Communicating About Biotechnology and Addressing Public Concerns

(Editors’ Note  A special session on communications included a panel of science interpretive writers with international experience in industrial countries, developing countries, the biotechnology industry, and nongovernmental organizations. Panel members were asked to address the central question of how controversial topics such as genetically improved organisms are handled from their perspective. Other issues included the role of the research community, the role of science writers in educating the public (without telling them how to think), and how science writers can do a better job explaining how science goes about finding answers. The following session report provides some useful insights.)

Background

Rick Weiss

How do science writers report the news of a global scare, such as the controversy over genetically improved organisms (GIOs) in Europe, without escalating the scare? Most important, how do we decide whether there is something to be afraid of in the first place?

Many scientists and international development experts probably have a polarized view of the media’s role in the ongoing debate over GIOs. Many probably believe that the press has only served to fan the flames of panic. Perhaps seen from the other side, some may think that the proper job of the media is to convince the public that science is the key to a happier future.

The truth is somewhere in between those two extremes. Most media people do not want to foment panic, but they are paid to be skeptical. It is a long tradition in journalism to be skeptical, and for reporters to see themselves as watchdogs for the public good. And in this sense, the press, at least in the United States, is sympathetic to the precautionary principle, words that are well-known in Europe but somewhat new in North America. Most science writers do not feel it is their job to sell the public on science. We must however, continue to explain how science goes about finding answers, which after all is an elegant way of getting at the truth.

At the same time, science writers like to think of themselves as rational voices, and are happy to pass on to the public whatever enthusiasm and promise that scientists may be able to rationally engender in them. It has become an accepted part of a science writer’s job to help educate a public who are generally poorly informed about science. To make a story understandable to the public, it is often necessary for a science writer to use valuable column space to define technical jargon or interpret what the scientist is trying to convey.

That is a difficult job, of course, and it is especially so in social issues such as the one affecting GIOs, because the job of keeping the public informed about itself and its feelings is, by definition, a circular one. The media influences public opinion by what journalists write, and then they write about how public opinion is. We take polls to take the pulse of the public, and when we publish the results of those polls we in turn influence public opinion, and then we write about how public opinion is changing.

If you polled people in the United States about whether they want genetically improved foods labeled, most would say yes. Pose another question: Do you want them labeled if the FDA has said they are safe and it is going to cost you an additional five cents for every product that has a new label? Just about everyone will say no. How the question is asked makes a big difference.
Industrial Country Perspective

Carola Kaps

Why is public opinion in Germany so negative against genetic engineering? Europe has been plagued by many food scandals (for example, the BSE scandal in the UK and the foodstuffs scandal in Belgium). These were not handled very well by the public sector institutions. There is a severe case of mistrust in the public mind, and people generally do not trust regulators.

We have a regulatory system that is not sufficiently effective, which is one reason why Germans are not eager to have GIOs. Some companies in the food distribution area have publicly stated they will not carry GIO products on their shelves.

There is also a subtle anti-Americanism as well because of the hormone beef issue, and consolidation in the seed sector by mostly American companies.

A third issue was that the first generation of the GIOs, which are mostly in the bulk area of agricultural products, really did not have a major benefit that could be explained to the consumer. It was more industry- and productivity-driven. We lost the chance to explain to consumers and influence public opinion that it is not only an industry affair, that it is not only multinational, that it is not only American and American trade interests, but that there is really something to be gained for everybody.

Many people in industrial countries take a negative view of GIOs, which is an arrogant attitude taken in the context of local food surpluses, and a generally high standard of living. Can we then dictate to developing country farmers who urgently need to increase their productivity just to feed their families? Developing country people, including farmers, can decide whether they want to use this new technology, but they need markets for their products. It would, therefore, be better to have everyone convinced that biotechnology is a good thing.

Why do I think the battle is not lost? Europeans, and Germans in particular, do have a heart for the developing countries. The goodwill of the people is there.

If a message could be sent that this is really something that helps the developing countries from a development point of view, from an income point of view, from a poverty alleviation point of view, I do believe that public opinion could be swayed.

Because of this subtle antagonism against multinationals, I believe that the public institutions and the CGIAR System have a mission that is geared toward development and toward the developing countries. You are not afraid to become partners.

This conference is a positive step, though I would have liked to see such a forum organized much earlier. The CGIAR system must do more in terms of public relations, to be more proactive, to share success stories that are interesting and that will catch the attention of science journalists. A good example was the CGIAR system hairy potato story, which received international coverage of a new potato variety able to resist insects.

In the mid 1990s, there was a big issue about Bt rice being introduced at the International Rice Research Institute. There was considerable local and foreign NGO activity trying to prevent this. This should have been a wake-up call for the System to say: let’s get together, let’s be proactive. You may have had a success like Jubilee 2000, and public opinion would not be—at least in some industrial countries—so negative toward biotechnology issues.

