

THE NEXT ENVIRONMENTAL HAZARD: A SOLUTION TO LIMIT THE USE OF TOXIC PESTICIDES IS NOT WITHOUT ITS OWN DIFFICULTIES¹

by Mark J. Spalding (April 2001)

Biotechnology was supposed to end world hunger. However, the major biotechnology companies have focused on creating a series of pest-repelling and disease-resistant crops that cater to farmers rather than consumers. This could be great news for those interested in limiting the environmental consequences of using toxic pesticides and herbicides on crops. However, the public is increasingly objecting to the production of genetically engineered foods. For example, public support appears to be strongly growing for labeling food that contains genetically modified organisms (GMOs).

Monsanto and other companies investing in biotechnology are currently avoiding the public's direct wrath by working on commodity crops such as corn, soybeans and wheat which can be engineered with genetic traits to help farmers make money, rather than on direct consumer crops like fruit. New-product development over the next few years will continue to concentrate on such crops designed to resist insects and diseases. However, even after years of field trials, companies cannot yet ensure that products will not harm the environment, do not contain high levels of natural plant toxins and will not cause allergic reactions. As has been well demonstrated, we have all seen the "unintended consequences" of careless handling of toxic wastes (including agricultural chemicals), now we need to be cautious of the "unintended consequences" of tampering with our environment in a different way. In other words, are GMOs the next environmental hazard? This report will examine what we currently know about the risks and what is happening internationally to address the threats those risks suggest.

A. Background

GMOs are products of biotechnology that are developed predominantly in the agricultural and pharmaceutical industries for human or livestock consumption, or cultivation (e.g. seeds, plants, fish, and microorganisms). The biotechnology industry promises a wellspring of genetically engineered plants and animals to feed a hungry population, as well as wonder drugs to produce healthier babies, reduce human suffering and extend human life spans.

There is widespread concern, which is increasingly backed by scientific evidence, that the introduction of some GMOs may have negative impacts on the conservation and sustainable use of biological diversity. The danger comes from genetically modified farm crops, and what they might do to the insects and weed seeds that so many birds depend on for food. There are at present two main developmental areas of GMOs in agriculture. One is the production of what are called herbicide-resistant crops. The successful outcome of these efforts mean that the crops would not be affected by very powerful or "broad spectrum" weedkillers, so that farmers could use these on their fields without fear. If these modifications were extended to all crops, all the remaining weeds in the fields could be killed. Ultimately, all the birds that depend on the seeds of the weeds would starve. The other kind of genetically modified crops that are being introduced are those that produce their own insecticides; insects habitually eating these would either die or abandon them. Insects are even more important than seeds to birds in the summer, for many seedeaters feed their young with insects. And, it should be noted that the weed seeds, and insects, connection to birds is only two steps in the food chain. If the birds go, then their

predators go and so on. There is even a risk of harm to pollinators and other friendly insects. A third danger is that the GMOs might, through cross-fertilization, pass their new features on to other plants, and chemical-resistant "superweeds" might appear.

On the potential for GMO direct human health impacts there are two risks of concern. According to a recent American Medical Association report there is a risk of gene transfer from engineered foods to animals or to human cells "that cannot be completely discounted."² In addition, some critics are concerned that in transferring genetic traits from one plant to another, biotechnology could transfer allergy risks as well. For example, "someone with a peanut allergy could have a fatal reaction to a plant engineered to carry a peanut protein, doctors warn."³

B. Biosafety Protocol

The increasing globalization of the economy and public policy over the last few decades has led to the proliferation of international treaties; all of which if adopted, signed and ratified will require domestic legislation so they may be implemented. This section of the report will address one of these international agreements, the Biosafety Protocol, which deals with trade in GMOs and clearly reflects growing public concerns about the potential risks of biotechnology.

