

Hawke's Bay: GM Free Food Producing region

Q and A

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1 What is GM?

What is genetic modification?

Genetic modification (GM) refers to a set of techniques that use advanced molecular biology to alter genetic make-up, often by moving genes from one species into another to produce new and different organisms. Genetic engineering (GE) is another term for the same thing. "Cisgenics" where GMOs are created using genetic material from the same species is also being explored.

Genetically modified organisms (GMOs) are products of genetic modification and can be microbes, plants or animals.

Are GM and biotechnology the same thing?

Biotechnology is the term used to describe a vast range of techniques developed over the centuries that use biological processes to make food, agricultural and medicinal products, among others.

Examples of biotechnology include penicillin, the use of yeasts in beer brewing and the use of bacteria for cheese making.

Gene technologies encompass a recent branch of biotechnology activities. This new set of applications draws upon discoveries in genetics and molecular biology to make a host of products, from bio-screens in sewage plants, through to genetic identification systems, and screening plants for commercially useful traits.

Haven't we been doing GM for centuries?

Traditional breeding and GM are used for similar ends – to produce more profitable plants and livestock. Yet the techniques they use are very different, due to recent advances in molecular biology. GM uses *in vitro* (test tube) methods to introduce new genetic material into a microbe, plant or animal. It is this distinctive approach that has led to GM being treated differently both in law and in the market place.

2 Why Hawke's Bay should be a GM Free Food Producer

Why treat agricultural GMOs differently?

Consumers in New Zealand's key export markets clearly distinguish between GM foods, and the use of GM for medical purposes. New Zealanders appear to make similar distinctions.

Europe is the nation's single largest export market for agricultural products. Europeans are widely supportive of GM for medical purposes, but a majority clearly reject GM foods. Consumers in many Asian markets are also strongly resistant to GM foods.

Irrespective of the safety or otherwise of GMOs, it is the high level of market resistance to GM food products and trace GM contamination of other production that justifies treating GM food applications very cautiously.

The risk of country brand contamination from GM production is real and according to MAF, New Zealand producers have benefited from the fact that thus far, "New

Zealand's marketing advantage in being GM free remains intact."¹

Hawke's Bay's future lies in being a premium food producer of high value products. As such, we are particularly at risk of exposure to any outdoor GM activity.

Where's the evidence of market resistance?

Europe remains a key market for high-value produce. Europeans remain strongly opposed to GM foods. The latest European Union opinion poll (2010) describes GM foods as "the Achilles heel" of biotechnology. While some GM developers in New Zealand say that Europeans are less worried about GM foods than they used to be, the EU poll found support for GM is declining across many of the member states. Opposition to GM is 3:1 in most countries and in none of the EU 27 do supporters outnumber opponents.² Overall, Europeans see no benefits in GM foods and perceive them to be unsafe, inequitable and unnatural. Even supporters, the study says, are "only marginally convinced that GM food is equitable and worry-free."

Buyers of New Zealand produce such as supermarkets and food processors have also been highly resistant to the presence of GM foods – even in trace amounts. These supermarket purchasing agents- are known as 'gatekeepers', and their influence on market response to GM produce is called the "gatekeeper effect". Top food retailers in the UK recently stated that consumer resistance to GM has not abated since it emerged in the late 1990s.³

If the market resistance is so strong, why is GM crop acreage continuing to grow?

GM acreage worldwide is restricted to a handful of countries. In 2011, 83% of all GM crops were produced in the Americas (the US, Argentina, Canada and Brazil).⁴ The number of GM crops has remained fairly static. Four crops - soy, maize, canola and cotton - account for the majority of GM cultivation worldwide. These crops have been genetically modified for resistance to herbicide (largely Roundup) or for resistance to a specific pest or a combination of the two.

