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FROM “MAY CONTAIN” TO “DOES CONTAIN”?

THE PRICE AND TRADE EFFECTS OF INTRODUCING STRICT INFORMATION REQUIREMENTS UNDER THE BIOSAFETY PROTOCOL ARTICLE 18.2(A) IN THE CASE OF MAIZE

Guillaume P. Gruère and Laëtitia Leroy, International Food Policy Research Institute

This note summarizes a study on the effects of implementing strict information requirements under Article 18.2(a) of the Cartagena Protocol on Biosafety, examining the case of maize. The results suggest that such measures would increase maize prices and distort international trade, with significant economic losses in Protocol member countries.

Information requirements

The Cartagena Protocol on Biosafety (CPB) establishes international principles governing the transboundary movements of living modified organisms (LMOs). In particular, the CPB includes rules for the documentation accompanying imported LMOs intended for direct use as feed, food, or for processing (LMO-FFPs)—essentially, unprocessed GM commodities. Under Article 18.2(a), parties to the CPB “should request information” from exporters regarding the presence and the identification of LMO-FFPs in any shipment before importation. In the third meeting of parties in 2006, Protocol members agreed to have a two-option rule on information requirements. One option (the default) notes that shipments of LMO-FFPs must be labeled as “*may contain*” LMO-FFPs, while information on GM events is made available to importers via the Biosafety Clearing-House (<http://bch.cbd.int/>) or upon request. The second option (the strict option) notes that shipments containing well-identified LMO-FFPs must label their shipment as “*does contain*” LMO-FFPs and must provide a list of all GM events present in the shipment. In the same meeting, parties decided to revisit the two-option rule as early as 2010, with the possibility of expanding the “*does contain*” requirements to *all* shipments of LMO-FFPs. Several studies (see paper for references) have shown that strict requirements would have unclear benefits and impose significant implementation costs. This note summarizes an investigation of the potential price and trade effects in the case of maize.

An additional cost for potential LMO-FFP shipments on specific trade flows

Under the “*does contain*” rule, countries that produce LMO-FFPs would have to test each shipment to verify the accuracy of the list of LMO-FFPs. Even if all GM events are approved in all importing nations, the exporter would still be required to provide precise information on each shipment, which would increase the cost of transportation. This would in turn result in additional insurance costs for shippers against the potential rejection of shipments. On the importing side, CPB member countries would need to pay to conduct tests to confirm the validity of shipment statements.

A simulation model is used to assess the economic effects of strict information requirements. Eighty maize producing or consuming countries are divided into four groups, according to their membership in the CPB and whether they produce GM maize (Table 1). Group 1 countries produce GM maize but are not members of the CPB; Group 2 countries do not produce GM maize but are CPB members; Group 3 countries produce GM maize and are CPB members; and Group 4 countries do not produce GM maize and are not CPB members. The effect of strict information requirements will only affect trade flows between GM maize producing countries (Groups 1 and 3) and CPB members (Groups 2 and 3). Three scenarios are implemented, each using a specific additional unit cost ranging from \$1.50 to \$13/metric ton (scenarios A1 - A3). Three additional scenarios examine the potential cost for CPB members producing GM (Group 3) exporting to non-members (Groups 1 and 4), with costs ranging from \$1 to \$9/metric ton (scenarios B1- B3).

Table 1. List of countries included in the model by group (for maize, reference year 2008)

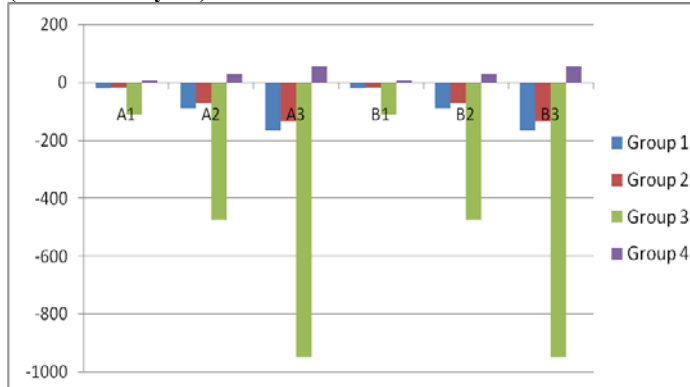
Group	Characteristics	Countries
1	GM producers and non-CPB members	Argentina, Canada, Uruguay, USA.
2	Non-GM producers and CPB members	Algeria, Austria, Bangladesh, Belgium-Luxemburg, Bolivia, Bulgaria, China, Colombia, Costa Rica, Croatia, Cuba, Cyprus, Ecuador, Egypt, El Salvador, France, Greece, Guatemala, Honduras, Hungary, India, Indonesia, Iran, Italy, Japan, Jordan, Kenya, Lebanon, Libya, Malaysia, Mauritius, Mexico, Mozambique, Namibia, Nigeria, Netherlands, North Korea, Panama, Paraguay, Peru, Philippines, Romania, Saudi Arabia, Slovenia, South Korea, Sri Lanka, Sudan, Swaziland, Syria, Tanzania, Thailand, Turkey, Uganda, Ukraine, Venezuela, Vietnam, Yemen, Zambia, Zimbabwe
3	GM producers and CPB members	Brazil, Czech Republic, Germany, South Africa, Spain
4	Non-GM and non CPB members	Angola, Chile, Israel, Jamaica, Kuwait, Pakistan, Malawi, Moldova, Morocco, Russia.