The Biosafety Protocol is a multi-lateral environmental agreement that regulates the transboundary trade and transport of GMOs. As an adjunct to the 1992 Convention on Biological Diversity, the stated objective of the Protocol is to adopt a trade discipline that protects biodiversity and promotes health safety. The Protocol, which was under negotiation since 1995, had been scheduled for adoption on February 23, 1999. The final negotiating session in Cartagena, Columbia, however, ended at 3:30 a.m. on February 25, 1999 in a standoff between two clearly divided camps after 10 days of heated debate - those emphasizing the need to protect biodiversity and those emphasizing the need to liberalize trade opportunities and reduce trade restraints.

Of the over 130 nations represented in Cartagena, the United States and Canada were the most vocal members of what was called the "Miami Group" (which also included Argentina, Uruguay, Chile, and Australia).⁴ They were the only countries that refused to sign the proposed Protocol that, among other things, would require exporters of GMOs to obtain advance approval from importing countries prior to shipment. The "Miami Group" was concerned that the protocol not only imposed burdensome notification requirements that lacked scientific or environmental rationale, but also that it unjustifiably swept too broadly by regulating too many GMO products. Concern was also expressed that the proposed Protocol would extend beyond biodiversity and ultimately interfere with other existing international treaties. As the largest single exporter of biotechnology products, the United States undoubtedly had a vested interest in the protocol negotiations considering that 10s of billions of dollars are potentially at stake. The biotechnology products the United States currently exports include seed, mature fruit and vegetables, and a variety of pharmaceuticals. The United States suggested that talks be deferred at least until the next year.

All of the other participating countries at the Protocol talks were virtually in direct opposition to the "Miami Group." This contingent was referred to as the "Like-Minded Group." The group consisted of Mexico, the European Union, and many developing countries. The resolve of the

“Like-Minded Group” was clear. Concerned with the potential environmental and health dangers of biotechnology, they refused to support an overly inclusive, unrestrained protocol that took control out of the hands of the importing countries. The “Like-Minded Group” advocated an advanced approval procedure that would give importing countries the opportunity to conduct a case-by-case risk assessment of the effects of GMOs. The Group cautioned that countries must take into account that certain GMOs may respond differently when introduced in different environments and ecosystems.⁵ The “like-minded” contingent also wanted to avoid the possibility of an import country being charged with unfair trade practices under another international treaty, like the WTO or NAFTA, if it decided to block import of a GMO under the Biosafety Protocol. Interestingly, Mexico is the only OECD (Organization for Economic Cooperation and Development) country that supported the inclusion of an international liability regime under the Protocol.⁶

Although the Biosafety Protocol was not adopted according to schedule, negotiations resumed in January 2000. In the time between, the awareness and resolve of many of the developing countries was raised by the intense negotiations and many are drafting and adopting comprehensive biosafety laws domestically, regionally, and even inter-regionally.⁷ Some observers reason that this reality presents the most immediate challenge for the food and agricultural industry of the United States.⁸ For its part, the US made little progress in the months after Cartagena toward resolving the trade-related differences that exist. The US warned the EU that the protocol should "not become an agreement that deals with other issues, for example, food safety," nor would the US allow the issue of consumer labeling to be considered at the talks.⁹ In response, the EU Environment Commissioner Margot Wallstrom said that the Biosafety Protocol must address the concerns of consumers worldwide as well as the special needs of developing countries: “We need to take the concerns of the citizens about the safety of biotechnology seriously. The Protocol should in particular help developing countries that do not yet have adequate mechanisms to deal with imports of living modified organisms. It should enable them to take decisions that they are confident with. We want a Protocol that contributes to the reduction of environmental risks by ensuring a fair sharing of responsibilities and good cooperation between exporting and importing countries.” The EU and most developing countries assert that the Precautionary Principle should be applied to trade in GMOs. The Precautionary Principle states that where there are threats of serious or irreversible harm, lack of scientific certainty should not be used as a reason for postponing action. These Parties want to be allowed to employ preventive measures – such as an import ban – to be used even when scientific evidence is lacking. In other words, unless and until there is scientific certainty of no harm to human or ecosystem health an import ban should be allowed.¹⁰