Developing Country Perspective

Govindan Venkataramani

I will describe briefly how science, particularly agriculture, is being covered in the Indian media. I fully endorse the view that the task of science journalists is to understand science before teaching or informing others.

The media plays the role of watchdog in a civil society, besides having a role in educating the public. The responsible journalist always takes a balanced view when covering a scientific breakthrough.

In essence, media provides an active platform for a meaningful dialogue and discussion between the scientific community and the general public.

Several benign biotechnologies that are non-controversial have been well reported in the media. The relevance of the biotechnology revolution
Communicating About Biotechnology and Addressing Public Concerns

in meeting the food challenges in the future is also being widely acknowledged.

The media in India has extensively covered success stories of biotechnology innovations in the fields of agriculture, horticulture, livestock production, medicine, and forestry. The tissue culture technology, for instance, has been hailed as a boon for horticulturists and foresters. It has also been advocated as the technology to conserve plant genetic resources for future generations.

Similarly, embryo transfer technology and the wide range of new veterinary pharmaceuticals and vaccines have been welcomed with enthusiasm. Many such environmentally benign biotechnologies that would foster sustainable agriculture have been received with warmth.

The ecotechnology revolution that blends the time-honored farmers’ wisdom and the environmentally benign frontier technology continues to get attention in the media. Energy- and space-saving biotechnologies are needed that will maximize productivity per unit of land, use of water and other inputs.

The media also focuses on safety and ethical issues regarding modern biotechnology, particularly the use of GMOs in agriculture.

The views of the scientists about the safety of the products of genetically improved plants and other organisms have also been given equal space in the media. In the last few years, some specific issues that jeopardize the environment, food security, and human nutrition have been extensively discussed, and the media has espoused this cause.

Various viewpoints and the fears of the public and farmers have been well reported by the Indian media, and this awakening among the public has led to some welcome policy changes by biotechnological firms. A recent public outcry about the genetic use restrictions technologies (the so-called “terminator” gene and “verminator” gene) has caused a multinational company to initiate a series of public awareness campaigns, including the development of a Web page and publishing biotechnology updates.

The company has just come out with a public statement that it did not intend to commercialize this kind of technology that would prevent farmers reusing seed. The pressure groups and the wide media attention brought about this important development.

Other hot issues related to biotechnological research in recent years are bio-piracy and intellectual property rights. Some unscrupulous firms have violated ethics and safety issues, and the NGOs and farmers associations are challenging them.

Historical varieties in a region and the time-honored technology or knowledge of traditional communities are also well documented in the media. These reports, such as the Basmati rice developed at least 250 years ago in India and Pakistan, support the cause against the patenting of such traditional material.

At a recent International Conference on Genetically Modified Plants: Implications for Environment, Food Security and Human Nutrition, organized at the M.S. Swaminathan Research Foundation, some participants felt that the existing regulatory mechanisms in India governing the field-testing of GMOs are not adequate and do not instill a necessary degree of public or media confidence in bioethics and biosafety in India.

We need a better understanding of the issues and greater interaction amongst the public and private sector scientists, NGOs, media, policy groups, and the judiciary. Interactive workshops and dialogues could resolve conflicts that arise.

The most important recommendation from the recent international conference in India is the need for information empowerment and education at all levels, starting with the farming community. This is essential in taking the benefits of biotechnology to promote sustainable agriculture. The media should use its strength of ethics, integrity, and transparency to support the cause of taking the benefits of environmentally benign biotechnologies to usher in an evergreen revolution.

An Industry Perspective

Walter von Wartburg

I believe biotechnology, in whatever form or field, will eventually be socially accepted. I also believe it will take quite some time for what I call the societal gestation of this new technology. How long will depend on good corporate behavior and how well communication is handled.

Communicators must pinpoint the field of biotechnological application, narrowing down to
interesting stories, such as the one on the hairy potato from Centro Internacional de la Papa (CIP).

Science journalists should also consider that the fears and public anxieties are quite different in different areas of biotechnology. When one considers genetically improved microorganisms, the fear often is for public health and safety. Are we going to have a catastrophe that may not be reversible?

If you consider genetically improved plants, it becomes an issue of ecological damage, possibly irreversible ecological damage. For genetically altered animals, the issue is the integrity of creation.

If we look at human areas of biotechnology application, the issues are human rights, individuality, and ethical freedom.

The topics and the concerns change depending on the technology you use. For developing countries, the considerations are often quite different, and reporting must be tailored for this audience.

Over the years I have identified what I call attitudinal sins, the things researchers and research administrators should not do.

• The first is the wait-and-see attitude. If you receive criticism, you do not react because you think science is self-explanatory, and people will find out one day how marvelous this all is.

