Biotechnology as Seen by Quakers: Moral Vision, Ethical Assessment, and Action

This article was written by Susan Holtz, member of Halifax Monthly Meeting, after discussion with Anne Mitchell, member of Toronto Monthly Meeting and incoming Clerk of Canadian Yearly Meeting, who attended the World Council of Churches Global Consultation on Genetics and New Biotechnologies in December 2007. It has been developed to help Quakers and others in faith traditions to reflect and act on concerns about biotechnology.

Three basic questions emerge on this issue:

- What spiritual groundings does biotechnology, in its many applications, touch on, and do Friends need to be in agreement about these matters?
- How should Friends go about assessing biotechnology's ethical and moral implications?
- If moved to take action, what could Friends do about biotechnology's direction and management?

Groundings

Biotechnology brings up differing perspectives on science, cosmology, and on life itself and the human role in Creation (or the world, depending on one's theology). These are important discussions for members of a faith community, but do we need to seek unity concerning them?

One of Quakerism's characteristics is an avoidance of creedal rigidity in favour of openness to inquiry and lived experience. The resulting diversity is a source of spiritual nourishment that most Friends cherish. This is especially the case for the large philosophical and theological questions that biotechnology raises. And while some Friends may feel that certain issues have such significant implications that these become the heart of the matter for them, the wellspring for practical concern needn't be the same for everyone. There is still room for consensus about specific issues and action to address them.

Assessing Ethical and Moral Implications

When it comes to assessing positions related to ethics, morality and public policy, Quakers need to be more concrete about what the issues are than when engaged in a broad philosophical discussion. In particular, we must identify the specific applications of biotechnology on which we're focusing. Each one poses distinct questions that may suggest different answers in light of their different circumstances.

Ethics is not exactly the same thing as morality. Morality is about characterizing the nature of the Good (and evil or wrongness). In contrast, ethical issues are about discerning right action within a specific social and economic context. The context is the crucial factor. For instance, the ethics, as opposed to the morality, of a sexual relationship between consenting adults depends very much on the institutionalized power relationships between the individuals: whether they are student - instructor, for example. Biotechnology issues can be concerned with ethics, morality, or both.

Particular ethical and moral questions are often similar to those about other technologies and public projects. A pragmatic approach is to focus on benefits and risks. We need to ask and answer questions like these:

- What exactly are the benefits?
- Who in particular benefits?
- Is that arrangement fair to individuals (or individual actors, like corporations)?
- Is that situation consistent with a social justice vision for society?
- What exactly are the risks?
- Are the risks equitably borne among all those affected?
- Are the risks acceptable or not, and on what basis?
- Do the risks outweigh the benefits, and why or why not?

Good information, intellectual and ethical integrity, and sound judgment matter here. There must be an understanding of all the facts, including what is known and not known, and careful discernment in assessing the relative weights of risks and benefits. Being able clearly to explain the reasoning behind a decision is important.

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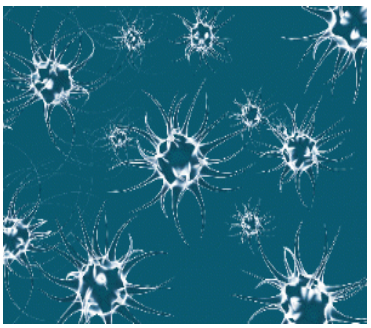
Not A Single Issue: Biotechnology's Different Applications

As noted earlier, perspectives on these questions may vary, depending on what application of biotechnology is under discussion. It is useful to classify the hundreds of different biotech applications into six different categories that bring up different sets of issues and different possible responses. These six groupings of biotechnology applications are:

Basic research
Some avenues of research raise questions that are more about spiritual or moral unease concerning the implications of this research than about specific ethical issues. An example is the recent synthesizing from scratch of the entire genome of the bacterium *Mycoplasma genitalium* (announced in the January 24/08 online edition of *Science*). Some may believe that such research, which in this case is a major step leading toward the creation of synthetic organisms, along with other similarly extraordinary extensions of human technological capability, are morally or spiritually wrong, regardless of any practical risks or benefits. Others may disagree.