Most GM crops grown on the American continent are consumed domestically, and by animals. A small portion of soy, corn and canola exports from there are used for human consumption. These are generally processed into food ingredients that have

¹ MAF, *Perceptions of MAF's Regulatory Impact on the Grain and Seed Industry*. Outside-In Review 2007/2008, p. 39.

² European Commission, *Europeans and Biotechnology in 2010. Winds of change?* Eurobarometer, European Directorate-General for Research, October 2010.

³ British Retail Consortium, House of Lords Science and Technology Select Committee Call for Evidence: Nanotechnologies and Food, March 12 2009.

⁴ James C, *Global status of Commercialized biotech/GM Crops: 2011*. Executive Summary.

until recently largely escaped labeling requirements (e.g., oils, additives and processing aids).

While in a few countries, there has been significant uptake of GM soy, canola and corn acreage (largely for animal feed and industrial uses), new GM food varieties that are destined primarily for human consumption are not making it to market. This includes Monsanto's GM herbicide-resistant wheat, which the company had planned to release in North America. However, Canadian and US growers put an end to those plans: they opposed the introduction of GM wheat after buyers in export markets made clear they would source wheat from other countries if GM varieties were introduced in North America.

Notably, GM cultivation in other countries is almost exclusively for commodity crops. Anonymous commodity production is not where the Bay's future lies. Instead we need to focus on producing premium food so that provenance - the region of origin - is integral to the market value of our products.

Are consumers concerned about GM feed?

Until now, GM animal feed has been a "sleeper issue" in Europe, largely because products from animals raised on GM animal feed do not have to be labeled as such. Now there are signs that there will be greater scrutiny of GM animal feed in European markets. Some UK and European supermarkets provide consumers with a choice, and are attempting to source non-GM animal feed. Sainsburys, Marks and Spencer (UK), Carrefour (France) and Switzerland's main supermarket chains are examples of those that have either fully eliminated products from animals reared on GM feed, or offer their customers a choice. An increasing number of European member states are working on mandatory labeling of product from animals reared on animal feed.

Why would farmers/growers want to use crops that are not wanted in the market place? Shouldn't councils simply leave the decision up to them?

GMO agricultural production has a well-demonstrated ability to cause 'spillover' effects. This is because of the difficulty and cost of keeping GM produce separate from non-GM production in the field and further down the supply chain. This means that while the decision to cultivate a GMO crop may be the choice of an individual producer, it could affect a large number of producers and undermine buyer confidence in produce from the surrounding area. That is why GMO agricultural production is a branding and positioning issue for the region.

If we chose not to proceed with outdoor GM cultivation, won't Hawkes Bay agriculture miss out on the benefits of new advances in agricultural science?

Most GM work is laboratory-confined. Laboratory-based GM is an increasingly important tool in diagnostics, conservation, medicine, plant breeding and the techniques of forensics. Only a very small portion of GMOs are designed for release into the environment: these make up only a tiny proportion of all Government biologically based research in this country.

Most of the GM products on the market no longer contain living material. This means that you aren't releasing a genetically modified organism into the environment when you use these products. For example, the great bulk of GM medicines administered do not contain living modified material. However with GM agricultural crops, self-replicating organisms are released into the environment.

Gene science is already creating new opportunities to advance plant breeding that does not require the release of a GMO. Marker-assisted breeding is an example of state-of-the-art plant breeding that uses new knowledge offered by gene sciences to make gains in traditional breeding. Scientists are able to "see" gene expression better using these approaches and to speed up selection of the desired trait through traditional plant breeding and hybridization techniques. According to dairy industry organization, DairyNZ, this allows scientists "to fast track discoveries and provide better advice to farmers through a better understanding of physiology and implementation of gene marker-assisted breeding techniques."⁵

Other countries have held back from GM crop production because of their concerns about environmental and economic impacts.

By remaining a GM Free Food producer for the time being, the Bay can preserve and enhance its market brand while maintaining the option to adopt new technologies (including GM) later.