Results: Price changes and trade diversion

The results of the simulation (Table 2) show that information requirements would have significant effects on the maize market, increasing global prices and decreasing global quantities traded. But they would have even greater effects on trade, creating significant trade distortion and diverting exports from their original destination. In particular, non-CPB countries that produce GM maize (Group 1: USA, Argentina) would reduce their exports to all CPB members; and GM maize producing countries that are part of the CPB (Group 3: Brazil, South Africa) would also divert exports to new destinations. Production would increase in countries that do not produce GM maize, but without necessarily resulting in net economic gains.

Table 2. Results of the simulation: changes in quantities, prices and trade (metric tons) under scenarios A1 (min) and B3 (max)

	Global		Group 1		Group 2		Group 3		Group 4	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Production										
Demand	-0.04%	-0.32%	+0.2%	+2%	-0.2%	-1.2%	-0.3%	-2.6%	-0.0%	-0.2%
Producer price	+0.2%	+1.6%	-0.4%	-3.9%	+0.3%	+2.7%	-0.3%	-2.9%	+0.0%	+0.2%
Consumer price	+0.0%	+2.4%	-0.3%	-3.0%	+0.3%	+3.2%	+0.4%	+3.6%	-0.0%	-0.6%
Total exports										
Total imports	-774,267	-6,733,930	-981,320	-8,327,164	+113,637	+735,936	+89,557	+823,184	+3,859	+34,113
			-111,502	-1,003,135	-609,492	-5,370,633	-42,181	-308,293	-11,091	-51,869

Welfare effects: significant losses especially for Protocol members**Figure 1. Total welfare effects by group under the six scenarios (USD million /year)****Table 3. Welfare effects for CPB countries in Sub-Saharan Africa under the highest cost scenario B3 (USD million /year)**

Country	Consumer surplus	Producer surplus	Total surplus
Kenya	-31.7	26.4	-5.3
Mozambique	-14.6	12.5	-2.1
Mauritius	-4.1	0	-4.1
Namibia	-0.27	13.7	13.5
Nigeria	-60.4	5.2	-55.2
Senegal	-6.0	1.2	-4.8
South Africa	-65.8	-56.4	-122.2
Swaziland	-0.84	14.2	13.3
Tanzania	-31.4	27.0	-4.4
Uganda	-8.2	20.5	12.3
Zambia	-12.7	6.4	-6.4
Zimbabwe	-21.6	15.2	-6.3

Overall, global losses would reach up to \$1.2 billion/year, with 62 of the 80 maize producing countries suffering net economic losses. The largest losses would be experienced by GM maize producing countries (Brazil, South Africa, USA, Philippines, and others) and by large net importers (including Nigeria, Iran, Mexico, Malaysia). Gains would be realized by producers in non-GM CPB member countries (European countries) and non-GM non-CPB member countries (Group 4 on Figure 1). Consumers in many developing countries that are CPB members, including Sub-Saharan African countries (Table 3), would suffer proportionally more from the measure.

About the author: Guillaume Gruère is a Research Fellow and Laëticia Leroy is a Senior Research Assistant in IFPRI's Environment and Production Technology Division, Washington DC.

FOR MORE INFORMATION: Bouet, A., Gruère, G. and L. Leroy. 2010. From "May Contain" to "Does Contain": The price and trade effects of strict information requirements for GM maize under the Cartagena Protocol on Biosafety. Selected Paper presented at the 2010 meeting of the Agricultural & Applied Economics Association. Available at: <http://ageconsearch.umn.edu/bitstream/61533/2/AEApaperv3.pdf>

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