The Biosafety Protocol talks resumed in Montréal, Canada, on 24 January 2000 through an Extraordinary Conference of the Parties (ExCOP) to the Convention on Biological Diversity (CBD). Negotiators from over 138 countries participated. On 29 January, the Parties adopted the Cartagena Protocol on Biosafety. The Biosafety Protocol represents the first binding international agreement addressing transboundary shipments of GMOs. As such, the Biosafety Protocol establishes an advance informed agreement (AIA) procedure for imports of GMOs; incorporates the precautionary principle; and outlines information and documentation requirements for international shipments of GMOs. The AIA provisions cover seeds, live fish, and other GMOs that are to be "intentionally introduced" into the environment. Countries may invoke the precautionary principle under Article 9 of the Protocol, which deals with notification

and states that: “lack of scientific certainty due to insufficient relevant information and knowledge regarding the extent of potential adverse effects of a [GMO] on the conservation and sustainable use of biological diversity in the Party of import, taking also into account risks to human health, shall not prevent that Party from making a decision [on the import of a GMO].” The Cartagena Protocol on Biosafety will go into effect after 50 countries ratify the accord.¹¹

C. Related Discussions

The first meeting of the Codex Ad Hoc Intergovernmental Task Force on Food Derived from Biotechnology convened in Japan from 14-17 March 2000.¹² This organization is tasked with developing standards, guidelines, and other principles for foods derived from biotechnology within a four-year timeframe.¹³ Delegates agreed to focus on broad areas of risk analysis, including work on science based decision making, pre-market assessment, transparency, post-market monitoring (including traceability), and labeling.¹⁴ In addition, the Task Force will consider the precautionary principle, religious and cultural considerations related to GMOs, food security, and international trade.¹⁵

At the 21-22 June 2000 meeting of the World Trade Organization Committee on Sanitary and Phytosanitary measures, the US submitted a paper covering its concerns over legislation introduced by other Members that govern trade in GMOs.¹⁶ The paper sets forth US position that all legislation covering GMOs, which is coming from other countries, is not scientifically justified.¹⁷

The International Plant Protection Convention (IPPC) of the United Nations Food and Agriculture Organization held a working group on the Phytosanitary Aspects of GMOs from 13-16 June 2000.¹⁸ The meeting explored the relationship between GMOs, biosafety rules, and the IPPC.¹⁹

The OECD released two reports on 15 June 2000 encouraging its members to standardize policies for genetically modified foods.²⁰ The reports compared environmental and public health assessments of GMOs and concluded that greater regulatory harmonization would help countries develop effective standards for the second generation of GMOs.²¹ While the first generation GMOs focused on increasing crop yields and enhancing pest resistance, the second generation GMOs include plants that are modified for medicinal, industrial, or nutritional purposes.²² Because the second generation GMOs require more complicated modifications than the first generation, more advanced regulatory strategies will be needed.²³

The elected leaders of Japan, the United States, France, Russia, Canada, the United Kingdom, Germany, Italy, and the EU attend a summit covering genetically modified foods, infectious diseases, and information technology on 21-23 July 2000 in Nago City, Okinawa.²⁴ The meeting also covered environmental issues of climate change, forests and guidelines for funding sustainable development projects.²⁵

D. Implementation of the Biosafety Protocol

The Intergovernmental Committee (ICCP-1), made up of the Parties to the Cartagena Protocol on Biosafety, met for the first time in Montpellier, France, from 11-15 December 2000 to discuss issues related to information sharing; capacity building; decision-making; GMO handling, transport, packaging and identification; and compliance. Regarding capacity building (Articles

