

**TORONTO PUBLIC HEALTH  
RESPONSE TO CONSULTATION ON PUBLIC HEALTH RECOMMENDATIONS  
REGARDING GENETICALLY ENGINEERED FOODS**

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## **Background:**

In April 2001, the Board of Health accepted a staff report on genetically engineered foods. This report recommended that, “the Board of Health direct public health staff to lead a consultation with other public health stakeholders (e.g., the Ontario Public Health Association, the Canadian Public Health Association, Boards of Health in Ontario) to develop recommendations that will address the public health implications of genetically engineered food;...”.

In September, 2001, Toronto’s Medical Officer of Health sent a letter to Medical Officers of Health in Ontario, and the Executive Directors of both the Ontario Public Health Association and the Canadian Public Health Association, with the request that they respond to this consultation.

Responses to this consultation were received from seven health units – Region of Waterloo, Elgin St. Thomas, City of Ottawa, County of Lambton, City of Hamilton, Region of Peel and York Region. In summary, feedback received mirrored the recommendations outlined in the OPHA position paper. For example, all respondents indicated that genetically engineered food is a public health issue because: it affects the food supply of the entire population; it has a strong impact on agriculture and the environment; and, it is a new technology with unpredictable consequences, and therefore requires reliable policies and methods for assessment, monitoring and regulation. Similarly, all respondents agreed that the principles identified in the Toronto Board of Health report should be used as a framework to examine the public health implications of genetically engineered foods. In general, these same principles were used for the OPHA position paper.

The responses and comments that Toronto Public Health received to the consultation are summarized below.

**Toronto Public Health  
Response to Consultation on Public Health Recommendations  
Regarding Genetically Engineered Foods**

1. Is genetically engineered food a public health issue?

All of the respondents indicated that genetically engineered food is a public health issue. The reasons cited by the respondents included:

- it affects the entire population
- it has a strong impact on agriculture and the environment
- it is a new and growing technology with unpredictable consequences and therefore requires reliable policies and methods for assessments, monitoring and regulation
- the issues above are related to the determinants of health, defined by an integrated set of social, environmental and economic factors that are known to impact on the health of the population
- the current pervasiveness of GE foods in the marketplace has created limits on the available choice of foods derived from non-GE foods
- the role of public health is to monitor the food supply and be able to support informed choices
- food safety and food security are essential to public health protection and disease prevention; public health can play an important service in advocating for health protection and disease prevention related to GE foods
- there is significant concern that GE foods may put the public at risk, e.g., allergenicity/intolerance, nutrient content alterations, and toxic affects
- food quality and safety are public health issues; working with others to support the development and compliance with scientifically sound standards to enable the dissemination of comprehensive, valid and reliable information
- GE plants and organisms are food, so public health has a role, the extent of which may vary between health units
- the OPHA position paper did discuss GE foods as a public health issue for many of the reasons cited above

2. Do you agree with the principles identified in the Toronto Board of Health Report used as a framework to examine the public health implications of genetically engineered foods?

All respondents agreed with the principles identified in the Toronto Board of Health report used as a framework for examining the public health implications of GE foods. A few respondents offered suggestions for modifications of some of the principles (see specific comments in chart below). These same principles were used for the OPHA position paper with slight modification (see chart below).