• Second, if you receive criticism and the criticism is mounting, you adopt a belittling attitude, as if the problem does not exist. This can result in reduced credibility of future work.

• The third one is the “everything under control” attitude. People know what happened in the atomic energy industry. Is the mad cow disease under control? It is well to remember that not everything is under control.

• The next one is the “we know best” attitude, because we developed the technology. The difference between knowing best and knowing better is sometimes quite important.

• “You have to believe me.” Nobody has the absolute truth or the absolute trust. Trust is a matter of experience and trust has to be earned.

• Another attitudinal sin is “freedom works best,” because a system of total freedom has always produced the best possible economic output. This is probably not true, because people want to have at least some level of control. Government control over biotechnology makes much more sense in the long run, in my view.

• The last one is the “discredit the critics” attitude. This one is self-explanatory.

We should all take opposing views seriously. If this message is all you take away from the conference, I will have made my point. Opposing views are part of the problem-solving process in a mature society, so you have to take them seriously, and deal with them.

• Establish an ongoing stakeholder dialogue. Do not think that once you have written that marvelous booklet that your communication work is complete. Communication only has value if it affects perceptions.

• People want more choice, not more education. People want to know all the arguments for or against, then they can make choices.

• The concept of benefit/risk management should be explained fully. Explain what you mean by benefits: social benefits, individual benefits, and the distribution of benefits, and do the same regarding risks.

• Integrate different scientific disciplines: it is not just toxicity or genetics. It is all the disciplines, all the “ologies” of science, from toxicology to pharmacology to sociology and so on.

Trust is the ultimate element on which you can base communication. If you are trusted, what you tell people will change perceptions, or will at least affect perceptions. If you are not trusted, communication fails.

If people believe that something is self-explanatory, especially when it is as complex as biotechnology, they will lose out. We must communicate to change perceptions, to convince that elusive 51 percent of the key people that biotechnology is a good thing. Social acceptance will follow.

An NGO Perspective

Jagdish Patel

The UK Food Group is a network of 30 organizations concerned about worldwide food security. The network includes Oxfam, Action Aid, Save the Children, and Christian Aid. My views on genetically improved foods are personal, and do not necessarily reflect those of the network mem-
bers. My presentation is generally based on research that has been undertaken in the U.K.

Government officials, politicians, and scientists frequently express frustration at so-called inaccurate and emotional reactions of the public in the GI debate. And often the campaign groups and the media are singled out as villains, guilty of spreading hysteria through stories that are based on half-truths or unproven speculation.

A recent report published in the U.K. (“The Politics of GI Food”) demonstrates that many ordinary people have a thorough grasp of issues such as uncertainty. And if anything, the public in the U.K. are ahead of many scientists and policy advisors in their instinctive feeling for a need to act in a precautionary manner. I will be drawing heavily in my presentation on this report.

I believe the public is not ignorant of the broad issues, that the public trust has been lost, that the issues that concern the public have not been addressed by the regulatory bodies, and that we need greater public involvement in the policy decisions on GI food and crops.

The reactions of the public in the U.K. and some parts of Europe have been formed to a considerable extent by the BSE, or mad cow disease, incident as well as the farce that was the BSE crisis. Uppermost in people’s minds is the unreliability of the scientific reassurance in the BSE case. Subsequent scientific assurances are still not sufficient to convince the French government or the public that that beef is safe.

In the case of GI foods, the public did not need to know about genetics to judge Monsanto when it attempted to introduce GI foods by mixing GI and non-GI soya into the food chain. To make matters worse, an advertising campaign launched to educate the British public was banned by the U.K. advertising standards agency because it was judged to be misleading.

Supermarkets also initially said that you could not label GI foods, that it would reduce customer choice. Now, as we know, most supermarket chains do label GI foods, and most, in fact, have said that they would be discontinuing their use in own brands where they can. But this kind of inconsistent advice does not foster trust.

Most people are not able to assess the risks themselves, and rely on a regulatory system to assess food safety issues. The U.K. government’s strong pro-GI stance undermined its independence.

Monsanto’s research found that when people were told that GI crops were regulated by government, people’s level of mistrust increased. The Center for the Study of Environmental Change at Lancaster University found that the public perceived the government and regulators to be the same thing.

The crucial issues here are independence and trust. Both were, and perhaps still are, lacking in the U.K. context, and these have become key issues in determining people’s attitudes to GI crops and new agricultural technology. While these factors may create a certain perspective for the public, research at Lancaster University shows that the public is open-minded in discussing the potential benefits attached to genetic engineering.

