

# **'Coexistence' or the End of GM in NZ?-A Public Perspective**

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### **Abstract**

New Zealand's strategy for biotechnology must reflect community values and the potential benefits of ethical application of genetic engineering in containment. However there is a different order of risk to the environment, the economy and consumer rights associated with irreversible environmental release. Concerns relating to co-existence of GM and 'organic' production also exist in regard to conventional agriculture. There is growing evidence of problematic uncontrolled spread of GE. Some sectors of industry say it is already impossible to label products 'GE-Free' as this cannot be guaranteed. The Mexican government recently confirmed maize has been contaminated by GM constructs in regions vital for the crops diversity. The case-by-case approval of GE crops and their spread into the food chain may result in "replacement" of non-GE varieties, rather than co-existence. This would be the ultimate denial of choice as people will be unable to avoid GE food.

### **Introduction**

The Life Sciences Network (LSN) agenda for this conference sets a fundamentally flawed "all or nothing" scenario for genetic modification in New Zealand. Rather than the 'total ban' that industry suggest as a real possibility, it is the regulation of GM and the conditions under which it can be utilised that are the key issues for the future of this country. The good news for New Zealand's biotechnology companies is that ethical applications of GM technology can of course co-exist with other technologies without requiring environmental release. Indeed they already do. But now we are faced with a push from some sectors of industry to change that situation, with increasing evidence that co-existence will demand universal "acceptable levels of contamination".

This paper aims to highlight some of the public concerns and consumer perspectives which explain why the GE debate will be so important in this year's election. It also proposes a way forward for gene technology to survive in New Zealand as part of a unique national strategy for science and technology that will protect our existing economic strengths and community values.

At the crux of the issue is the difference between ethical contained applications of gene technology and full-scale environmental release. It is the view of many scientists - supported by a growing number of studies- that environmental release will result in spread of GE constructs into the food supply and the environment. This spread is generally irreversible. Given international experience, and the fact that so little is known about the complex genetic intricacy of the ecosystem, release of GE is a threat to basic rights, the environment and the economy of this country.

### **Consumer concerns**

Basic rights to choose to avoid GE have already been denied because of the many hidden GE ingredients exempted from labelling under ANZFA's rules. Monitoring of public health is impossible because no one knows who is consuming GE products. There are also the serious ethical implications of forcing people to eat products they clearly do not want.

But of even more concern is the call by some in the biotech-industry for ALL food to allow up to 1% GE contamination. How much higher this "threshold" would be pushed in the future is uncertain but in effect this proposal means consumer choice to avoid GE will be denied forever.

Importantly the impact of GE is not just on organic production but on conventional farming- the backbone of the economy. Research by AFFCO shows most farmers (over 70%), and their

customers, want agriculture to remain GE-Free. GE commercial releases will deny the right to choose as it will be impossible to fully contain GE organisms away from natural vectors for cross-contamination: wind, insects, fungi, soil microbes, and bacteria. This complex web of interaction means it is false to claim that we can "stop contamination" by using "Terminator" genes to produce barren seeds, or by stopping the production of pollen by plants.

### **'Coexistence' or 'Replacement'?**

In reality the release of GE organisms may not be an issue of "coexistence" at all, but rather one of "replacement". Jeremy Rifkin has pointed out in "The Biotech Century", that there is a biotech-vision to create a "second Genesis" - reseeding the planet with artificial GM organisms that have been patented for profit. Already monopolies on seed supplies have resulted in non-GM seed varieties being deleted from lists. This has left farmers with less choice to avoid GE. "Replacement" is the ultimate denial of choice. An example is already available in GE soya beans, initially 2% of the US crop, and now comprising the majority of US-grown soy. Step by step this has spread through the global food chain, leaving food manufacturers scrambling to purge it from their products.

### **The environment**

The 'case by case' approach to GE approvals fails to take into account that once released GE organisms will interact with each other and the existing natural system in unpredictable and uncontrollable ways. The Royal Commission imagined a "management system" that would keep GE separate from GE-Free production, but we are nowhere near having the necessary level of understanding or the systems to make that dream a reality. Indeed there is clear evidence that attempts at genetic-control to allow environmental co-existence without contamination are doomed to failure.

Failures in GM farm "stewardship" are already resulting in neighbouring farms being contaminated, loss of sales, the emergence of 'super-weeds' that are multiply-resistant to herbicides, and a rising number of law-suits against biotech companies. As the industry pushes GE seeds into poorly regulated third-world countries, (largely against the will of local people), these "mistakes" will increase. Illegal plantings of GE cotton in India and soy in South America have already been admitted. Indeed there is increasing fear that there may be an intentional strategy to contaminate systems so that "it's all too late" for global regulation and preservation of GE-free supply-lines.

The contamination of seed stocks in Europe has already been found. Virtually all canola (rape seed), corn and soy are now suspected of being contaminated by GE varieties in some countries. In the disastrous case of Starlink corn- banned for human consumption as a suspected allergen-contaminated product has already ended up on supermarket shelves and attempts to recall it are costing an estimated \$1 billion dollars.