If field trials are not allowed in the Bay won't we be stymieing research needed to develop crops that our growers might want access to in the future?

While the greatest risk lies in commercial GMO release, field trials are not without risk. A number of breaches of containment in trials in New Zealand have occurred. The most recent of these has revealed deficiencies in the regulatory regime that leave growers and the wider community exposed. A MAF-commissioned review of a breach from a Plant and Food experiment at Lincoln in 2009 found fault in the EPA process and in MAF monitoring. These prevented the possibility of mounting

⁵ Littlejohn M, Walker C & J Roche, "Genes, genomes and agricultural biotechnology – how will they add to your farm? DairyNZ Animal Science Team. *Dairynews*, Winter 2009, p. 17.

a prosecution and therefore did not secure proper accountability from the operator.

Field trials are also getting larger in size, thus increasing the risk of gene escape. For example, crown research institute Scion has been given approval for a trial that could see up to 4,000 trees planted.

If any potential benefits are foreseen in experimental GM plants [developed in the lab], these can be field trialed in other regions that are not seeking to build their brand and global reputation in the same way. Conditions in the Bay are not unique to East Coast New Zealand and there is no particular value-add or need for experimenting with these in the Bay to establish their agronomic suitability here.

Is this a “no, never”?

We don't believe that GMOs offers any thing unique to agriculture or consumers. Indeed, New Zealand has been funding GM agricultural R&D for three decades without a single variety to show for this funding effort. We also believe that GM will be surpassed by other advances in both conventional and organic agricultural sciences. However, any protections introduced at the district/regional level will only be for the life of the plan. In ten years, as a new district plan is being developed, this issue can be revisited if there is reason to review the region's GM free producer status.

Is Hawkes Bay GM Free now?

Food production in the Hawkes Bay region is currently GM Free: no GM crops have been commercially grown here and there has been no outdoor field trial research.

Some local food processors may import GM food ingredients. These GM ingredients are grown in countries such as the US. They are not live GMOs, but enter the region as processed foods such as soybean crush and corn flour, and cannot reproduce. For this reason, the use of such ingredients remains the choice of the individual processor. This is different from the cultivation of live GMOs, where the choice of an individual farmer to produce GMOs would impact on all growers in the region.

3 **What's wrong with the national regulatory regime?**

What laws govern GM releases?

The Hazardous Substances and New Organisms Act (HSNO) is the central act ruling the outdoor use of GMOs. Under this Act, all outdoor uses of GMOs are illegal unless they are approved by the special purpose regulator, the Environmental Protection Authority (EPA).

However, the Resource Management Act also provides jurisdiction for local government to introduce policy and rules to manage outdoor GMO use in their territories. It allows councils to adopt stricter standards if these are desired by the local community.

Isn't the EPA required to involve local bodies in the decision-making anyway?

The EPA does not have to inform a local body that a developer intends to release a GMO in their territory. This is at the EPA's discretion. It may notify, but is not required to.

The EPA is also not required to give special consideration to submissions made by a local body on an application to release in its territory: local bodies are just another submitter.

As a result, affected communities have no guarantee that their particular interests will be protected when GM releases are being considered by central government.

Isn't GM release a central government issue? Why not leave it to the EPA?

When considering an application for GMO release, the EPA is not required to consider all the aspects that may be important to an affected community.

At the simplest level, commencement of GM food production has the potential to tarnish the regional or district brand that growers and the wider community have invested in. The EPA is not under any obligation to consider such a regional perspective separate from the national interest.

More specifically, the current law leaves communities financially exposed if a GMO release causes harm. This is because those who release GMOs are not liable

under HSNO for any damage their activities cause if they are carried out in accordance with an EPA approval.

Even if legal action can be brought under other ill-suited general law, the EPA is not required to screen the applicant for their ability to meet claims for damages. Thus if the party releasing a GMO has inadequate financial resources to cover damage claims, the burden of cleanup tends to fall on local government.