3. Please comment on the possible recommendations associated with the public health principles identified above.

Public Health Principle	Responses to Possible Recommendations * Comments and feedback received appear in black text as opposed to grey.
<p>Policies and regulations must ensure that GE foods maintain and improve the quality of the food supply in a manner that is consistent with public health priorities, goals and education programs.</p> <p>Suggestions included:</p> <ul style="list-style-type: none"> <li>- defining “public health priorities and goals” in the report</li> <li>- changing “maintain and improve the quality of the food supply” to “improve some aspects of the food system” in order to take aspects of production into consideration</li> </ul> <p>The OPHA position paper used a slight modification of this principle, “ Policies and regulations must ensure that approval is granted only to those GM foods which maintain and improve the quality of the food supply in a manner that is consistent with public health priorities and goals”</p>	<ol style="list-style-type: none"> <li>1. The Canadian Nutrient File should be updated to include the composition of genetically engineered foods and be readily available to the public (RSC 4.11). <ul style="list-style-type: none"> <li>- There was general agreement from all respondents, with a few comments, e.g., need to determine how frequently the CNF is updated, given the speed of changes in the marketplace, another suggestion that the CNF may be too specific, could simply identify a need for an information system, this could make it feasible to track nutrient imbalances that could arise from genetically altering the nutrient content of foods</li> </ul> </li> <li>2. The Government of Canada should invest in a national nutrition monitoring and surveillance system, to monitor nutrition indicators among the general population, and specific at-risk populations, as well as population-health changes that occur over time in relation to alterations in the food system resulting from genetic engineering. <ul style="list-style-type: none"> <li>- There was general agreement with comments, e.g., this would help inform our public health practices and health promotion strategies, would allow identification of nutrition related issues, and reveal changes in nutrient intake over time, would help predict the potential for nutrient imbalance in the general population, as well as groups such as children, would help identify the need for nutrient altered foods, reliability of assessment techniques would also need to be peer-reviewed</li> <li>- Suggestion also included deleting “ ...as well as population-health changes that occur over time in relation to alterations in the food system resulting from genetic engineering”, since they did not think this would be possible</li> </ul> </li> <li>3. Protocols should be developed for the testing of future GM foods in experimental diets. (RSC 4.10) <ul style="list-style-type: none"> <li>- There was general agreement with comments, e.g., one food is not eaten in isolation of other foods, nutritional content of foods is taken in context of the total diet</li> </ul> </li> <li>4. The Government of Canada should develop and implement an effective surveillance and monitoring system for each class of crops regarding the extent to which pesticide usage is increased or decreased in Canada, for both GM and non-GM crops. Data from this monitoring system must be publicly available. <ul style="list-style-type: none"> <li>- agreed – respondents noted that chronic pesticide use is detrimental to health, environment and agricultural sustainability; that public health is in favour of reducing chemical use to the lowest essential and effective level</li> </ul> </li> <li>5. The Government of Canada should set and enforce advertising standards to ensure that claims made regarding GM foods (e.g., with respect to their impact on population health and food security) are supported by evidence. <ul style="list-style-type: none"> <li>- Some respondents recommended mandatory, not voluntary labelling; and indicated that current standards are sufficient, but supports enforcement of these standards</li> <li>- General agreement on need for transparency and evidence-based claims</li> </ul> </li> </ol>