Many issues of public concern have not been addressed by any part of the regulatory system, and people want to know the need for GI foods and the social benefits envisaged; the potential for indirect, cumulative, synergistic, ecological, or health effects; and the wider impacts on agriculture and the countryside. They want to know how to compare the significance of risks and uncertainties, such as for human health, biodiversity, and pesticide use that are attached to different agricultural strategies.

They also want to know the degree of public control and international pluralism that might be desirable and possible in a global system dominated by a small number of large companies. They also want to know if GI foods can eliminate hunger. They also want to have a systematic and transparent way for a regulatory appraisal to take account of different values and interests in society.

To put all that more simply, is the technology needed, who stands to gain and lose, and how are the ethical issues considered?

Going back to the regulatory system in the U.K. and to the questions I raised, the system was not structured in a way to respond to those questions. The questions are, however, at the heart of public concern, although there is little government sponsored debate around them.

Some people may feel these ethical questions are not grounded in science. The GI foods issue is inherently ethical in nature, rather than purely scientific. I would also add in this context that
not all NGOs are the same. The NGO debate is multifaceted, and complex. A number of NGOs that are involved, certainly those in the U.K., come from very different perspectives, and have very different approaches on how GI crops and agriculture should proceed.

Some of them have banded together in what is called the “Five-Year Freeze” to say: we do not know enough about this technology so let’s have a five-year breathing space.

How then do we communicate about biotechnology and address public concerns? The research in the U.K. argues for a switch from the narrow focus on scientific and technical issues to deal with the political, legal, and ethical difficulties of handling the uncertain effects of new technologies. They argue for greater public involvement. This would build legitimacy and accountability of political decisions on GI foods through a more participatory style of decision making in which a far wider range of options is considered.

Only by involving the public can governments and scientists hope to rebuild the trust that has been lost.

I have two recommendations that could be relevant to the CGIAR system. One is to have a conference in all the countries concerned, involving all stakeholders including farmers and the NGOs. It is in civil society where the constructive debate needs to take place.

There is concern about the time being lost as we put in place—or as we ponder the future of GI technology and the structures that need to be put in place—the biosafety regulations and anti-trust laws. There have also been a number of emotional statements about people going hungry while we dither.

My second recommendation is that we should look at other agricultural strategies and other options, as well as looking for what has been described as the “silver bullet” of biotechnology.

Conclusions

Rick Weiss

What are the main take-home points from this session of the Conference? The group of international writers above clearly make the point that biotechnology is a complicated story, in part because it is a science story, an economic story, and a story about politics and international trade, topics that are part of the biotechnology puzzle.

Biotechnology is also about intellectual property rights, and about ethics and democracy. We should, therefore, not feel bad that the story has evolved in such an erratic fashion. Perhaps nothing more could be expected of a story that has so many facets that connect in so many different ways, and which we are all trying to struggle to get through.

The point has been made that, as complicated as the subject is, the problem of coming to a final public decision about the risks or benefits of this technology has been exacerbated in part because, in the United States at least, we are not used to thinking about questions of agriculture and farmers’ concerns. These are not usually high on the list of news items or things that people are clamoring to hear more about.

And rational discussion has been undermined by previous food safety scandals, such as BSE, and the general public mistrust of regulators, especially in Europe, and mistrust of the government. The idea that money and business concerns have percolated deeply into biotechnological science suggests that there is reason to think twice about whether you should believe what you hear.

Education is important, whether it is for reporters or the general public. The public needs and deserves to be educated better about these issues. The public is not as ignorant as we sometimes expect, and people are developing a basic understanding of how to analyze how much risk they want to have in their lives, and where they want to have that risk. Their opinions probably deserve a little more attention than we have been willing to give them.

The debate over GI foods and crops is really part of a much larger area of science, of biotechnology generally, and these areas of science all have their own particular constellations of risk and benefits that deserve to be addressed independently. It behooves those who communicate about these issues to make those distinctions clear.

Perhaps there are some subcategories where the benefits clearly exceed the risks, and we ought to be moving forward more quickly without be-
ing dragged back by the debate over foods. Perhaps there are some areas, such as environmental or health concerns relating to some of these foods, for which that benefit:cost ratio is not so attractive, and for which more time could be spent doing research to see where we should go with it.

The extent to which this technology is accepted, or the extent to which its developers hope to see it accepted, will depend on the corporate response to concerns that people have. Reasonable or not, the concerns are there, and we already know some of the ways corporations can get it wrong.

The theme of this session is to communicate. Perhaps if we do enough of it, the truth will come out. There are various ways to do this—news media, corporate types of newsletters, Web outlets, and citizens’ juries.

We must not forget that there are alternatives to these new technologies. In fact, the CGIAR has been developing those kinds of alternatives for a long time, and there is no reason to stop supporting progress in all the different areas of plant breeding and traditional ways of helping people who need help, and who may someday benefit from modern technology.