regulatory framework being implemented

- Will be faced with approvals "cascade"
- Expedited approval option for events already authorized in five developed countries (2 mos)

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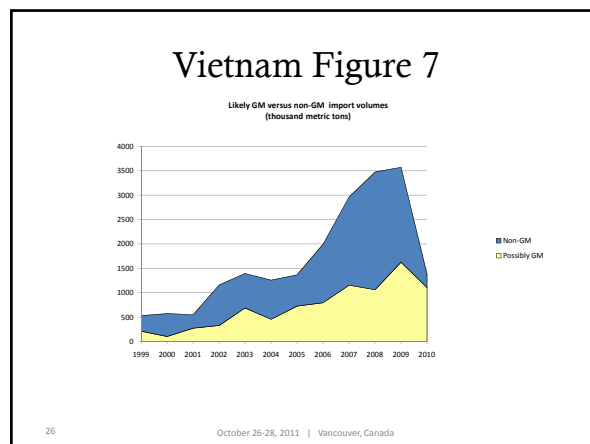
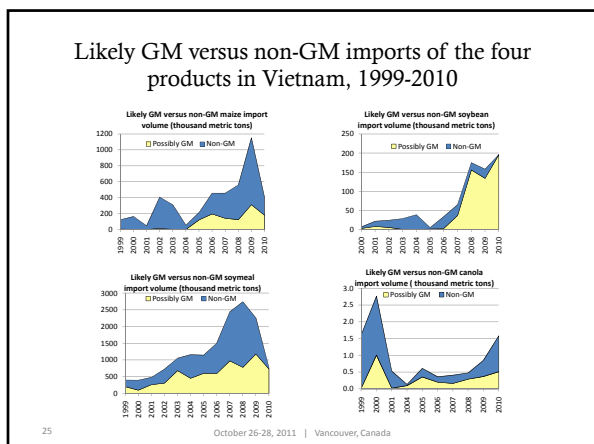
GM event approvals passing the 5 developed country authorization threshold

Source: Based on Tables A1, A2 and A3, compiled from CERA (2010).

Commodity	GM events approved in at least 5 developed countries	GM events approved in less than 5 developed countries		Total GM events planted in the USA (maize & soybeans) or Canada (canola)
		Likely used in production	Probably not used or limited use	
Maize	14	7	8	29
Soybeans	4	3	2	9
Canola	6	3	4	13
Total	24	13	14	51

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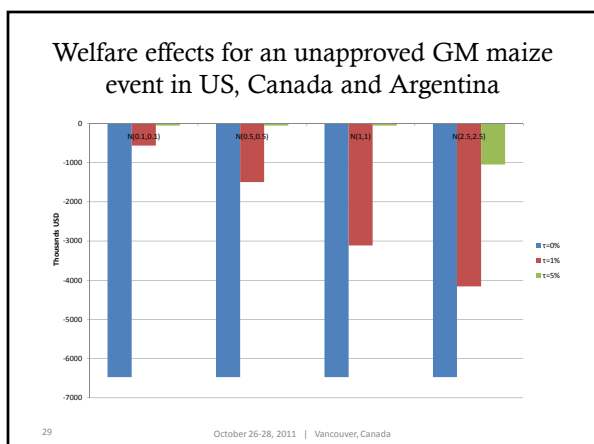
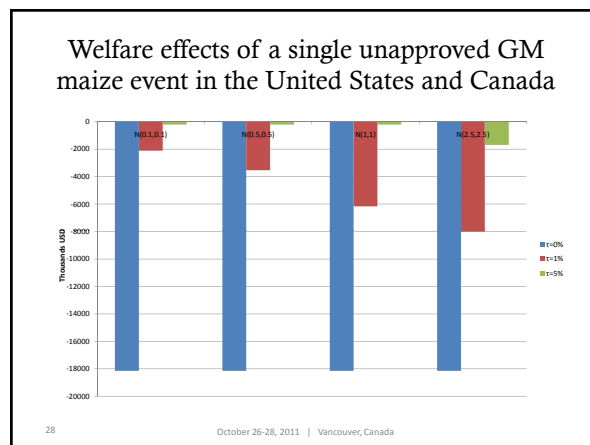


Vietnam –Impacts

Zero tolerance:

- Maize - \$3.7-7m (\$7-28/ton)
- Soybeans - \$4m (\$80/ton)
- Soymeal - \$14-57 m (\$7-31/ton)

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Latin America-IPC Case Study

Background

- Key exporters/biotech adopters
- Significant importers/varying stages of regulatory development

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Approvals of Biotech Maize Events for Use and (Planting) in the Americas*

