

8. GENETICALLY MODIFIED ORGANISMS

Officer responsible Environmental Policy & Planning Manager	Author Terence Moody, Principal Environmental Health Officer
Corporate Plan Output: Environmental Health Policy Vol II P.7.2.Text.12	

The purpose of this report is to consider the request from Groundswell, received in November 1999, for Christchurch to be declared a GE-free zone.

INTRODUCTION

Following the representations of Mr de Spa representing "Groundswell", the Committee resolved to hold a seminar on the subject of the request to which all Councillors would be invited.

The seminar was held on 13 April 2000 and the following made presentations.

Mr Paul de Spa representing "Groundswell"
Mr Hugh Campbell of Otago University and the Public Good Food programme
Ms Linda Constable representing the Ngai Tahu Trust
Mr Ian Whitehouse of Landcare Research
Dr Morgan Williams, Parliamentary Commissioner for the Environment

It was decided that a report on the Groundswell proposal should be prepared for the Committee. This report should include definitions of "organic foods"; "genetically engineered"; "genetically modified"; comments from seminar ([attached](#)); options for the Council and possible costs of these.

Some Definitions

*Genetic engineering allows a gene, or genes, in any living thing to be removed, turned off or shuffled around. It also allows genes to be moved from one species to another – this is sometimes called transgenic genetic modification. Other words for genetic engineering are genetic modification (GM), Recombinant DNA technology, transgenic. GM bacteria containing a human gene since 1982 have produced insulin. A number of vaccines and certain highly specialised drugs, such as growth hormone, tissue plasminogen activator for heart attacks or factor VIII for haemophilia, are also produced with the aid of genetic engineering. Drugs produced from GM bacteria can also be safer than their non-GM counterparts as they are not produced from blood products that can carry unwanted viruses.*¹

¹ **The Biotechnology Question**, Independent Biotechnology Advisory Council, Wellington, 1999

The Codex Alimentarius Commission of the Joint FAO/WHO Food Standards Programme has defined organic foods as follows:

*Foods should only refer to organic production if they come from an organic farm system employing management practices which seek to nurture ecosystems which achieve sustainable productivity, and provide weed, pest and disease control through a diverse mix of mutually dependent life forms, recycling plant and animal residues, crop selection and rotation, water management, tillage and cultivation.*²

A New Zealand definition is as follows:

*Organic agriculture includes all agricultural systems that promote the environmentally, socially and economically sound production of food and fibres. These systems take local soil fertility as a key to successful production. By respecting the natural capacity of plants, animals and the landscape, it aims to optimise quality in all aspects of agriculture and the environment. Organic agriculture dramatically reduces external inputs by refraining from the use of chemosynthetic fertilisers, pesticides and pharmaceuticals. Instead, it allows the powerful laws of nature to increase both agricultural yields and disease resistance.*³

DISCUSSION

There appears to be a large degree of uncertainty regarding the actual effects of the use of genetic engineering on either humans or the environment. The effects depend on the use to which the genetic engineering is put and whether, for example, genetically modified plant material carries over modified genetic material or other proteins into the foodstuffs produced AND whether these can have effects when consumed by people. Together with this is the human response to what is perceived as new technology on both spiritual and political grounds. These latter do not necessarily relate to any factual basis of risk, but may have a significant philosophical basis or merely a perceived fear or anger that other people are doing things to what are seen as important values to the particular individuals.

The Royal Commission that has been set up by the Government will consider most of these matters. Among the matters they will be considering are the evidence and the level of uncertainty about present and possible future applications of genetic modification techniques and the use of genetically modified organisms and products in New Zealand. The Commission will also look at risks and benefits from the use or avoidance of genetic modification technologies and the Crown's responsibilities under the Treaty of Waitangi in relation to genetic modification. They will be examining the main public interests in genetic modification, including those of human health (including biomedical, food safety and consumer choice), environmental (including biodiversity, biosecurity issues and the health of ecosystems), economic concerns (research and innovation, business development, primary production and exports), and cultural and ethical concerns.

