**Geno-Type**
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***The world's centres of crop genetic diversity are the part of biodiversity that feeds people. The gene banks within those centres are critical for global food security. Now, the MesoAmerican centre is contaminated with genetically modified (GM) material and its most important gene bank may be contaminated as well.***

# GM Pollution in the Bank? Time for "Plan B"

Ten years ago at the Rio Earth Summit, Heads of State adopted a Biodiversity Convention and wrestled with climate change strategies. World leaders recognized that the frontline for future food security lies in those regions of the tropics and subtropics that are centres of crop genetic diversity and that internationally-held collections of farmers' seeds in gene banks are the final defense against global warming. That was the plan.

Now we know that the Mesoamerican centre of agricultural biodiversity is contaminated with GM maize and that it is only a matter of time before the region's most vital gene bank is also infected. Genetically modified DNA poses a special risk to centers of crop diversity if genes from GM crops escape to related crops and their wild relatives. The greatest risk may come from the next generation of GM plants that are now being developed. How long before GM wheat is introduced in the Horn of Africa, the genetic homeland of wheat? What risk will GM rice pose in Southeast Asia? GM potatoes in the Andes? On the tenth anniversary of the Biodiversity Convention and on the eve of the World Food Summit, governments must meet this threat head-on. It's time for Plan B!

***Mexican studies:*** When hundreds of indigenous Mexican farmers and about 60 civil society organizations met 23-24 January in Mexico City, few were surprised to hear the Mexican Ministry of the Environment state that new tests confirmed their findings of last year and that, in some extremely remote regions of Oaxaca and Puebla, up to 60% of tested farmers' varieties contained evidence of transgenic material. If these two states are contaminated, then it stands to reason that the pollution has already spread throughout Mesoamerica.

It is also, farmers agreed, only a matter of time before some of the world's most essential seed banks – the cold storage facilities that guard millions of crop seed samples that are either rare or extinct in the field – also become infected.

Arguably the world's most important maize gene bank – certainly the most internationally-accessible – is at the International Maize and Wheat Improvement Centre (CIMMYT) just outside Mexico City. One of

the original Green Revolution centers, CIMMYT has been gathering and safeguarding threatened maize and wheat seed for half a century. CIMMYT's interest is not solely academic. The diversity of traditional maize varieties, and that of its wild relatives, is the toolbox for future varieties and our best defense against the erratic changes in crop pests and diseases that will come with climate change. Scientists at CIMMYT, although cautious to take a position on the implications of GM crop production, have been testing its samples for bank contamination. Last October, following up on the news of contamination in two Mexican states, the international center reported that its initial surveys revealed no transgenic DNA. In December 2001 CIMMYT again announced that subsequent screenings had found no contamination. (http://www.cimmyt.org/whatiscimmyt/further_test.htm) More extensive studies are continuing and many are convinced that it is only a matter of time – possibly only days or weeks – before scientists find GM material in the CIMMYT bank. If (or when) contamination is found, CIMMYT will post the report on its website. The Centre has an "in-trust" agreement with the UN Food and Agriculture Organization (FAO) which obliges it to ensure the integrity of the maize and wheat collections.

All the alarms have been tripped for the Precautionary Principle. The biotech industry has demonstrated repeatedly that current national regulatory programs are inadequate and that industry cannot manage the movement of transgenic materials. Now that the pollution has spread to at least one centre of crop genetic diversity, the only appropriate political and scientific solution is to call for a moratorium on the sowing of transgenic crops unless and until governments have the real capacity to regulate biotechnology. Since the battle for a global moratorium will take sometime, the following proposals are interim, minimalist measures that can be adopted in the next 18 weeks.

**Plan B** - ***Six Initiatives:*** -There is consensus that GM contamination has occurred in the Mexican center of maize diversity. The real issue is what will national and international authorities do about it? In the interim, we are making the following proposals.

1. The biotech industry should announce an immediate moratorium on the shipment of transgenic seed that is destined for that crop's centre of genetic diversity and/or where wild relatives of the crop are known to exist.
2. Commodity exporting and importing enterprises should take whatever steps necessary to ensure that they do not inadvertently send GM material in an unprocessed form to any country in a centre of crop diversity for a GM species, and/or where wild relatives of the crop are known to exist.
3. Governments within centres of diversity should immediately undertake their own evaluation of GM contamination and adopt procedures to ensure that contamination does not take place through seed or commodity imports.
4. Governments should undertake studies of their national gene banks to ensure that contamination is not already present and adopt measures to ensure that new acquisitions and regeneration activities do not lead to contamination.
5. As an urgent priority, the Director-General of FAO and the Chair of the Consultative Group on International Agricultural Research (CGIAR) should call upon industry and governments to implement a moratorium on GM seed and commodity shipments, as well as field trials, in centres of diversity for GM species. They should also ask governments to evaluate national gene banks for GM material.
6. FAO and CGIAR should together launch an evaluation of international gene banks whose materials are held in trust with FAO and adopt the necessary measures and codes to ensure their continued genetic integrity.