<p>The policies related to GE foods must ensure that GE foods do not result in health hazards.</p> <p>No comments received.</p> <p>The OPHA position paper used the same principle.</p>	<ol style="list-style-type: none"> <li>1. The Canadian regulatory agencies should establish clear criteria regarding when and what types of toxicological studies are required to support the safety of novel constituents derived from transgenic plants (RSC 4.1) <ul style="list-style-type: none"> <li>- general agreement; comments included that it is important to develop scientifically sound, practical approaches and that substantial equivalence does not take the place of direct testing and that a traditional toxicological paradigm may not be appropriate in all cases</li> </ul> </li> <li>2. Given the availability of suitable alternatives, antibiotic resistance markers should not be used in transgenic plants intended for human consumption (RSC 4.3) <ul style="list-style-type: none"> <li>- unanimous agreement; most respondents cited concerns about antibiotic resistance in agriculture and human health</li> </ul> </li> <li>3. Regulatory authorities should establish a scientific rationale that will allow the safety evaluation of whole foods derived from transgenic plants, and collaborate with colleagues internationally to establish such a rationale and/or sponsor the research necessary to support its development (RSC 4.2) <ul style="list-style-type: none"> <li>- agreement; comments generally indicated that public health should advocate for this at the Federal level</li> </ul> </li> <li>4. Mechanisms for after-market surveillance of GM foods incorporating any novel proteins should be developed (RSC 4.6) <ul style="list-style-type: none"> <li>- agreement; general comments included the concern about potential allergens and the need for mandatory labelling to facilitate after-market surveillance</li> </ul> </li> <li>5. The appropriate regulatory agencies should have in place a specific, scientifically sound and comprehensive approach for ensuring that adequate allergenicity assessment will be performed on GM foods (RSC 4.7). <ul style="list-style-type: none"> <li>- unanimous agreement; respondents indicated that no assessment procedures exist if the new protein structure is not similar to a known allergen and expressed concerns about the current approach to allergenicity assessment of GM foods as requiring enhancement and new technologies</li> </ul> </li> <li>6. The Canadian government should support research initiatives to increase the reliability, accuracy and sensitivity of current methodology to assess the allergenicity of a food protein, as well as efforts to develop new technologies to assist in these assessments. (RSC 4.4) <ul style="list-style-type: none"> <li>- unanimous agreement; general comments indicated that it is the Canadian government's responsibility to ensure that appropriate research occurs and that it's Public Health's role to advocate for the development of new technologies</li> </ul> </li> <li>7. The infrastructures to facilitate evaluation of the allergenicity of GM proteins should be strengthened and developed. This could include a central bank of serum from properly screened individuals allergic to proteins which might be used for genetic engineering, a pool of standardized food allergens and the novel GM food proteins or the GM food extracts, maintenance and updating of allergen sequence databases, and a registry of food-allergic volunteers. (RSC 4.5)</li> </ol>
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	<ul style="list-style-type: none"> <li>- agreement; respondents agreed that the infrastructure to evaluate potential allergenicity of GM proteins should be strengthened and developed which would enhance the CEPA and the ability of government agencies such as CFIA to broaden the scope of and technological ability to detect allergenic proteins; one respondent suggested that personal privacy should not be compromised</li> </ul> <p>8. Environment Canada and the Canadian Food Inspection Agency should establish an assessment process and monitoring system to ensure safe introductions of GM organisms into Canada, according to the intent of the Canadian Environmental Protection Act (RSC 5.11)</p> <ul style="list-style-type: none"> <li>- unanimous agreement; 3 respondents cited Health Canada's announcement on September 2001, that all products under the Food and Drug Act (including novel food) would be required to undergo an environmental assessment; and that Public Health's role is to advocate that the criteria for the environmental assessment include: a long-term monitoring system; continuous assessment of safety and ecological effects; sufficient resources; and, collaboration between various government ministries to ensure adequate safety and a transparent and open process to public debate</li> </ul> <p>9. Exhaustive, long-term testing should be carried out for ecological effects of biotechnology products that pose environmental risks, especially with respect to persistence of the organism or a product of the organism, persistent effects on biogeochemical cycles, or harmful effects resulting from horizontal gene transfer and selection (RSC 6.2).</p> <ul style="list-style-type: none"> <li>- unanimous agreement; generally respondents combined comments for recommendation #9 with recommendation #8; additional comments include a collective responsibility for decreasing the harm done to the environment and understanding the ecological affects of GM organisms to help identify and characterize the risk to human populations</li> </ul> <p>10. Environmental assessments of GM plants should pay particular attention to reproductive biology, including consideration of mating systems, pollen flow distances, fecundity, seed dispersal and dormancy mechanisms. Information on these life-history traits should be obtained from specific experiments on the particular GM cultivar to be assessed, not solely from literature reports for the species in general (RSC 6.7).</p> <ul style="list-style-type: none"> <li>- agreement; respondents felt that specific comments were beyond the scope of public health; general comments related to sustainability of agriculture and ecosystems, which may ultimately affect public health</li> </ul> <p>11. Approval should not be given for GM products with human food counterparts that carry restrictions on their use for non-food purposes (e.g., crops approved for animal feed but not for human food). Unless there are reliable ways to guarantee the segregation and recall if necessary of these products, they should be approved only if acceptable for human consumption (RSC 4.8).</p> <ul style="list-style-type: none"> <li>- unanimous agreement; respondents suggested a restriction to the production of such crops until there are ways to monitor, recall or trace genetically modified food (i.e. labelling and post-marketing surveillance)</li> </ul>
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<p>The policies must ensure that decisions are based on the best available evidence.</p> <p>Comments included:</p> <ul style="list-style-type: none"> <li>- using "...based on 'the best available' evidence"</li> <li>- using "These policies must ensure that the approval of GE food is based on ongoing, non-biased, multi-disciplinary peer-reviewed evidence"</li> </ul> <p>The OPHA position paper used an adaptation of this principle, "These policies must ensure that decisions regarding the approval of GE food is based on on-going, rigorous, peer-reviewed evidence from a variety of multi-disciplinary sources (including the life sciences, environmental science, toxicology, agriculture, ethics, health law, etc.)".