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WHAT INFORMATION SHOULD BE REQUIRED ON SHIPMENTS OF LMO-FFPS?

ANALYZING OPTIONS UNDER ARTICLE 18.2.A OF THE BIOSAFETY PROTOCOL

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This brief summarizes the potential economic effects of making mandatory the voluntary stringent information requirements adopted in 2006 under Article 18.2.a of the Biosafety Protocol. This would require all traded shipments containing living modified organisms intended for direct use as food, feed, or for processing (LMO-FFPs) to be accompanied by a list of all present genetically modified (GM) events.

Information requirements for LMO-FFPs in the Biosafety Protocol

The Cartagena Protocol on Biosafety (CPB) entered into force in September 2003. Article 18.2.a of the Protocol required that each traded shipment of LMO-FFPs be labeled as "may contain" LMO-FFPs not intended for release in the environment. It also noted that a more specific rule on information requirements should be determined at a later date. Therefore, at a March 2006 meeting in Brazil, Protocol members agreed to adopt a two-option rule consisting of a more stringent option and the less stringent one that had previously been in effect. Under the stringent option, shipments containing LMO-FFPs identified through means such as identity-preservation (IP) systems (i.e., systems maintaining the segregation and identity of a product along the supply chain) would be labeled as "contains" LMO-FFPs and would include a list of all genetically modified (GM) events present in the shipment. Shipments containing LMO-FFPs that are not well-identified would follow previous practice and would be labeled as "may contain" LMO-FFPs. At the same time, a complete list of GM events commercialized in the exporting country would be available to importers via the Biosafety Clearing House (BCH), an internet database. At the Brazil meeting, the Protocol members also agreed that the two-option rule would be reconsidered in 2010, with the possibility of making the stringent "contains" option mandatory for all countries in 2012. This brief examines the benefits and costs of eliminating the "may contain" option and requiring all members of the Protocol to adopt the stringent "contains" rule.

Potential benefits of "contains" rule are negligible compared to the "may contain" rule

When considering the comparative benefits of the "contains" rule, three significant implications of the rule must be taken into account: 1) it requires a trustworthy IP system or at least testing for both unapproved *and* approved GM events from exporters and importers, 2) it makes the previously voluntary testing mandatory for exporters, and 3) it provides justification for a selective importing policy (filtering the rejected events) rather than an import ban in case of safety recalls.

For importing countries with approval regulations for LMO-FFPs, the "contains" rule does not provide a clear benefit without an IP system. For countries without approval regulations, it provides a basis for rejection in case of unwanted GM events. Still, since countries without approval regulations will implement them in the future, they may not gain much from systematic testing on approved varieties. In terms of mandatory testing for exporters, it will not have a significant impact because of liability constraints. Lastly, a selective importing policy could be beneficial for GM exporters if importers were using selective information rather than market bans for what they consider risky events. However, the CPB allows countries

to reject imports in the short run without quantitative justification, and thus allows member countries to reject all imports of GM in case of uncertainties.

Quantitatively, the "contains" rule was designed to reduce uncertainties related to content, but it does not necessarily do so. The "contains" statement is meant to provide information on all GM events, but there may be a risk that some GM events would not be detected and listed (a statistical Type I error). Furthermore, test results on the exporting and importing side may be inconsistent and may include mistakes, especially with large volumes of traded grains and an ever-increasing number of GM events being approved worldwide. The "may contain" option does not provide certainty, either, but assuming it is accompanied by a functional BCH, it would allow importers to obtain a complete list of possible GM events. This list will include information on more potential GM events than are likely to be found in the shipment (a Type II error). Overall, because the objective of risk managers is to minimize Type I errors, it is better for them to use a longer list of general information, rather than a detailed but potentially incorrect one. Because risk-averse policymakers may decide to avoid any import of a commodity from an exporting country in the case of the unexpected presence of an unwanted event—regardless of the information requirement option—there really is no clear advantage to the "contains" option.

Potential costs of a mandatory "contains" rule will be borne by both exporters *and* importers

Under the "contains" rule, countries that only produce and export non-GM products would be exempt from verifications and tests, while countries that export GM would have to test *each* shipment to verify the accuracy of GM-event identification. Even if the GM-producing countries export a non-GM commodity, they would still have to conduct additional tests in order to make sure the quantity of GM crops in the shipment was lower than the potential threshold levels set up by importers. Moreover, the costs of requiring the stringent "contains" rule would also affect importers. Importers that are ratifying parties of the CPB would also need to pay for the IP system or to conduct tests to confirm the validity of shipment statements in order to ensure enforcement of mandatory information requirements.

Application: The case of the Asia Pacific Economic Cooperation (APEC)

To assess the potential implementation costs of requiring "contains" labels with lists of all possible GM events on every shipment, the total affected import and export volumes of maize, soybeans, rapeseed, and cottonseed to or from APEC countries from 1999 to 2004 were computed. These volumes were multiplied by assumed unit costs of implementation based on ranges of available estimates derived in North America ($0.5-$4/ton for imports, $1-9/ton for exports). Assuming that all APEC countries have as efficient a testing system as North America, the direct total implementation cost of documentation requirements for APEC economies could range between $100 and $900 million per year.

Specific implementation costs for six APEC countries were also estimated under alternative scenarios, such as the adoption of GM crops and new CPB membership. The results indicate that the stringent information requirements would

a) impose significant costs on CPB importers of current GM crops and potentially of other grains,

b) impose a significant new entry cost for the adoption of current and future GM crops on CPB exporters, and would

c) impose a new entry cost for Protocol ratification to new countries.

Conclusion

The benefits of requiring all CPB member countries to adopt the stringent "contains" rule are comparable to keeping the "may contain" rule provided it is accompanied by a functional BCH. However, the implementation of stringent requirements would result in significant costs for countries importing or exporting GM food or feed products, for Protocol members adopting new GM crops, and for countries ratifying the Protocol. These costs would also be comparatively higher in developing countries with smaller trade units and weak capacities. These requirements would also certainly lead to price increases for the targeted commodities at the detriment of consumers in importing countries. Therefore, there is an urgent need to conduct a complete, quantitative cost–benefit assessment in each Protocol member country before a decision is made regarding whether or not to support the mandatory implementation of stringent information requirements for LMO-FFPs.

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FOR MORE INFORMATION Gruère, G. P. and M.W. Rosegrant. 2008. Assessing the implementation effects of the Biosafety Protocol's proposed stringent information requirements for genetically modified commodities in countries of the Asia Pacific Economic Cooperation. *Review of Agricultural Economics*. (Forthcoming.)

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