² **Guidelines for the Production, Processing, Labelling and Marketing of Organically Produced Foods**, Codex Alimentarius Commission, Secretariat of the Joint FAO/WHO Food Standards Programme, Rome, 1999

³ Organic Products Exporters Group Inc (OPEG), Submission to the Independent Biotechnology Advisory Council, September 1999

These obviously are matters which have a national significance, as legislation already exists under the Hazardous Substances and New Organisms Act 1996 to control the importation or release of any genetically modified organisms. These are defined as follows.

*“Genetically modified organism” means, unless expressly provided otherwise by regulations, any organism in which any of the genes or other genetic material (a) Have been modified by in vitro techniques; or (b) Are inherited or otherwise derived, through any number of replications, from any genes or other genetic material which has been modified by in vitro techniques.”*⁴

The Hazardous Substances and New Organisms (Organisms Not Genetically Modified) Regulations 1998 provide a list of organisms that are not genetically modified for the purposes of the Act.

- (1) *For the purposes of the Act, the following organisms are not to be regarded as genetically modified:*
- (a) *Organisms that result solely from selection or natural regeneration, hand pollination, or other managed, controlled pollination:*
 - (b) *Organisms that are regenerated from organs, tissues, or cell culture, including those produced through selection and propagation of somaclonal variants, embryo rescue, and cell fusion (including protoplast fusion or chemical or radiation treatments that cause changes in chromosome number or cause chromosome rearrangements):*
 - (c) *Organisms that result solely from artificial insemination, superovulation, embryo transfer, or embryo splitting:*
 - (d) *Organisms modified solely by--*
 - (i) *The movement of nucleic acids using physiological processes, including conjugation, transduction, and transformation; and*
 - (ii) *Plasmid loss or spontaneous deletion:*
 - (e) *Organisms resulting from spontaneous deletions, rearrangements, and amplifications within a single genome, including its extrachromosomal elements.*

It has been pointed out that New Zealand is one of the few places in the world to have law that requires approval of all genetic modification work. The Environmental Risk Management Authority, through what is generally considered a rigorous process, considers all applications.

For this Council, in considering whether to declare Christchurch as some sort of “Genetically Modified Food Free Zone”, or even further a “Genetically Engineering Free Zone” in which all genetic engineering practices are prohibited, a number of practical issues arise.

⁴ Hazardous Substances and New Organisms Act 1996, section 2 -Interpretation

It would be possible to merely make a statement, as was done in the case of the declaration of Christchurch as a “nuclear weapon free zone” and not to expect any further action on behalf of the Council other than to support any Government moves to that end. In that case, other ionising radiation sources used in industry, medical practices, and in such things as smoke alarms, for example, were excluded from the policy. These are, of course, controlled under legislation administered by the National Radiation Laboratory of the Ministry of Health.

In the case of the approach made by the Groundswell group, it would seem that the expectation is that the Council should go further than just making a policy statement. The presentation to the Council stated: *The establishment of a Christchurch City Council GE-free zone is envisaged as a symbolic action, rather than one which will entail a detection and compliance regime, with its attendant costs.* However, it then went on to set out a list of actions expected under the proposal. The comments on each of these are set out below the particular item.

- (2) *That the Council encourage businesses and individuals to refrain from using genetically-engineered products in any pastoral, horticultural, viticultural, aquacultural, or other food production.*

It may be that this could be quite simply done by sending out, at some cost, letters merely stating the request contained in the proposal. It should be noted, however, that there already exist legal provisions to control the use of such products under the Hazardous Substances and New Organisms Act. There are practical difficulties in providing detailed information to such businesses on the matter of what is genetically-engineered if questions are asked. It appears that the “Groundswell” proposal may be seeking a restriction on the use of genetically-engineered products, whether these have been approved by ERMA or not. There is currently a voluntary moratorium on all applications to release and field test genetically modified organisms, which ends three months after the date the Royal Commission on Genetic Modification is to report. The Council is not set up to be able to undertake testing for such material.

- (3) *That the Council encourage businesses and individuals within the City to try, as far as is possible, to avoid using genetically-engineered products and ingredients in food preparation.*

Similar comments as contained in the comment above would apply. As was stated at the seminar some imported food products, such as soy flour and soy oils, may be partly sourced from genetically modified soya bean plants. These derived products are often constituents of many foods produced both in New Zealand and overseas. The Ministry of Health is responsible for food safety issues in New Zealand, for checking imported foods, and for food labelling. The Australia New Zealand Food Authority (ANZFA) on the basis of “substantial equivalence”, assesses the safety of food, including new foods, before it can be considered “safe”. This approach is endorsed by the World Health Organisation.