</p>	<ol style="list-style-type: none"> <li>1. The approval of new transgenic organisms for environmental release, and for use as food or feed, should be based on rigorous scientific assessment of their potential for causing harm to the environment and human health. Such testing should replace the current regulatory reliance on "substantial equivalence" as a decision threshold. (RSC 7.1) <ul style="list-style-type: none"> <li>- unanimous agreement; respondents commented on the inconsistencies with the use of the term "substantial equivalence" as a decision threshold and indicated that international agencies including the World Health Organization (Codex Alimentarius Commission), have omitted this process from their safety guidelines</li> </ul> </li> <li>2. The design and execution of all testing regimes of new transgenic organisms should be conducted in open consultation with the expert scientific community (RSC 7.2). <ul style="list-style-type: none"> <li>- agreement; comments included that testing regimes need to be open to scientific scrutiny by experts external to industry and governments, consisting of an independent and non-biased multi-disciplinary panel; respondents also suggested that this process have open consultation with the public and suggested that public health participate at all levels of the regulatory process to ensure that public concerns are adequately addressed; one respondent questioned whether this is possible</li> </ul> </li> <li>3. The analysis of the outcomes of all tests on new transgenic organisms should be monitored by an appropriately configured panel of "arms-length" experts from all sectors, who report their decisions and rationale in a public forum (RSC 7.3) <ul style="list-style-type: none"> <li>- unanimous agreement; in addition to the above comments (under recommendation #2), respondents indicated that industry based data does not always provide the rigor and accuracy needed for public health staff to promote biotechnology to the public and suggested setting up a model similar to the regulation of food additives</li> </ul> </li> <li>4. Canadian regulatory agencies must seek ways to increase the public transparency of the scientific data and the scientific rationales upon which their regulatory decisions are based (RSC 9.2) <ul style="list-style-type: none"> <li>- agreement; in addition to the comments under recommendation #2, respondents suggested changing the wording from "must seek ways to increase" which implies an ongoing process to "must ensure" as the goal to be reached and identified transparency as the goal of healthy public policy</li> </ul> </li> <li>5. The Canadian regulatory agencies must implement a system of regular peer review of the risk assessments upon which approvals of GE products are based. These peer reviews should be conducted by an external (non-governmental) and independent panel of experts. The data and the rationales upon w which the risk assessment and the regulatory decision are based should be available for public review (RSC 9.3) <ul style="list-style-type: none"> <li>- unanimous agreement; see comments under recommendation #2</li> </ul> </li> </ol>
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<p>The “precautionary principle” must be applied in the approach to regulating GE foods.</p> <p>No comments received.</p> <p>The OPHA position paper used the same principle.</p>	<ol style="list-style-type: none"> <li>6. All assessments of GM foods, which compare the test material with an appropriate control, should meet the standards necessary for publication in a peer-reviewed journal, and all information relative to the assessment should be available for public scrutiny. The data should include the full nutrient composition (Health Canada, 1994), an analysis of any anti-nutrient and, where applicable, a protein evaluation such as that approved by the United Nations Food and Agriculture Organization (FAO). (RSC 4.9) <ul style="list-style-type: none"> <li>- agreement; respondents indicated that assessment of GM foods could follow the process of the regulation of food additives to ensure transparency and an external peer review, i.e., the manufacturer conducts the research and specific safety assessments, Health Canada sets the regulatory and safety assessment criteria and a process of external review by experts in the field as well as a period of public consultation via the Health Canada Gazette is in place</li> </ul> </li>   <li>7. All ecological information on the fate and effects of transgenic biotechnology products on ecosystems required under existing legislation should be generated and made available for peer review (RSC 6.1) <ul style="list-style-type: none"> <li>- unanimous agreement; see comments under recommendation #6</li> </ul> </li>   <li>8. All regulatory departments involved in the regulation of food biotechnology should seek to separate institutionally as much as possible the role of promoter from the role of regulator. The more the regulatory agencies are, or perceived to be, promoters of the technology the more they undermine public trust in their ability to regulate the technology in the public interest. (RSC) <ul style="list-style-type: none"> <li>- unanimous agreement that the roles should be clearly defined and separated in order for agencies to carry out their functions effectively; respondents cited the CFIA, Agriculture and Agri-Food Canada as acting as both promoters and regulators of biotechnology</li> </ul> </li>   <li>9. Canadian regulatory agencies and officials should exercise great care to maintain an objective and neutral stance with respect to the public debate about the risks and benefits of biotechnology in their public statements and interpretations of the regulatory process. (RSC 9.1) <ul style="list-style-type: none"> <li>- agreement; see comments under recommendation #8</li> </ul> </li>   <li>1. In general, new technologies should not be presumed safe unless there is a reliable scientific basis for considering them safe. The use of “substantial equivalence” as a decision threshold to exempt new GM products from rigorous safety assessments on the basis of superficial similarities because of such regulatory procedure is not a precautionary assignment of burden of proof (RSC 8.1). <ul style="list-style-type: none"> <li>- unanimous agreement that “substantial equivalence” should not be used as a decision threshold</li> </ul> </li>   <li>2. As a precautionary measure, the prospect of serious risks to human health, of extensive, irremediable disruptions to the natural ecosystems, or of serious diminution of biodiversity, demand that the best scientific methods be employed to reduce the uncertainties with respect to these risks. Approval of products with these potentially serious risks should await the reduction of scientific uncertainty to minimum levels (RSC 8.4).</li> </ol>
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<p>The policies must help prevent practices that may mislead, deceive or confuse the consumer, and yet facilitate consumer choice.</p> <p>Comments included:</p> <ul style="list-style-type: none"> <li>- “This is really two principles; not misleading consumers is somewhat different than facilitating consumer choice. We agree in principle with both objectives and would like to see them separated in order to emphasize the importance of both concepts”.</li> </ul> <p>The OPHA position paper used the same principle.</p>	<ul style="list-style-type: none"> <li>- agreement with recommendation; respondents commented on the fact that the precautionary principle is incorporated into Canadian policy and legislation (i.e. Biosafety Protocol and the Canadian Environmental Protection Act)</li> </ul> <ol style="list-style-type: none"> <li>1. The current system of mandatory labelling where GM foods pose health or safety issues (e.g., possible allergens) or change the nutritional content should be maintained, with the development of a voluntary labelling system for GM foods with the establishment of guidelines for the regulation of reliable, informative voluntary labels. <ul style="list-style-type: none"> <li>- unanimous agreement that labelling for all GM foods should be mandatory not voluntary; all agreed that mandatory labelling will ensure consumer’s freedom of choice and will provide a method to trace the origin of any food product if necessary</li> </ul> </li> <li>2. Mandatory labelling of all GM foods should be introduced in Canada. Mandatory labelling has been implemented in the EU, and is being developed in Japan, and been agreed upon “in principle” in Australia and New Zealand, in order to facilitate consumer choice. <ul style="list-style-type: none"> <li>- overall agreement; comments indicated that other countries could be used as examples; one respondent did not believe it possible to accomplish</li> </ul> </li> </ol>
<p>The policies must be flexible enough to respond to the varied and changing demographics and food habits of the Canadian population, and reflect Canadian cultural and social values.</p> <p>Comments included:</p> <ul style="list-style-type: none"> <li>- “The policies must be responsive to the varied demographics, food habits and <i>expressed concerns</i> of the Canadian population”, adding that this would take into account the desire, by the majority of Canadian’s polled, that GE food ingredients be labelled as such.</li> </ul> <p>The OPHA position paper used the same principle.</p>	<ol style="list-style-type: none"> <li>1. The Government of Canada should engage Canadians in a meaningful review of government policies related to GE foods. This could involve CBAC, but must be inclusive of the participation of Non-Governmental Organizations, and lead to action on behalf of the Government of Canada. <ul style="list-style-type: none"> <li>- agreement; respondents supported the concept of public consultations</li> </ul> </li> </ol>

