

## GMO's Panel Discussion Topics

### Responses from A. Gómez-Pompa

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First of all, I want to thank the students for inviting me to present my views on a subject of great importance of which I have little knowledge and great concerns.

I asked a colleague and friend of mine his honest opinion about the controversy on GMO's. He responded. Do you really want the truth? OK. "The genie is out of the bottle. There is nothing we can do about it. This is a new revolution in science. We should make the best out of it."

So this round table discussion is going to be a great experience for me. I will learn better ways to answer that question, or ways to avoid answering it.

I have gone one by one through your questions and given my views or the views from others that I found close to my own.

#### **Discuss the profits the companies employing this type of technology are making. How big an industry is this?**

I have no idea. What I know is that major corporations -like Monsanto and Novartis- are working on these crops and making very large investments in research and development. This is a multi-million-dollar potential market in a marketing field with little experience outside the corporate world. They are not philanthropic organizations.

GMO's are big business and haave potential to be even bigger. It has been estimated that the market value of transgenic crops in 1999 was over 2 billion dollars.

Large multinational corporations are taking over not only in the development of new products, their commercial production and distribution but also on the research on risks and impacts. They have the resources to do it. We are at the mercy of their ethics or the lack of them. This to me is frightening.

#### **Discuss the ecological impact of GMOs.**

Ellstrand will be the best person to respond.

Just a few comments on this question. There is no way to impede that seeds from GMOS will be widely distributed to unforeseen places. I will not be surprised at all

if a farmer in Yucatan told me one day about a corn seed variety that he will be testing that was given to him by a friend living in the USA. The seed may be from GMO;s or from fields contaminated from genes escaped from GMOS. He or his friend could be sued by Monsanto –as it is happening in Canada- if he uses it or sell the seeds with the genes in the future.

The same situation may happen from transgenic plants produced in small laboratories anywhere. This is another enormous risk caused by the wide availability of the technology to produce GMO's in almost any decent genetics laboratory in any country of the world.

**Is there any potential human health risk?**

Not enough research has been done to evaluate the environmental and health risks of transgenic crops. The NRC report on pest-protected plants wrote: “the committee is not aware of any evidence that foods on the market are unsafe to eat as a result of genetic modification.”

The health concern and veto in Europe for GM crops is mainly caused by the lack of credible information and possibly by the terror caused by possible unexpected problems similar to the mad-cow disease, that have shaken Europe. All scientific evidence seems to support the health safety of GM foods, however a reasonable doubt remains in the head of people and some scientists.

**Are GMCs being grown in close proximity to non-GMO crops or wilderness? What distance is a safe distance?**

Yes. Pollen travels great distances, it is almost impossible to predict a safe distance. It has to defined in a case by case basis.

✓ **Who determines planting regulations for GMOs? Who enforces the planting regulations at the local level (i.e. who goes to farms to make sure the GMCs are planted according to the guidelines established)?**

No one in most developing countries. Mexico just recently appointed a panel to review any use of GMO's in the country. Enforcement of restrictions is an almost impossible task. Especially, if a promise of big earnings is present, as could be the case of illegal chemicals production. A conversion of fields of illegal drug plants to illegal GMO's may occur.

**What sort of labeling procedures do you feel are necessary or warranted on GMCs?**

Consumers should be informed and let them make the decision.

**Do you feel any of the research on GMOs has been misrepresented in the popular press (such as the monarch butterflies, the tortilla chips, or contaminated seed in Europe)?**

Popular press uses any news (bad and good) to sell papers. Of course there is a misrepresentation of research. Unfortunately this has been the principal information appealing to the media that attracted the general public. The Frankenstein food name for GMOS foods is going to be difficult to eliminate. Corporations may need to come out with good names for the GMOS that produce more nutritious foods and new and cheaper medicines.

✓ **Each panel member should discuss the major advantages and disadvantages of GMOs from their perspective.**

Big ag-bio companies say that GMOS offer the only route to increasing agricultural yields enough to feed the world's growing population in the next century, without ploughing up the remaining wild parts of the planet or using unacceptable levels of chemical fertilizers, pesticides and herbicides.

A similar promise to feed the earth was offered by the Green Revolution through the use of hybrid seeds and a technological package of fertilizers, pesticides and irrigation. Unfortunately the benefits of that Revolution never reached the great majority of farmers of the world, who were left behind and they are part of the 2 billion people living in poverty in the world.

This fact was accepted by their creators when they accepted that a new revolution was needed for the small farmers of the world. Is the gene revolution the one? Some people that no. The potential for a new major wave of small farmers coming to towns after the abandonment of their fields caused by the potential drop in food prizes is highly likely if the technology is used only for profit.

It seems to me that the great challenge for humanity is not to have more food from industrial agriculture, but finding ways to bring appropriate technology, including GMOs to the local producers in addition to education, information about crops, crop systems, Integrated Pest Management and risks. This may enable them to feed themselves and produce for the local market. If the Monsanto of the world could participate in this type of projects I would really see their contribution in feeding the world and fight poverty.

Traditional small farmers have already made a great contribution to our world by providing us with the greatest gene bank on earth. Land races and varieties have been selected through millennia. Genes from these fields could be precious resources for the production of future GMOs with less risks.

✓ **Who should be regulating the GMO work being done- government, the courts, or scientists?**

Governments and courts with a major input from scientists independent of the corporations.

We need to have national and international protocols and agreements. But as important as that is the need to have reliable information to the general public. Consumers can be powerful regulators.

New products are being tested and distributed in developing countries long before there were any concern on their environmental or health impact.

The need for regulation has been a response to the action of organized consumer groups or the watch-dog attitudes of confrontational NGO's like RAFI, Green Peace, Friends of the Earth, etc. They act frequently with very limited information, but have been able to call the attention of Governments and International Organizations for the need for some kind of controls and supervision.

It was green peace who discovered in Mexico a great shipment of the famous transgenic corn of Taco Bell that was going to be used for human consumption..

*G* **Are GMOs safe?**

Neither the risks nor the benefits of GMOs are general or completely proven. Both may vary spatially and temporally. We have to review them in a case-by-case basis.

The available scientific information shows no catastrophic impacts have yet been recorded from the massive use of transgenic crops up to now. However the known and potential risks are substantial from an ecological and biological point of view.

Whether we want it or not, a huge and frightening experiment in environmental manipulation is under way. Humans have been able to produce chemicals new to nature, we have been able to trigger the process of global warming, we have began a major biological extinction episode and now we are releasing all kinds of GMO's to nature.

As a scientist, I feel we are living in a very interesting time. Great opportunities are open for research to evaluate the biological and ecological revolution we are creating by our own actions. Maybe this research may help to avoid potential disasters and maybe help us design better our future anthropogenic environment.

As member of a society where my children and grand children are growing, I am still worried.