Canadian Association of Physicians for the Environment

Statement on Genetically Modified Organisms in the Environment and the Marketplace

Preamble

In the mid 1980s, primary care physicians, and subsequently their rheumatology colleagues, began to see a number of chronically ill individuals with severe pain syndromes affecting muscle tissue, accompanied by abnormally high eosinophil counts. In time, it became clear that a new disease entity had arisen, which was eventually called "eosinophilia myalgia syndrome." Some dozens of people died from this illness and several thousands remain permanently disabled.

What took a long time to understand about this condition was its cause. It was eventually discovered that, in the early 1980s, one of the first industrially produced and commercially marketed amino acids, tryptophan, had begun to be manufactured by a novel process, in Japan, utilizing genetically modified bacteria. In an unexpected twist of fate, the genetically modified but poorly controlled bacteria had created an undetected, and highly toxic, dimerization of the tryptophan molecule. This toxic molecule was undetected in pre-market testing, and so the new product was deemed "biologically equivalent" to existing, conventionally produced tryptophan. Unfortunately for the individuals who ingested it, their bodies responded very differently to the altered amino acid, and they suffered severe illness and even death as a result.

Fast forward a few years, and we discover that without any real public input or debate, and with essentially no human trials, our infant soy formula is now created with genetically modified plant material, our corn chips are made from insect resistant, genetically modified corn, and our veggie burgers contain altered soybeans. Current estimates suggest that fully 60% of products in Canada's grocery stores have genetically modified ingredients. Our children and our grandchildren are growing up on them.

Is this a bad thing? No one knows. There have been no significant human trials of any size or length, nor does it appear that any are currently funded. We do know, from studies of soybeans modified to withstand higher doses of glyphosate pesticide, that the content of phytonutrients in those soybeans is altered from concentrations in conventional soybeans. What does this mean for health effects? Again, we do not know.

What we increasingly understand, however, is that the biological systems in all of us are complex, and in children they are particularly vulnerable and sensitive, as well as profoundly dependent on proper nutrition for full and successful development. We believe, therefore, that if there is any question about the safety and bio-equivalence of new foodstuffs being brought to the market, we must not expose humans to these foods until careful trials have been completed and their results made widely available.

What is more, we have real concerns about the relationships among living organisms. We are concerned about what it means to introduce what are essentially newly created species, some of which contain a chimeric blend of genes from entirely different creatures, into our world. We have seen the effects of chemical and nuclear contamination of the environment, and have real fears that biological contamination with newly minted organisms may be even more threatening to the natural order. We urge caution. What is the rush?

We must resist the drive for quick profit, and review the implications of our new-found abilities. We must carefully consider the ethical implications of patent rights being extended to our basic foodstuffs, restricting to a few large seed producers the right to grow and produce these foods. To be fed in a way that is truly sustainable, we must preserve not only a stable, abundant and safe food supply, but also a safe planet to grow it on, and safe children to enjoy it.

Statement

The Canadian Association of Physicians for the Environment (CAPE) recognizes that the use of genetic engineering and genetically engineered organisms under carefully controlled conditions (e.g., in closed laboratory environments, or within individual persons) offers considerable benefit for human health, both now and in the future.

However, CAPE has grave concerns about the environmental release of genetically modified (GM) crops and products; we call for the immediate suspension of all such releases, and for current patents on such life forms and living processes to be suspended or rescinded.

CAPE calls for an immediate and comprehensive public enquiry into the effect of GM organisms on ecosystem stability, food security and human health.

Patents on life-forms and living processes threaten equitable food distribution, encourage biopiracy of indigenous knowledge and genetic resources, violate fundamental human rights, and impede medical and scientific research. Patented GM crops intensify corporate control over food production, curtail biodiversity, and limit the autonomy of farmers, obstructing the development of sustainable, community-based agriculture that is the cornerstone of a stable food supply around the world.

We believe, in any case, that existing life forms such as organisms, seeds, cell lines and genes are discoveries and therefore cannot and should not be patented. Further, we believe that such living entities are part of the common heritage of humankind; we do not believe that any person or persons should be allowed to genetically modify any organism, seed, or cell line to obstruct their propagation in any way.

Current techniques for genetic modification produce novel organisms, but these techniques are unreliable and unpredictable; many life forms generated by them are inherently dysfunctional and disruptive. Furthermore, the expression of any viable organisms is highly dependent on ecological context; to date, no comprehensive analysis has been carried out examining the influence of context on any GM organism.

Current analyses of GM crops show that they generally yield less than conventional crops.

The real hazards of GM organisms to human and ecosystem health are becoming ever more apparent. For example, the horizontal spread of antibiotic resistance marker genes from GM crops can compromise the treatment of life-threatening infectious diseases. The cauliflower mosaic viral promoter, widely used in GM crops, may enhance horizontal gene transfer and has the potential to generate new pathogenic viruses. GM crops containing natural biocides (e.g., Bt toxin) harm beneficial insects, and leave residues deep in the soil, which can selectively encourage resistance among predator species.

We urge the Canadian government to take into account all scientific evidence related to GM organisms, and to act in accordance with the precautionary principle in regulating their production and use. We urge the Canadian government to negotiate a strong and effective International Biosafety Protocol. We urge the Canadian government to ensure that biosafety considerations, at both the national and international level, take precedence over trade and financial agreements established by the World Trade Organization.

Finally, we urge that research into sustainable, organic agricultural methods and techniques be intensified and extended on a global scale. Many sustainable, community-based agricultural systems already exist around the world, completely adapted to local ecosystems; they generate high and sustained yields, and have neutral or positive ecological impacts. Ongoing research reveals that organic growing methods, using conventional seeds and crop lines, can enhance soil structure, reduce nitrogen pollution, and generate adequate and secure income for farmers while freeing them from dependency on costly external inputs.

We believe that the enhancement, expansion, and promotion of these methods and techniques offers the single best hope to our global culture of engendering a safe, equitably distributed, and secure food supply for present and future generations. It also promises to demonstrate, once and for all, that the creation of GM organisms is entirely unnecessary.