- (4) *That the Council make every attempt to avoid the use of genetically-engineered food or organisms in its own operation, and publicise the fact that it is so doing.*

On the face of it this Council could adopt a policy to fulfil this request. I would question how exactly it would apply in practice. In general terms the Council does not provide any significant amount of food for either itself or the general public. It could require any persons supplying food to specify that to be GM-free, but there are considerable difficulties in determining that fact. The other area in which the Council may use genetically-engineered organisms could be in the plant breeding operations. In those cases any request to undertake such activities would require approval of ERMA and as noted above are unlikely to be approved anyway at this time.

- (5) *That the Council support and promote a GE-Free foods database to enable people to comply with resolutions (3) and (4). Such a database has been compiled by a Christchurch organisation, the GE-Free Project – an example can be found at: www.rage.org.nz/db/*

This could have significant cost implications to the Council. The example mentioned is a list based on the receiving of declarations from companies that to the best of their knowledge the specific products are GE-free. The list on which they are put is stated to be updated weekly and it is also stated that random testing will be undertaken to verify the GE-free status of the products. The list contains a disclaimer stating, “*While every effort has been made to ensure the information listed on this website is correct (by only accepting written, signed confirmation from company representatives in regard to the claimed status of their products) the authors do not accept any responsibility or liability for error of fact, omission or interpretation which may be present, nor the consequences of any decision based on this information.*”

The number and range of foods currently included in the database is somewhat limited and for it to be of use to a wider range of users would need to be extended considerably. If the Council were to consider hosting, or taking ownership, of such a database it is considered the legal responsibilities would need to be carefully examined. It is suggested that it would require a lot of work to obtain accurate and verifiable information on GE-free foods and there are difficulties in adequately testing these foods to determine the truth of claims. It may be that the inclusion of some foods, or manufacturers, or even the exclusion of some foods could lead to criticism of unfairness (at the least) on the part of the Council.

Further, that the Council expresses its wish to Central Government that a mandatory, comprehensive labelling scheme be introduced regarding the sale of GE foods in New Zealand.

The last matter is one that has received some attention from the Australia New Zealand Food Authority in deciding to require additional labelling of foods produced using gene technology. The Australia New Zealand Food Standards Council, which consists of the Commonwealth of Australia, Australian State and Territory, and New Zealand Health Ministers, had required the current Genetically Modified Foods standard to be mandatory and this came into effect early in 2000. The Ministry of Health, in May 1999, sought comments from the public on a future labelling regime for genetically modified food. Some 5,713 submissions were received and these have been summarised in a report for the Ministry.⁵ In general there was strong public support for labelling of all food that had been produced from genetically modified material, even if the food was virtually the same as its conventional counterpart. There was not a lot of support from those groups for the “may contain” option as it was felt consumers had the “right to know” and to be able to make informed choices about what food they buy.

CONCLUSIONS

The setting up of the Royal Commission on Genetic Modification with quite wide terms of reference on 8 May 2000 would seem to be able to consider many of the matters raised by the Groundswell group, as well as those raised at the seminar. While the reporting date of the Commission is 1 June 2001, it is considered to be sensible not to undertake any work on developing any Council policy at this time.

Some of the matters suggested by the Groundswell proposal could be costly to implement properly, and may be beyond the resources currently available to the Council.

Given the uncertainty of effects of genetically modified foods and other organisms, which matters will be examined in some depth by the Royal Commission, it is not considered that further action should be taken at this time.

Once the Royal Commission has reported, the matter of any appropriate response by this Council could again be considered.

Recommendation: That no action be taken on the matters raised by Groundswell until the Council examines the Report of the Royal Commission on Genetic Modification.

Chairman’s

Recommendation: That the officer’s recommendation be adopted.

⁵ **An Analysis of the Submissions on the Labelling of Genetically Modified Food**, Elizabeth Ashton, Centre of Research, Evaluation and Social Assessment, July 1999