**Plan B's Schedule** - ***Six Steps - 18 Weeks:*** The international community has 18 weeks to adopt a global plan of action to protect long term food security and the centres of crop diversity. Six meetings between February 4th in Montreal and June 11 in Rome make it possible for governments to coordinate an action plan:

1. CIMMYT and the Government of Mexico should report on the status of their investigations to the Convention on Biological Diversity (CBD) when its subsidiary scientific panel meets in Montreal at the Ad Hoc Open-ended Inter-sessional Working Group on Article 8(j) which will bring together governments and representatives from indigenous farming communities. For further information: http://www.biodiv.org/programmes/socioeco/traditional/wg8j-02.asp
2. A more in-depth scientific discussion on the implications of contamination in centres of diversity will be hosted by the Istituto Agronomico per l'Oltremare in Florence, Italy February 7-9. The Gene Giants, CIMMYT, scientists and civil society representatives will be present along with FAO officials. The meeting should evaluate the state of scientific knowledge and recommend what further investigations are necessary. For further information, please go to http://biodiv.iao.florence.it/news.php
3. The Genetic Resources Policy Committee of the Consultative Group on International Agricultural Research (CGIAR) will meet the week of February 13th in Los Banos, Philippines. That meeting should adopt proposals for the global monitoring of centres of diversity and key national and international gene banks. Their recommendations should be forwarded both to FAO and to the Biodiversity Convention. Please go to http://www.cgiar.org for further information.
4. The international scientific community and civil society are meeting in Alexandria, Egypt March 16-18 for a major evaluation of the impact of biotechnology on food, health and the environment. The gathering is an excellent opportunity for the major actors to consider the CGIAR recommendations and to support specific initiatives for FAO, CGIAR and the Biodiversity Convention. http://www.egyptbiotech.com/2002
5. The world's governments meet in The Hague, Netherlands, from April 8-19 under the auspices of the Biodiversity Convention. From April 21-26, the CBD will review work on the BioSafety Protocol including Mexico's specific concerns regarding liability and the wider debate on labeling. The environment ministries present should propose a programme of action to protect the centres of civersity from contamination. For the agenda of the CBD COP VI please go to: http://www.biodiv.org/meetings/cop-06.asp
6. Because the heart of the issue is one of food security, the programme proposed by the CBD should be conveyed to the World Food Summit Five Years Later that will bring world and agricultural leaders together in Rome from June 10-13. The decisions reached in Rome should be the basis for national and international legislation. For information on the World Food Summit please go to http://www.fao.org/worldfoodsummit/

***Six reasons to stop contamination:*** Peculiarly, some scientists (and, less peculiarly, most Gene Giants) seem not to understand why GM contamination in banks or centres of diversity is a concern. Here are six reasons:

1. Moral repugnance: International Research Centres that fully understand that certain cultures are opposed to eating certain species must also realize that many people in many cultures and societies are morally opposed to transgenic species – especially as food. People (and sovereign nations) have the absolute right to say "no" to transgenics and scientists and governments must protect their right.
2. Environmental safety: There is a strong and growing scientific debate over the way in which transgenes might, immediately and over several generations, perform in new species and how they might affect other organisms. This concern is nowhere more important than in centres of crop diversity where food security is at risk. The Precautionary Principle demands that GM contamination in such centres be prevented.
3. Food safety: Government regulators and scientists do not have a stellar record when it comes to GM food safety. For example, in September 2000 it was US biotech activists who first disclosed that hundreds of food products in the US contained illegal traces of Aventis's genetically engineered Starlink maize (the insecticidal toxin Cry9c). StarLink was approved by the US

government for livestock feed, but not for human consumption, because of concerns that it could cause an allergic reaction in some people. The GM contamination in Mexico illustrates that it is only a matter of time before GM traits (or promoters or selectable markers) invade centres of diversity and the diets of the poor. It is not known what impact these traits (and especially the next generation of GM traits) will have on food safety.

4. Trust compromise: The FAO-CGIAR Agreement covers more than a half million seed samples in eleven of the world's most important gene banks. All are located in centres of crop diversity. The International Agricultural Research Centres are pledged to safeguard the trust material. This includes the difficult task of keeping the material free of GM pollution. If the banks become polluted, GM material could spread to researchers and breeders around the world. Both FAO and CGIAR are obliged to act to protect the integrity of the trust material.
5. Market security: Farmers wishing to market organic or GM-free commodities are compromised if GM pollen contaminates their crops. Markets and income are lost. The market for GM-free material is growing and important for many farmers in many countries.
6. Monopoly risk: By definition, GM traits are patented. If patented DNA materializes in FAO-CGIAR Trust collections it could compromise how gene banks are able to manage and distribute germplasm. It could also lead to lawsuits against some breeders who receive patented material from gene banks and unknowingly use the material in varieties where the patents are valid. Fear of patent lawsuits could constrain access and use of gene bank material.

**The Bottomline:** Contamination portends a major long-term threat to world food security. The pressure is heavily on CGIAR and its 16 international agricultural research centers – of which CIMMYT is one. Eleven research centers have major gene banks. CGIAR is gearing up to launch a major fundraising campaign that will create an endowment for the gene bank collections. Potential donors will want the CGIAR to address the likelihood of gene bank contamination squarely and will be less than comfortable to think that they are paying for storage of GM traits that could make future germplasm exchange problematic. FAO, with its new International Treaty on Plant Genetic Resources and the Trust Agreement with CGIAR gene banks, is ultimately responsible for the integrity of these collections and must be prepared to act decisively.