Finally, a number of councils have adopted policies requiring a precautionary approach be taken to any release of GMOs. The EPA however is not required to take a precautionary approach in its assessments of an application.

Wouldn't it be better for local government to lobby Wellington to change the HSNO Act?

Since 2003, Local Government New Zealand and councils in Northland which form the Inter-Council Working Party on GMOs have made several appeals to the government of the day to: 1) remove communities' exposure to activities approved by a national regulator and 2) get local authorities a seat at the table on decisions around outdoor GMO activities in their regions. Two successive governments – the Labour-led and current National Governments – have made clear they would not make regulatory changes to close off these exposures to communities.

Do local authorities have a mandate to regulate GM?

The ability for local authorities to regulate outdoor GM activities has been confirmed in an opinion by Dr Royden Somerville QC, at the request of Northland Councils. That opinion establishes that there is nothing in HSNO act that precludes district councils from introducing land use controls under the RMA which are over and above regulation imposed at a national level.

National regulation “does not preclude a council from restricting or preventing the use of GMOs in their region”

Minister for the Environment, 2010

This conclusion has not been challenged by the Minister for the Environment or by central government agencies. Recently, the current Minister for the Environment confirmed that councils can regulate outdoor GM activities.⁶

As with any local level regulation, rules around GMO land uses would need to be properly designed to successfully support a section 32 analysis.

⁶ Minister for the Environment, Nick Smith. Letter to the Inter-council Working Party on GMO Risk Evaluation and Management Options. August 15 2010.

Wouldn't getting involved in GMO regulation at the local level create new liabilities for Council?

The most significant liabilities arising from outdoor GMO use are the economic risks from allowing GMO land uses to take place in the region. These could include environmental cleanup costs, the costs to local food producers/the local economy from GM contamination, and inability to obtain compensation from those causing damage and likely irreparable damage to HB brand and market premiums.

Additional liabilities that are likely to fall to councils in a do-nothing approach include unforeseen harm that arises from outdoor GMO activities that are conducted in compliance with EPA controls. No liability provisions are made for such events under the HSNO Act, and the costs would therefore tend to rest with councils, non-GM producers and the wider affected food industry.⁷ Successive governments have stated that they do not intend to change the legislation to remove this potential liability for local authorities.⁸

Biology doesn't respect territorial boundaries, so how much protection would a regional exclusion offer?

If New Zealand were to remain a GM free producer as a nation this would provide the greatest level of protection for food exporters. However, there is no national policy to enshrine the country's status as a GM Free food producer. Quite the opposite: New Zealand is technically ready for GM business and all that awaits is an application seeking commercial release. There is no assurance that developers will not look to the Bay region.

Given that, local level protection remains the next best option to protect the interests of local food producers and to build the type of brand that will position the region well. Regional GMO Free zones are well established as a credible means of protecting local economies. These have been created in Australia as well as in Europe, where a number of iconic agricultural and food producing regions having declared themselves GM free.⁹

There is always a risk of contamination – for example from seed imports. In 2006, some corn growers in the region may have inadvertently grown GM corn due to trace levels of GM varieties in seed imported from the US. However, a strong biosecurity response sent a positive signal to foreign buyers. Such isolated incidents are quite different to the routine contamination that would likely occur were GM food production to proceed in the area.

⁷ A 2003 opinion by Crown Law said that councils would be liable if they were not able to uphold rules introduced to govern GMOs. This is true of any regulation (local or national) and there are a range of options that ensure local authorities do avoid new regulatory burdens.

⁸ Most recently, the current Minister for the Environment in response to the Inter-Council Working Party on GMO Risk Evaluation and Management Options, August 5 2010.

⁹ See for example, the website for the GM Free regions in the European Union www.gmofreeeuregions.net.

4 Community management of outdoor GM activities

What options do local bodies have to control or manage GM releases?