\* Many of the possible Recommendations/Considerations are derived from the report: *Elements of Precaution: Recommendations for the Regulation of Food Biotechnology in Canada*. An Expert Panel Report on the Future of Food Biotechnology prepared by the Royal Society of Canada at the request of Health Canada, the Canadian Food Inspection Agency, and Environment Canada. January, 2001.

4. Are there any additional recommendations you wish to make?

Additional recommendations include the following:

- Farmers' Freedom of Choice – supporting policies that would ensure farmers' freedom of choice is warranted, especially for farmers producing food for local markets
- Food Biotechnology - that food biotechnology be accepted as a recognized public health issue, with corresponding allocation of staff and resources, in order to carry out the necessary advocacy work of health units in conjunction with provincial and national public health agencies and other related partners
- Food Security – that GE foods does not assist in decreasing global food security issues, at present food insecurity is related to distribution rather than supply; food security advocates and public health has a role in promoting the investment of resources into sustainable local agriculture methods and other opportunities that promote the efficient distribution of foods so that all people at all times have access to safe, nutritious, personally acceptable and culturally appropriate foods

5. Please identify the role of Public Health authorities with respect to genetically engineered foods.

The following responses have been grouped into the following categories: advocacy, dissemination of information, access to information, promotion and surveillance.

- Advocacy – working independently and with others to advocate, to the appropriate ministries within the federal government, for improvements to research methodology and standards, monitoring and surveillance, disclosure of information, mandatory labelling and introduction of policies and legislation that will ensure the safety of the food supply; public health also has a role to advocate for best practices to ensure our local food supply and environment are both safe and secure
- Dissemination of Information – providing the public with accurate, reliable and current information and evidence based research; facilitating the identification, communication and resolution of public concerns and needs at a local levels to through the appropriate channels
- Access to Information – providing education opportunities on food biotechnology for public health staff, so that they in turn can become a resource to the public
- Promotion – promoting the investment of resources into programs that advocate for food accessibility and affordability
- Surveillance – gathering available information on the eating habits and nutritional intake of our local population including the use of GE foods or ingredients