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total
US	3(7)	10(3)	1(3)	2(2)	(1)	2(1)	3(2)	0	1(1)	5(2)	1(1)	4(2)	7(4)	2(1)	5(4)	7(1)	(2)	53(37)
Canada	1	4(7)	6(3)	1(1)	0	0	2(2)	1(1)	2(1)	3(1)	3(3)	6(6)	3(2)	2(2)	4(2)	6(2)	0	44(33)
Argentina	0	(1)	0	4(3)	0	0	1(1)	0	0	1(1)	4(3)	0	1(1)	1	1	5(4)	(2)	18(16)
Brazil	0	0	0	0	0	0	0	0	0	0	0	0	2(1)	5(6)	8(7)	2(3)	1(1)	18(18)
Colombia	0	0	0	0	0	0	0	0	1	1	1	1(1)	1	5(3)	1	4	0	15(14)
Mexico	0	0	0	0	0	0	4	1	4	0	4	8	5	1	9	0	0	36
Paraguay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Uruguay	0	0	0	0	0	0	0	0	1(1)	1(1)	0	0	0	0	0	0	0	4(1)
Costa Rica	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Honduras	0	0	0	0	0	0	0	1(1)	0	0	0	0	0	1(1)	1(1)	0	0	3(3)
Bolivia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chile	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0(1)
El Salvador	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3

*Use approvals consist of the earliest Food, Feed, Import or Processing approval for an individual event
Source: ISAAA, GM Approval Database. <http://www.isaaa.org/gmapprovaldatabase/default.asp>

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Approvals of Biotech Soybean Events for Use and (Planting) in the Americas*

	1994	1995	1996	97	1998	1999	2000	2003	2004	2005	2007	2008	2009	2010	2011	Total
US	1(1)	0	(2)	1(1)	4(2)	0	0	0	0	0	2(1)	(1)	1	1(1)	1	11(5)
Canada	0	1(1)	0	0	0	(1)	3(2)	0	0	0	1(1)	0	3(2)	1(1)	0	9(8)
Argentina	0	0	1(1)	0	0	0	0	0	0	0	0	1	0	0	1(1)	3(3)
Brazil	0	0	0	0	1(1)	0	0	0	0	0	0	0	1(1)	4(4)	0	6(6)
Colombia	0	0	0	0	0	0	0	0	0	1	0	0	0	2(1)	0	3(1)
Mexico	0	0	0	0	1(1)	0	0	3	0	0	0	2	1	1	0	8(1)
Paraguay	0	0	0	0	0	0	0	0	1(1)	0	0	0	0	0	0	1(1)
Uruguay	0	0	0	1(1)	0	0	0	0	0	0	0	0	0	2(1)	0	1(1)
Costa Rica	0	0	0	0	0	0	0	0	0	0	0	0	1(1)	(1)	0	0(2)
Honduras	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bolivia	0	0	0	0	0	0	0	0	0	0	0	0	1(1)	0	0	1(1)
Chile	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0(1)
El Salvador	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*Use approvals consist of the earliest Food, Feed, Import or Processing approval for an individual event
Source: ISAAA, GM Approval Database. <http://www.isaaa.org/gmapprovaldatabase/default.asp>

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Latin America – Impacts of maize trade disruptions

Scenario 1: large importer/Mexico

- 9.3-15.3% price increase (US only)
- 12.6-20.3% price increase (US & Argentina)

Scenario 2: small importers/Colombia, Ecuador, Peru

- 2.4% price increase (US only)
- 8.2% price increase (US & Argentina)

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Conclusions & Recommendations Approvals

- Harmonization or Mutual Recognition would be ideal
- Shorten delays in approvals
 - consider rapid approval option
 - simultaneous approval procedures (act before event has full approval in exporting country)
 - regional approaches
- Submit applications for new events in multiple countries. Avoid isolated foreign approvals.

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Conclusions & Recommendations LLP

- Significant costs of zero tolerance
- Setting tolerance levels involves risk perception and economic considerations
- Trade off between lower and higher thresholds
- Important to consider specific situation faced by importers and undertake cost-benefit analysis
- Focus on pragmatic, credible and efficient regulations

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IPC LLP Studies

- **The Economic Impacts of Asynchronous Authorizations and Low level Presence: An Overview**
 - Nicholas Kalaitzandonakes
- **China's Agricultural Biotechnology Regulations—Export and Import Considerations**
 - Jikun Huang and Jun Yang
- **Asynchronous Approvals of GM Products and the Codex Annex: What Low Level Presence Policy for Vietnam?**
 - Guillaume P. Gruere
- **Potential Economic Impacts of Asynchronous Approvals of Biotech Crops on Latin American Countries**
 - Nicholas Kalaitzandonakes, James Kaufman and Douglas Miller
 - www.agritrade.org

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