The Resource Management Act (RMA) is the most targeted legal instrument for managing outdoor use of GM activities. Other options include introducing policies through a Long Term Council Community Plan under the Local Government Act.

The RMA provides a great deal of flexibility as to the approach councils can take in regulating the use of GMOs in their jurisdiction. Not all categories of GMO use need to be regulated with the same degree of precaution. Some could be controlled while others were not. Councils could also separately put in place a liability regime requiring those involved in outdoor GMO use to pay compensation for any harm resulting from their activities.

Doesn't it cost a lot to set up this additional regulation?

Good regulation does cost, just as the lack of it costs. A single GM contamination incident cost one Gisborne-based company \$500,000. That is far more than such regulation would cost for any one council to put in place. The incident occurred before any GM crops have even been permitted to be released in New Zealand.

The flexibility available under the RMA means councils can choose to what extent they wish to take on extra duties that have any significant ongoing cost. There are mechanisms to address GMO use that do not involve high costs and which can become part of the normal council permitting activities.

The key question is how the costs of regulation compare with the expected costs of not regulating. Only if this overall assessment is made can a fair picture be given.

As many communities share similar concerns, they can join together to share costs of developing their responses and ensure expenses are kept to manageable levels.

**Whangarei District
councillors recently voted
unanimously to regulate
GMOs under the RMA.**

**Prohibition of commercial
and conditional releases is
likely**

This includes obtaining detailed legal advice to cover councils against any legal challenges.

Importantly, local authorities in Hawke's Bay would not have to start from scratch. Over the last seven years, councils from the Northland region (Far North, Whangarei, Rodney, Kaipara, the Northland regional council, as well as Auckland councils¹⁰) have been exploring the options available to them to protect their communities from outdoor GMO activities.

On the basis of that policy work, Whangarei District councillors recently voted unanimously to proceed with regulating GMOs under the RMA. The Council has indicated that prohibition of commercial and conditional releases is likely.¹¹

This work provides a solid policy base for Hawkes Bay councils and should significantly reduce the costs of introducing new policy here.

What work has been done so far?

Policy analysis by the Northland councils has:

- Confirmed local authorities – in particular, district councils – can regulate GM land uses
- Identified the RMA as superior to the Local Government Act for managing the risks associated with GM land uses
- Examined the risks for local government from outdoor GM activities approved at the national level
- Canvassed regulatory options for managing such activities locally, under the RMA

A community consultation survey (conducted by Colmar Brunton) to canvass support for regulatory action by the councils has also been undertaken.

¹⁰ We understand the new Auckland council is yet to confirm its continued participation.

¹¹ Whangarei District Council, *Whangarei vote unanimous on way forward for GE*. News release. April 13 2011.

Analysis available

Commissioned by Whangarei District Council in conjunction with Far North District Council, Kaipara District Council, Rodney District Council and Waitakere District Council.

- *Interim Opinion on Land Use Controls and GMOs.* 2004, Dr Royden Somerville QC
- *Community Management of GMOs: Issues, Options and Partnership with Government.* 2004. Simon Terry Associates
- *Opinion on Land Use Controls and GMOs.* 2005. Legal opinion by Dr Royden Somerville QC
- *Community Management of GMOs II: Risks and Response Options.* 2005. Mitchell Partnerships and Simon Terry Associates
- *Review of GE Issues and Options Report for Whangarei District Council.* 2005. Independent review of the Mitchell Partnerships/Simon Terry Associates report by Dr Karen Cronin, Victoria University
- *Community Management of GMOs III.* 2010. Mitchell Partnerships and Simon Terry Associates

Securing Hawke's Bay status as a GM Free food producer protects local farmers and growers from clear risks and captures an opportunity:

Announcing to the world that Hawke's Bay is a GM free food producer would be a foundation stone of our reputation as a trusted source of premium, high quality food, where growers are closely aligned to the values and aspirations of our customers.