22, 28), some delegates pointed to the varying levels of biosafety capacity in developing countries and called for efforts to assess national needs. Several capacity building priorities were mentioned, ranging from human resources to legislative, regulatory and institutional capacities. Delegates called on the Global Environment Facility and the UN Environment Programme to accelerate implementation of the capacity building strategy which targets countries with basic capacity needs. Many delegates agreed that the Biosafety Protocol's compliance mechanism (Article 34) should be "non-confrontational, non-judicial, facilitative, transparent, equitable, reliable and timely." Discussions on information sharing focused on the architecture of the Biosafety Clearing House (BCH) and implementation details for its pilot phase (Article 20). There was widespread agreement that the BCH should include all governments; address electronic and non-electronic information sharing; and be amenable to rapid development. The link between information sharing and capacity building was frequently highlighted during the negotiations.²⁶

The next meeting of the ICCP will be held on 1-5 October 2001 in Montreal, Canada.

CONCLUSION

In part to limit the environmental consequences of using toxic pesticides and herbicides on crops, major biotechnology companies have focused on creating a series of pest-repelling and disease-resistant crops. However, this solution to the use of toxins is not without its own environmental and human health threats. The good news may be that the public is resisting the development of GMO crops, and that political leaders worldwide are responding with efforts to limit the negative consequences of the otherwise well-intended scientific developments. In the end, perhaps we will have learned from the unintended consequences of toxic materials and wastes and limit the potential for harm from biotechnology before it manifests itself.

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¹ Partly adapted from Spalding, Mark and Richard Opper "International Update" *Urban Lawyer* (Summer 2000)

² A summary of the AMA's report is available at: <http://www.ama-assn.org/ama/pub/article/2036-3604.html>

³ Lazaroff, Cat "Report Finds Biotech Foods Safe ... So Far" (25 January 2001) *Environmental News Service* (visited 26 January 2001) <http://ens.lycos.com/ens/jan2001/2001L-01-25-06.html>

⁴ Because the United States has signed, but the Senate has yet to ratify the Convention on Biodiversity, the United States was allowed to attend and participate in the Cartagena discussions, but they could not vote. Third World Network, *US Behind Collapse of Cartagena Biosafety Talks* (April/May 1999) <http://www.twinside.org.sg/souths/twn/title/cheey-cn.htm>.

⁵ *Id.*

⁶ *Id.*

⁷ *Id.*

⁸ Thomas Redick, "Brave New World Meets Fearful Old World: International Environmental Regulations Relating to Biotechnology," *Looking Ahead*, (May/June 1999), at 2.

⁹ "Biosafety Talks Resume This Week" *Bridges Weekly Trade News Digest*, (18 January 2000)

¹⁰ "Biosafety Talks Underway" *Bridges Weekly Trade News Digest*, (25 January 2000)

¹¹ "Countries Agree to Biosafety Protocol" *Bridges Weekly Trade News Digest*, (2 February 2000)

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¹² “European High Court Offers Mixed Decision on GMO Licenses,” *Bridges Weekly Trade News Digest*, (4 April 2000)

¹³ *Id.*

¹⁴ *Id.*

¹⁵ *Id.*

¹⁶ “WTO In Brief,” *Bridges Weekly Trade News Digest*, (4 July 2000)

¹⁷ *Id.*

¹⁸ “GMO Newsbriefs,” *Bridges Weekly Trade News Digest*, (27 June 2000)

¹⁹ *Id.*

²⁰ *Id.*

²¹ *Id.*

²² *Id.*

²³ *Id.*

²⁴ “G8 Summit to Cover GM Foods, Climate Change,” *Environment News Service* (visited 17 July 2000)

<http://ens.lycos.com/ens/jul2000/2000L-07-14-01.html>.

²⁵ *Id.*

²⁶ “Delegates Laud ‘Montpellier Spirit’ At First ICCP Meeting for the Biosafety Protocol” *Bridges Weekly Trade News Digest*, (18 December 2000)