Medical research and reproductive technology
Issues generally relate to individual privacy, cloning of humans and other animals for use, and decisions about



"designing" certain human characteristics. Sometimes there are definite moral dimensions to these questions; the Canadian Supreme Court decision disallowing the patenting of the "Onco-mouse," for instance, was argued in part on the felt sense of inappropriateness about owning patent rights to a higher life form. Much conflict, though, centres on common types of ethical dilemmas in medical practice, where rights, risks and benefits for individuals intersect with public policy. Another dimension of these applications is the genetic manipulation of traditional medicinal plants and remedies for corporate profit. These issues mainly concern public policy regarding patent rights and compensation for the appropriation of traditional knowledge.

"Indoor" biotechnology applications
A wide range of applications that take place inside secure facilities, including factories, greenhouses, or laboratories, can be grouped together when the intention is

to strictly contain the genetically modified organisms. The risks here are primarily ecological or related to human or animal health. Applications are in fields such as renewable energy, e.g., genetically modifying yeasts to produce renewable transportation fuels from waste wood. Research and development in genomics, gene therapy, diagnostics, and related work in human health and medicine is another huge area of this kind of "indoor" activity. A more problematic example is plant molecular farming (PMF), that is, the use of genetically modified plants to produce pharmaceutical products or industrial chemicals. Whether strict containment in these applications is possible and the severity of the consequences if it's breached are critical questions. Environmental and health benefits from these applications are widely considered significant, though with various reservations.

"Outdoor" biotechnology applications
These include applications involving genetically modified seeds, crops, and trees for commercial use in agriculture and forestry, outdoors in the open environment. Such applications have been highly contentious, involving ethical objections related to ecological risks, unknowns regarding health risks, and social justice issues about the increasing concentration of corporate control in agriculture, along with negative economic impacts on small farmers in the developing world and in the organic agriculture sector elsewhere. The claims of economic benefits, along with the suggested need for genetically modified crops to provide higher yields and reduced environmental damage from tillage and pests, are also very contentious.

Military applications
Quakers and members of other "peace churches" will obviously have objections to such applications. If there are risks to civilians and the environment, others may also oppose developments in this area.

Hybrid bio-nanotechnology, sometimes referred to as next-generation nanotechnology
Biotechnology does not actually include nanotechnology. The latter is about the manipulation of materials at the molecular scale. Nanotechnology poses its own set of risks, since materials at this extraordinarily small scale have novel physical, optical, electrical and other characteristics. Little is known about the toxicity and other biological and ecological effects of nano-scale materials, but because of their various special properties, they are already being used in commercial products.

However, next-generation nanotechnology is about marrying genetically modified organisms – yeasts or bacteria, for instance – with nano-scale materials in order to make self-assembling products, such as solar arrays, battery components or even batteries. There are many concerns about ecological, worker health, and other risks, because thorough-going regulation of nanotechnology is not yet in place and many would argue that regulation of biotechnology is inadequate. (It should be noted that in the summer of 2007, Environment Canada posted notification that nanomaterials having novel molecular structures would be subject to the Canadian Environmental Protection Act [CEPA] regulations, an important step in the right direction. Nevertheless, that still excludes from regulatory oversight many nanomaterials now in use, though there is ongoing discussion about further developments in nanotechnology regulation and policy.) So far, putting in place a regime for managing and regulating hybrid bio-nanotechnology has received almost no public or political attention.

Recommendations for Better Managing Biotechnology

Public policy has a number of institutional means to try to manage technology in order to achieve social or economic goals. What is striking about biotechnology in Canada is how narrow these goals (commercial success, primarily) and how limited the public input have both been.

The following are six important areas where institutional change is needed in managing biotechnology:

Public research funding
Formal avenues for public input and review are required.

Policy review and advice
Here also ongoing formal avenues for public input and adequate support for public participation are lacking and should be developed.

Labeling
Currently and for many years past, the Canadian government has refused to require labeling of food and other products involving genetically modified organisms (GMOs).

This decision deprives citizens of the ability to make informed personal choices about these products. Especially in a contentious political climate regarding GMOs, labeling allows market signals to influence choices made by food producers and retailers, and directly rewards those giving customers what they want to buy.

The regulatory regime
The present regulatory regime is a confusing patchwork of existing legislation that may or may not be adequate to manage the specific challenges of biotechnology. It requires a thorough review, and possibly major change to consolidate, streamline, and make it more transparent and effective.