Unfortunately - at least for corn- it may be too late. The "allergenic" gene-sequence from Starlink appears to have unexpectedly already spread into at least one non-Starlink corn variety. Moreover there is a raging argument over GE contamination of corn in Mexico's centre of bio-diversity for the crop. The argument reveals the strong PR efforts of some in industry in order to undermine scientific precaution and to "spin" scientific debate to its own benefit. Importantly, the evidence of spread of GE into Mexican corn is not being questioned as much as the 'implications' of such contamination and " what it means". Opinions that the contamination 'may not be harmful' and 'may be beneficial' conveniently ignore the fact that it has ALREADY happened - whether we like it or not. A global moratorium on new releases may be the only way to stop this sort of contamination occurring with other crops and to stop the ultimate destruction of any consumer choice. Some in industry are claiming "GE-Free" labelling is already impossible to guarantee, and that either it should not to be allowed, or will take four or more years to implement.

## **The economy**

Despite some attempts to limit the discussion the GM debate is not just a scientific or safety issue. We know from measures of "consumer confidence" and "business confidence" that other values and perspectives are vitally important in all aspects of life. The "Brand image" of Aotearoa /New Zealand as low-population, green and natural country is vital to our economy. Even an attempt at 'regional' GE-releases will inevitably destroy the benefits of marketing the country as having a GE-Free food supply and environment.

There is an already massive and growing global consumer resistance to many non-medical and uncontained uses of biotechnology. This, together with a track record of failures, helps explain investor scepticism about the over-hyped claim for the industry. There is a need to protect New Zealand's economic strengths as a food-exporter and tourist destination, and to respect our unique identity and cultural values. Efforts must focus on developing science and technology that strategically suits Aotearoa/ New Zealand rather than undermining our position as GE release will do.

The best hope for GE and non-GE to "coexist" is for industry to produce ethical GM products and applications in containment. This will avoid GE products requiring environmental release being forced on unwilling consumers - here and in our export markets- and avoid the risks of disruption to the natural environment by live GM-organisms.

## **The food-medicine interface**

The production of foods with medical effects is one of the promises that the biotech industry has made for GE. However, these products are by definition 'medicines' and they need to be regulated as such. So far no GE foods have been properly clinically tested. In this version of the future problems with seed contamination and failure in farm-management may be nothing compared to the nightmare of nutraceuticals like 'bananas with vaccines' becoming accidentally confused with 'ordinary food'.

The engineering of plants normally used for food to produce industrial chemical also offers a grim prospect of cross-contamination and accidents. Imagine GE corn designed to produce a spermicide or an industrial chemical, accidentally ending up in the wrong place.

For New Zealand there is also a fundamental change to the national identity implied by the push to use genetically engineered plants and food-animals to mass-produce chemicals. Instead of becoming a source of GE-free seed for the world's farmers and a supplier of GE-free food for consumers- this country could be led into using our animals and fields to manufacture bio-chemicals. We will lose our reputation as a clean-and natural food exporter and become a biotech experimentation ground. This may be a version of the "knowledge economy", but is not a vision people are likely to accept.

## **Liability**

Those sectors of the biotechnology industry promoting the rapid introduction of new GE products must be legally liable for negative effects of their products. It is unreasonable to force the public to carry "socialised" risk to subsidise private profits, as we do now. However, public subsidy is clearly an appealing arrangement for industry. The Crown Law Office report on liability due in May 2002 will set the scene for this aspect of the debate in the lead up to the election.

## **Conclusions**

Solutions to many of the issues surrounding co-existence of GE organisms and non-GE can only be found if industry agree to contain the technology and work with the wider community to apply it

ethically. New Zealanders refuse to sacrifice our environment or our right to choose what we eat for the sake of trade deals, international business alliances or corporate interests. It is morally unacceptable to allow genetic contamination of the global food supply or to demand acceptance of up to 1% contamination in all food.

Industry's refusal to keep GE applications safely contained has involved rejection of legitimate scientific warnings, resistance to government regulation, refusal of independent peer-review because of 'commercial secrecy', and unethical business practices. This has seriously undermined public confidence around the world. Only by addressing these failings can the biotech-industry ensure that it does not itself bring about the "end of GM" in New Zealand, but ensures its survival.

**Jon Carapiet**

### **Resources**

The LSN promotional material for this conference asks "What are hard-pressed journalists to make of these vital issues?" The sites below are suggested as resources as an alternative to the biotech industry perspective.  
[www.ngin.org.uk](http://www.ngin.org.uk)   [www.i-sis.org.uk](http://www.i-sis.org.uk)   [www.gefree.org.nz](http://www.gefree.org.nz)   [www.psrg.org.nz](http://www.psrg.org.nz)   [www.biointegrity.org](http://www.biointegrity.org)