Liability
Currently, there is no legislative direction in Canada concerning civil liability for biotechnology. For those who might be affected (for example, an organic grower whose crop is contaminated by neighbouring genetically modified crops and who loses organic certification because of this), the only choice is a civil suit with the burden of proof on the complainant. Unlike a number of other countries, Canada has no legislation apportioning responsibility and costs to either the neighbouring farmer or the manufacturer. The result is legal uncertainty and financial exposure for those adversely affected. As well, farmers with GMO-contaminated crops are liable to civil action against themselves for patent infringement, despite the fact that it is now known that genetic contamination of nearby plants from GMOs can and does take place.

World Trade Organization (WTO) rules and trade-related issues
Current international trade rules prevent national initiatives and international treaties from employing some approaches to environmental legislation and related economic and trade sanctions. This is not entirely unreasonable, as some countries have used "environmental" legislation as a protectionist mechanism to restrict trade. However, right now, trade measures are one of the key points of conflict both within the EU and between the EU and North America regarding the

acceptability of genetically modified food crops, with an individual country's ability to restrict GM crops at question. Many environmentalists would like to see a new round of WTO negotiations aimed at finding a more acceptable approach to environmental matters in both international treaties and in environment-related trade disputes. Most would agree with rules that disallow arbitrary "environmental" trade restrictions, but permit countries more latitude involving legitimate environmental goals, especially in disputes where the precautionary principle is invoked and there is scientific uncertainty.

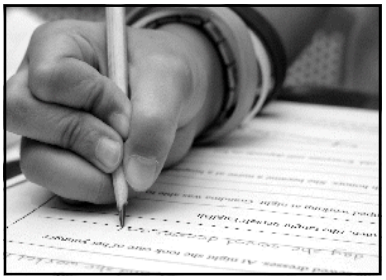
Taking Action

There are a number of options that concerned citizens can use to alter public policy and institutions related to biotechnology. The following is a listing of well-known strategies that are relevant to biotechnology issues:

- Changing public and political awareness through media campaigns and electronic media, including blogs, e-mail, chat rooms and other venues;
- Energizing NGOs, including Quaker and other faith organizations, to campaign on specific biotechnology issues;
- Exerting public pressure by organizing public events and through personal interaction with politicians, bureaucrats, and other influential organizations and individuals;
- Involvement in electoral politics;
- Initiating legal action;
- Organizing well-thought-out consumer boycotts of specific GM products and/or of companies opposing GM labeling. Effective consumer boycotts must have a concrete objective which the target of the boycott can accomplish by its own actions, or at least very directly affect. Organizers of the boycott must be in a position to determine when their objective is reached and be able to then claim success and publicly end the boycott; and
- Making a public commitment to purchase only or mainly organically produced food for a specified period while publicizing and explaining that action.

Action Strategy Recommendations

Quakers could take action in various ways on **all six of the areas for institutional change**. Key **strategic actions** might be to concentrate on **public awareness**, on **energizing NGOs**, including Quaker and other faith groups, and, possibly, on organizing a major **consumer boycott coupled with organized, collective, well-publicized commitments to buying organic products**. Support for low income people in this endeavor should be part of the effort.



Why these priorities? Unlike, say, climate change or air pollution, there is little public awareness or knowledge about biotechnology issues. Changes in institutions are unlikely unless there is some perceived public pressure and support for such action. However, a boycott to mandate GM labeling taps into existing consumer pressure for more information and transparency about what is in food and other consumer products. And buying organic addresses a range of ecological problems that many people are concerned about already, as well as having the effect of avoiding GM food products.

Other institutional changes certainly matter, but they will require the collaborative work of many people and organizations, not faith groups alone. Specialist expertise and adequate resources are needed to initiate legal action, and a massive international push will be required to gain any traction on a WTO round of negotiations on the environment, though there are legal and trade experts who see this as a necessary institutional evolution. And there are Canadian NGOs who see public input and regulatory reform in our country's oversight of biotechnology as vitally important. Significant institutional change will require a strong effort to reach out to others to make common cause on these issues, and Quakers and other faith organizations could be instrumental in doing that.

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